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The main aim of the journal is to support the research and publishing culture by ensuring that every published manuscript has an added value and thus providing international acceptance of the "readability" of the manuscripts published in the journal.

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Dear Colleagues, Dear Friends,

For humanity, it seems we are over the hard times of the pandemic. In the past two years we increased our knowledge of the pandemic greately and coping much better now. But we need to keep in mind that the danger is still there and we need to be aware.

Last year we were lucky to organize our annual congress in Gaziantep face to face, surely taking necessary precautions helped and we were not affected by the COVID-19 pandemic.

We hope that October of 2022 will be much more convenient than last year in terms of the pandemic. So, we are going ahead with our decision to organize our congress face to face.

Our congress dates have been arranged to include the Republic Day and the congress will be organized as an international congress. The congress will take place in Ilıca Congress Center, Çeşme, İzmir between 26-30 October 2022.

We cordially invite you to join us for the International Biochemistry Congress // 33rd National Biochemistry Congress to share the rich scientific programme, get together in this marvelous district of our beloved İzmir and celebrating the 99th anniversary of The Republic of Turkey.

Best regards,

Dr. Doğan Yücel
President, Turkish Biochemical Society

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Doğan Yücel
Turkish Biochemical Society President Lokman Hekim University, Türkiye

17:15-17:25 EFLM Executive Committee
Klaus Kohse
Carl von Ossietzky University, Germany

17:25-17:35 FEBS Executive Board
Jerka Dumic
University of Zagreb, Croatia FEBS Integration Working Group Chair

17:35-18:45 Opening Lecture - FEBS National Lecture

Chair: Z. Günnur Dikmen
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Xavier Coumoul
Université Paris, France
Metabolomics: Current and Future Clinical Applications
Elie Fux
IFCC Metabolomics Working Group Chair, Germany

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SCIENTIFIC PROGRAM

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Bilgen Özdemir
Konya Meram State Hospital, Türkiye
Complete Blood Count Analytical Errors
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SCIENTIFIC PROGRAM

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University of Zagreb, Croatia FEBS Integration Working Group Chair

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SCIENTIFIC PROGRAM

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İzmir Bakırçay University, Türkiye

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Panelist : Cihan COŞKUN
Panelists : Hülya Kılıç YILMAZ, Serkan Bolat
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SCIENTIFIC PROGRAM

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SCIENTIFIC PROGRAM

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SCIENTIFIC PROGRAM

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Gazi University, Türkiye
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Canan Yılmaz
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University of Health Science, Türkiye
Automatic Blood Analysers from A to Z and their Future in Clinical Labs
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ORAL PRESENTATION PROGRAM

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Hacer Doğan, Medine Alpdemir, Kezban Çavdar Yetkin, Ömer Faruk Çakmak, Mehmet Şeneş

S030
INCREASED SERUM LEVELS OF NON-ESTERIFIED FATTY ACIDS IN ADRENAL ADENOMA
Hale Aral, Levent Deniz, Zahide Adıyaman, Savaş Karataş

S031
Comparison Of Hemoglobin Glycation Index In Newly Diagnosed Diabetes, Prediabetes And Healthy Groups
ESRA YİĞİTER ŞAHİN, MEDİNE ALPDEMİR, MEHMET ŞENES

S032
Analysis Of Inreleukin-17, Interleukin-23, Neopterin And Nesfatin-1 Levels In The Sera Of Hashimoto Patients
Nihayet Bayraktar, Mehmet Ali Eren, Mustafa Bayraktar, Ali Öztürk, Hamza Erdoğdu

S033
RELATIONSHIPS OF OREXIGENIC AND ANOREXIGENIC HORMONES WITH BODY FAT DISTRIBUTION IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA SYNDROME
Rabia Şemsi, Burak Hazır, Nirgül Birger, Arzu Or Koca, Asiye Uğraş Dikmen, Ayşe İriz, Aylin Sepici Dinçel, İlhan Yetkin

S034
GENETIC VARIATION ANALYSIS OF OBESITY-ASSOCIATED APOLIPOPROTEIN
Mustafa Kerem Ozyavuz, Murat Diramali, Ramazan Cakmak, Umit Zeybek

S036
MOLECULAR INVESTIGATION OF PSEUDOMONAS AERUGINOSA IN THE PRESENCE Of 4-HYDROXYBENZOIC ACID
Nil Hazal EKENEL, Özgün Öykü ÖZDEMİR, Ferda SOYER

S037
CIRCULATING RECEPTOR FOR ADVANCED GLYCATION END PRODUCTS (SRAGE) LEVELS AND RAGE GENE POLY-MORPHISMS IN PATIENTS WITH ENDOMETRIAL CANCER
Sinem Durmuş, Burak Önal, Veysel Şal, Hafize Uzun, Tevfik Tugan Beşe, Fuat Demirkıran, Remise Gelişgen

16:15-17:30 - Session 3 - Hall B - Chair: Serpil Erşan

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S039
EVALUATION OF LIPEMIA INTERFERENCE WITH NATURAL ULTRALIPEMIC MATERIAL AND INTRAVENOUS LIPID EMULSION FOR THE ERYTHROCYTE SEDIMENTATION RATE TEST
Elmas ÖĞÜŞ, Medine ALPDEMİR, Gül KIRTIL, Emel ÇOLAK SAMSUM, Mehmet ŞENEŞ

S040
DETERMINATION OF HEMOLYSIS INDEX THRESHOLD VALUES AND INTEGRATION INTO LABORATORY INFORMATION SYSTEMS
Kübra Nur Köyüstü , Oğuzhan Zengi , Beyazıt Semih Yeşil

S041
EVALUATION OF HEMOGLOBIN, BILIRUBIN, AND LIPID INTERFERENCE IN ANTI-HLA ANTIBODY DETECTION USING LUMINEX TECHNOLOGY
Rasime Derya Güleç, Fatma Demet Arslan

S042
EVALUATION OF THE REASON OF NON-DECREASE HIGH SENSITIVE TROPONIN I VALUE AFTER MEDICAL TREATMENT WITH A CASE REPORT
Sevim Kahraman Yaman, Hüseyin Yaman

S044
INVESTIGATION OF THE EFFECTS OF WJ460 MOLECULE AND ITS POTENTIAL SYNERGISTIC INTERACTIONS WITH GEMCITABINE IN AN IN-VITRO MODEL OF PANCREATIC CANCER
Ceren Karslıoğlu, Sevcan Atay

S045
THE EFFECT OF 8-OXOGUANINE DNA GLYCOSYLASE 1 EXPRESSION AND PROMOTER METHYLATION ON SURVIVAL RATE IN PATIENTS WITH PANCREATIC CANCER
Çağlayan Akkaya Engin, Metehan Karataş, Zeynep Çalışkan, Enver Yarıkkaya, Yalçın Hacıoğlu, Matem Tunçdemir, Yıldız Dinçer

S046
THE EFFECT OF DRACAENA CINNABARI RESIN ON PROLIFERATION AND APOPTOSIS IN HUMAN LUNG CANCER CELL LINE (A549)
Eissa ALMAGHREBİ, Hakan VATANSEV, Fadime OVALI, Fatma AKAT, Hüsamettin VATANSEV

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S047
PEPTIDE PURITY ASSIGNMENT FOR CANDIDATE CERTIFIED REFERENCE MATERIAL MEASUREMENT
Meltem Asicioglu, Nevin Gul Karaguler, Merve Oztug

S048
Comparison Of Electrolyte Values Measured By Direct And İndirect ISE Method
Ismet Gamze Kutluay, Mehmet Akif Bozdayı, Mehmet Tarakçıoğlu

S049
EXAMİNATION OF THE RELATIONSHIP BETWEEN FECAL CALPROTECTIN AND FECAL OCCULT BLOOD
Kübranur Ünal, Leyla Ibrahımkhanli

S050
DISTRIBUTION OF ALLERGY PANELS BY MONTH AND TEST REQUEST EFFECTIVENESS IN ANTALYA
Nihan Cansel Sarkaya, Muhammed Ali Aydın, Ayşegül Uğur Kurtoğlu

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S052
FREQUENCY OF ABERRAN CD7 ANTIGEN EXPRESSION IN PATIENTS WITH ACUTE MYELOİD LEUKEMİA
BÜŞRA ÜRESİN YAZLAK, REYHAN IŞIK, İBRAHİM TÜRK, MERVE İNCE, BERRİN BERÇİK İNAL, ŞERMİN ALTINDAL

S053
THE EFFECT OF ASPERGLAUCIDE ON ENDOTHELIUM FUNCTION IN HYPERTENSIVE RATS
Çağatay YILMAZ, Filiz Basralı, Pınar Ülker, Tuğçe Çeker, Nur Özen, Özlem Elpek, Mutay Aslan

S054
INCREASED ENOS LEVELS IN HUMAN ENDOTHELIAL CELLS BY ASPERGLAUCIDE
Tuğçe Çeker, Çağatay Yılmaz, Mutay Aslan

17:30-18:30 - Session 4 - Hall B - Chairs: Hale Aral, Fatih Alpdemir

S004
INVESTIGATION OF THE EFFECT OF CA-IX ENZYME INHIBITION ON THE EZH2 GENE AND HISTONE 3 MODIFICATIONS
İBRAHİM KARAKUŞ, BEYZA ECEM ÖZ BEDİR, EMİNE TERZİ, ÖZEN ÖZENSOY GÜLER

S067
INVESTIGATION OF OXIDATIVE STRESS PARAMETERS IN THE PATHOPHYSIOLOGY OF OCULAR ROSACEA
Nilüfer Yeşilırmak, Neslihan Bukan

S056
THE RELATIONSHIP BETWEEN NUTRITIONAL CHOLINE INTAKE SERUM CHOLINE AND PAIN SCORES IN PATIENTS WITH FIBROMYALGIA SYNDROME
Elif Barış, İzel Üstünkol, Elif Akalın, Emre Hamurtekin, Seray Kabaran, Ayşe Gelal, Reyhan Uçku, Mualla Aylin Arıcı

S057
EVALUATION OF MITOCHONDRIA OUTER MEMBRANE FIBER PROTEIN-1 AND 4 LEVELS IN OLIGOZOOSPERMIC AND NORMOZOOSPERMIC MALES
Ümmügülsüm ÖLMEZ, Esma MENEVŞE, Duygu DURSUNOĞLU, Fatma Zehra ERBAYRAM, Nedime Emine KORUCU, Abdullah SİVRİKAYA

S058
Atypical Patterns Of Serum Protein Electrophoresis: Importance Of The Reflective Test IFE
Gül Kırtıl, Medine Alpdemir, Mehmet Şeneş

S059
ANALYSIS AND STABILITY OF BIOCHEMICAL PARAMETERS IN FAST SERUM TUBES
Merve Zeytinli Akşit, Fatma Demet Arslan, Zafer Çil

S060
INVESTIGATION OF THE POSSIBLE ROLE OF BRAIN NATRIURETIC PEPTIDE GENE POLYMORPHISM IN SARCOIDOSIS
Rojda TANRIVERDİ , Şenay BALCİ FİDANCI , Didem DERİCİ YILDIRIM , Müslüm Faruk BASKAN , Zeynep Nil ÜNAL , Ecem Naz ERTÜRK , Bahar ULUBAŞ , Lülüfer TAMER

S061
Investigation Of Beclin-1 And Hypoxia-Induced Factor-1 Levels In Patients With Obstructive Sleep Apnea Syndrome
Eda Demir, Serdar Doğan, Nursel Dikmen, Hamdi Oğuzman

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S062
INVESTIGATION Of Xmn1 (Rs7482144), BCL11A (Rs11886868) And HMIP (Rs9399137) SINGLE NUCLEOTIDE POLYMORPHYS AFFECTING GAMMA GLOBIN
Yasemin Özküçük, Ebru Dündar Yenilmez, Abdullah Tuli

S063
Evaluatıon of He-4 and Calprotectın Wıth Mirna-9 and Mirna-186 Levels In Endometrıum Cancer Cases
Volkan Savaş, Ahmet Kahraman, Dağıstan Tolga Arıöz, Çiğdem Özdemir, Sefa Çelik

S064
EFFECTS OF ACRYLAMIDE AND GLYCIDAMIDE ON PALMITATE-INDUCED LIPOTOXICITY
Eray ÖZGÜN, Gülben SAYILAN ÖZGÜN, Tuğçe KARABAŞ, Mervenur BARAKLI KOCABAŞ, Tzansel KARA KECHAGIA, Selma SÜER GÖKMEN

S065
EFFECT OF CAFFEINE ON PROTEIN OXIDATION AND ENDOPLASMIC RETICULUM STRESS IN ACRYLAMIDE-TREATED HUMAN-DERIVED HEPATOMA CELLS
Tuğçe Karabaş, Gülben Sayılan Özgün

S066
Effects Of Boron And Royal Jelly On Oxidative Stress And Antioxidant Status In Wistar Albino Rats
Selcen ÇAKIR

S055
A Novel HSP47 Biosensor: Fibroblast Cell Characterization System
Duygu Harmancı, Zihni Onur Uygun, Ayşe Koçak, Cenk Demirdöver, Ferhan Sağın, Gül Akdoğan

S068
IN VITRO EFFECTS OF NEUROMELANIN ON DOPAMINERGIC CELLS
Gizem KAFTAN, Güliz ARMAGAN

S069
Effect Of Intermittent Fasting Diet Model On Neuroinflammation And Thiol-Disulfide Homeostasis
Mehmet Akif Bozdayı, Aydın Talip Yıldoğan, Hasan Ulusal, Mustafa Örkmez, Şengül Şahin, Celal Yaşamalı, Mehmet Tarakçıoğlu

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October 28th, Friday

08:30-10:00 - Oturum 5 - Hall B - Chair: Seydi Ali Peker

S070
CALCULATION OF MEASUREMENT UNCERTAINTY FOR HOMA-IR, A CALCULATED PARAMETER
Elif Nihal Başer, Semih Fazlı Kayahan, Esra Nur Yiğiter Şahin, Mehmet Şeneş

S071
EVALUATION OF BIOLOGICAL VARIATION OF SALIVARY CORTISOL
Fatih SERİN, Medine BİTİGİÇ ALPDEMİR, Gizem YILMAZ ÇALIK, Semih Fazlı KAYAHAN, Mehmet ŞENEŞ

S072
SİX SİGMA EVALUATİON IN THE LİGHT OF QUALİTY STANDARDS
Gülsüm Feyza Türkeş

S073
EVALUATION OF THE ANALYTICAL PERFORMANCE OF COMPLETE BLOOD COUNT PARAMETERS ACCORDING TO THE VARIOUS ALLOWABLE TOTAL ERROR LIMITS
Havva Yasemin Çinpolat, Dilek Ülker Çakır

S074
ASSESSMENT OF THE UNCERTAINTY OF RECOVERY IN CLINICAL BIOCHEMISTRY
İbrahim Türk, Reyhan Işık, Hilmi Furkan Arslan, Berrin Berçik İnal

S075
COMPARISON OF ANALYSIS RESULTS ON SNIBE MAGLUMI 4000 AND SIEMENS ADVIA CENTAUR XP DEVICES
Meltem YARDIM, Nilüfer ÇELİK

S076
ESTIMATION OF MEASUREMENT UNCERTAINTY IN HBA1C TEST AND INTERPRETATION OF RESULTS
MERVE İNCE, MERVE ŞENYÜZLÜ SAY, İBRAHİM TÜRK, MEVLÜDE AYYILDIZ YENİGÜN

S077
Production Of C-Reactive Protein Certified Reference Material
Merve Oztug

S078
COMPARISON OF HBA1C MEASUREMENT WITH THREE DIFFERENT METHODS: LATEX-ENHANCED TURBIDIMETRIC IMMUNOASSAY, TURBIDIMETRIC INHIBITION IMMUNOASSAY AND HPLC
NESLİHAN CİHAN ÇALIŞGAN, MEHMET AKİF BİLDİRİCİ, SEDAT GÜLTEN

S079
EVALUATION OF MEASUREMENT UNCERTAINTY IN BLOOD ETHANOL RESULTS
Giray Bozkaya, Öznur Asil, Kaan Kuzu

S080
TYPING OF ACUTE LEUKEMIA BY FLOW CYTOMETRIC METHOD AND EVALUATION OF COMPATIBILITY WITH PATHOLOGY
Reyhan Işık, Merve İnce, İbrahim Türk, Büşra Üresin, Şermin Altındal, Berrin BERÇİK İNAL

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08:30-10:00 - Session 5 - Hall C - Chair: Fatih Kar, Kübranur Ünal

S081
MEASUREMENT UNCERTAINTY OF THYROID FUNCTION TESTS
Serdar Küçükokudan, Burcu Barutçuoğlu, Güneş Ak, Zuhal Parıldar

S082
INVESTIGATION OF THE RELATIONSHIP OF BRAIN AREAS RELATED TO THE SENSE OF ODOR AND TASTE IN NEURODEGENERATIVE DISEASES AND BIOCHEMICAL PARAMETERS
Berna KUŞ, Emine PETEKKAYA, Abdullah ARPACI

S083
INVESTIGATION OF RDW VALUES OF PATIENTS WITH MICROCYTIC HYPOCHROMIC ANEMIA IN TERMS OF ALPHA AND BETA THALASSEMIA AND IRON DEFICIENCY
Ümmühan Fulden Aydın, Abdullah Tuli

S084
SERUM PHOENIXIN-14 AND PHOENIXIN-20 LEVELS IN WOMEN WITH POLYCYSTIC OVARY SYNDROME
Sadinaz Akdu, Ümmügülsüm Can, Osman İnce

S085
CHANGES IN VITAMIN D LEVELS IN KNEE OSTEOARTHRITIS PATIENTS ACCORDING TO SEASON
Seçkin Özgür Tekeli, Dilek Yapar, Feyza Yağmur Tekeli, Mehmet Melih Asoğlu, Emre Kartal, Özkan Köse

S086
INVESTIGATION OF THE RELATIONSHIP BETWEEN COMPLETE BLOOD COUNT PARAMETERS WITH GLUCOSE AND HBA1C IN PREDIABETIC AND DIABETIC PATIENTS
Durmuş Ayan, Seyyid Mehmet Bulut, Sibel Söylemez, Kader Zeybek Aydoğan, Serpil Erşan

S088
Dysregulated Leukotrıene Metabolısm In Covıd-19 Patıents
Halef Okan Doğan, Mahir Budak, Kübra Doğan, Serkan Bolat, Onur Şenol, Seyit Ali Büyüktuna, Ergun Pınarbaşı, Rağıp Sarıismailoğlu, Gözde Ertürk Zararsız, Serra İlayda Yerlitaş

S089
THE IMPORTANCE OF FERRITIN IN THE PREDICTION OF MORTALITY IN COVID-19 PATIENTS IN THE INTENSIVE CARE UNIT
Muhammed Emin DÜZ, Elif MENEKŞE

S090
CORRELATION OF NORMALIZED VIRAL NUCLEIC ACID AMOUNTS WITH LABORATORY TESTS: PRACTICAL USE OF SARS-COV-2 RT-PCR CYCLE THRESHOLD (CT) VALUES
Ugur Demirpek, Talha Karabıyık, Süheyl Uçucu

S091
INFLAMMATORY PARAMETERS IN HASHIMOTO TIROIDITIS
Gülsen Şener, Kübra Karaman

S121
EVALUATION OF SERUM ZONULIN AND OCCLUDIN LEVELS IN BIPOLAR DISORDER
Sertaç Zengil, Esra Laloğlu

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11:45-13:00 - Session 6 - Hall B - Chair: Fatma Hümeyra Yerlikaya

S092
THE ROLE OF MiRNAs IN THE DIAGNOSIS OF OSTEOPOROSIS
Çağrı Eroğlan, Şenay Balcı, Ünzüle Hanbaba, Didem Derici Yıldırım, Özlem Bölgen Çimen, Lülüfer Tamer, M. Burak Y. Çİmen

S093
NEPHROGENIC AND NEUROPROTECTIVE EFFECT OF POTENT PROBIOTICS ON RAT NEUROINFLAMMATION MODEL AND NCM460 CELL INJURY: GUT-BRAIN-MICROBIOTA AXIS
Fatih Kar, Ceyhan Hacıoğlu, Ezgi Kar, Fatma Emel Koçak, Güngör Kanbak

S094
The Relationship Of Treatment Of Chronic Mechanical Low Back Pain With Pro-Inflammatory And Anti-Inflammatory Biomarkers
İdil Tekin, Funda Kosova

S095
COMPARISON OF SERUM TRIMETHYLAMINE-N-OXIDE LEVELS IN PREGNANT AND NON-PREGNANT WOMEN: A PRELIMINARY STUDY
Sara Çıbık, Esranur Turgut, Sevcan Sarıkaya, Oğuzhan Tok, Hakan Vatansev, Fikret Akyürek, Hüsamettin Vatansev, Tuğba Kundakcı

S096
COULD SYSTEMIC IMMUNE INFLAMMATION INDEX BE A MARKER IN COVID-19 INFECTION DURING PREGNANCY?
Hifa Gülru Çağlar, Nazlı Helvacı, Esra Paydaş Hataysal, Keziban Doğan, Alev Kural

S097
TRANSCRIPTOMIC ANALYSIS OF TURKISH PATIENTS WITH SARS-COV-2 INFECTION
Sadrettin Pençe, Sibel Kuraş, Burcu Çaykara, Halime Hanım Pençe, Şaban Tekin, Birsen Cevher Keskin, Ali Tevfik Uncu, Ayşe Özgür Uncu, Erman Öztürk

S098
Study Of The Calcemia In The Severe Forms Of Covid-19.
Abderrazak Saddari, Mouad Harandou, Wissam Azizi , Oumayma Hamdani , Jalal Abderrahmani , Salwa Dahmani , Abir Yahyaoui , Yousra Sbibih, Hajar Zrouri , El-Houcine Sebbar, Mohammed Choukri

S099
MALDI IMAGING MASS SPECTROMETRY METHOD OPTIMIZATION OF BREAST CANCER TISSUES EVALUATED IN DIFFERENT RISK GROUPS ACCORDING TO THE PAM50 TEST RESULTS
Büşra Ergün, Cavit Kerem Kayhan, Fatma Tokat, Halil Kara, Taner Korkmaz, Cihan Uras, Ümit İnce, Yasemin Uçal, Aysel Özpınar

11:45-13:00 - Session 6 - Hall C - Chairs: Hafize Uzun, Feyza Yağmur Tekeli

S100
EFFECTS OF VANADIUM ON OXIDATIVE STRESS AND TISSUE FACTOR ACTIVITY IN ZEBRAFISH EMBRYOS
Diclehan Yıldırım , Ünsal Veli Üstündağ , Nesrin Emekli

S101
THE RENOPROTECTIVE EFFECTS OF TAURINE AGAINST DIABETIC NEPHROPATHY VIA P38 MAPK And TGF β/SMAD2/3 SIGNALING PATHWAYS
Cemre Ural, Aslı Çelik, Seda Özbal, Ensari Güneli, Şevki Arslan, Bekir Ergür, Caner Çavdar, Gül Akdoğan, Zahide Çavdar

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S102
THE CONTRIBUTION OF THE LABORATORY TO THE DIAGNOSTIC PROCESS THROUGH REFLECTIVE TESTS: CASE REPORT
Şeyda Özdemir, Fatma Uçar

S103
INFLAMMATORY SIGNAL TRANSDUCTION PATHWAYS INDUCED BY PRILOCAINE TOXICITY İN HUMAN RETİNAL PİGMENT EPİTHELİAL CELLS
Aleyna Öztüzün, Tuğçe ÇEKER, Çağatay YILMAZ, Mutay ASLAN

S104
REASONS AND DISTRIBUTION OF URINE TOXICOLOGY SCREENING TESTS IN ANTALYA
Muhammed Ali Aydın, Nihan Cansel Sarkaya, Güzin Aykal

S106
SERUM CINGULIN LEVELS IN AUTISM SPECTRUM DISORDER IN CHILDREN
Abdulbaki Artık, Soycan Mızrak

S107
MACHINE LEARNING MODELS FOR GLOMERULAR FILTRATION RATE PREDICTION: CAN WE REACH THE PERFORMANCE OF THE 2021 CKD-EPI COMBINED FORMULA USING CREATININE?
Süheyl Uçucu, Talha Karabıyık, Uğur Demirpek

15:00-16:15 - Session 7 - Hall B - Chair: Öykü Geyik

S109
INCREASED KYNURENINE/TRYPTOPHAN RATIO IN THE PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS
Duygu Eryavuz Onmaz, Dilek Tezcan, Sema Yılmaz, Mustafa Onmaz, Ali Ünlü

S110
A New Marker In The Diagnosis Of Acute Cholecystitis; Immature Granulocyte
Selda Telo, Fatma Tedik, Ebru Yenihal

S111
ALTERED ARGININE METABOLISM IN PATIENTS WITH GOUT
Duygu Eryavuz Onmaz, Dilek Tezcan, Sedat Abuşoğlu, Sema Yılmaz, Menekşe Kuzu, Gülsüm Abuşoğlu, Fatma Hümeyra Yerlikaya Aydemir, Ali Ünlü

S112
REDUCED SERUM ARGININE/ ASYMMETRIC DIMETHYLARGININE RATIO IN PATIENTS WITH RHEUMATOİD ARTHRİTİS
Duygu Eryavuz Onmaz, Rabia Çoban, Dilek Tezcan, Sema Yılmaz, Mustafa Onmaz, Sedat Abuşoğlu, Ali Ünlü

S113
Evaluation Of Trimethylamine N-Oxide (TMAO) Levels In Patients With Psoriasis Vulgaris
Saadet İBİŞ, Oğulcan İBİŞ

S114
EVALUATION OF NESFATIN-1, CORTISOL AND INSULIN RESISTANCE PARAMETERS IN COVID-19 INFECTION
Yasemin Atıcı, Nida Aslan Karakelle, Fatih Bakır

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S115
COULD THE SYSTEMIC IMMUNE-INFLAMMATION INDEX BE A NEW BIOMARKER OF INFLAMMATION İN CHILDREN WITH ASTHMA?
Yusuf ELGÖRMÜŞ, Ömer OKUYAN

15:00-16:15 - Session 7 - Hall C - Chairs: Gülsüm Feyza Türkeş, Gülhan Şahin

S116
COMPARISON OF DIFFERENT D-DIMER CUT OFF VALUES IN THE DIAGNOSİS OF PULMONARY EMBOLISM IN THE EMERGENCY DEPARTMENT
ŞÜKRAN BIÇAKCI, MEDİNE ALPDEMİR, MEHMET ŞENEŞ

S183
EVALUATION OF LABORATORY COST MANAGEMENT IN THE COVID-19 PANDEMIC
Gamze AVCIOĞLU

S120
Frequency of Drug Abuse İn People Over 60 Years of Age
Saliha Aksun, Nusret Uysal, İsmail Yılmaz, Barış Karadaş, İrem Altınay, Murat Aksun

S122
APPROACH TO INFECTIONS BY ALGORITHM OF BIOCHEMISTRY TESTS
İbrahim Kılınç

S008
INVESTIGATION OF TMAO LEVELS IN EXPERIMENTAL ACUTE LUNG DAMAGE CAUSED BY BLUNT THORACIC TRAUMA IN RABBITS
Fatma Şengül, Beyza Solmaz, Ayşegül Bayır, Hasan Kara, Bahadır Öztürk, Fikret Akyürek

S118
Analyzing Serum Triptophan Metabolites In Patients With Gestational Diabetes
Muammer Özdemir, Sedat Abuşoğlu, Süleyman Baldane, Cem Onur Kıraç, Ali Ünlü, Duygu Eryavuz, Murat Çelik, Gülsüm Abuşoğlu

S051
AN INNOVATIVE APPLICATION FOR REDUCING THE AMOUNT OF HISTAMIN IN FOOD: ENRICHMENT WITH DIAMINE OXIDASE
Burak Durmaz, Erhan Canbay, Şura Öztürk Baykan, Hatice Kalkan Yıldırım, Eser Yıldırım Sözmen

S148
THE RELATIONSHIP OF CD38/138 POSITIVE PERCENTAGE WITH KAPPA AND LAMBDA PERCENTAGES IN MULTIPLE MYELOM CASES
İhsan Dönmez, M. Burak Y. Çimen, Lülüfer Tamer

17:30-19:00 - Session 8 - Hall B - Chairs: Meral Yüksel, Niyazi Samet Yılmaz

S125
DETERMINATION OF SHORT CHAIN FATTY ACIDS, THE FERMENTATION PRODUCT OF MICROBIOTA, BY GAS CHROMATOGRAPHY
Fatma Humeyra Yerlikaya, Duygu Eryavuz Onmaz, Mustafa Topkafa, Abdullah Sivrikaya

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S126
İnterferans,HBA1C,Anormal Hemoglobin Varyant
Feyza Tekeli, Serkan Özben, Barış Paksoy, Seçkin Özgür Tekeli

S127
DEVELOPMENT OF A LC-MS/MS METHOD FOR DETERMINATION OF RAMIPRIL
Gülsüm Abuşoğlu, Fatma Humeyra Yerlikaya Yerlikaya Aydemir, Duygu Eryavuz Onmaz, Abdullah Sivrikaya

S128
DEVELOPMENT OF A MOLECULAR IMPRINTING BASED SENSOR SYSTEM FOR THE DETERMINATION OF TAU PROTEIN
Hilmiye Deniz Ertuğrul Uygun

S129
Generation Of Genetically Modified Mice For Modelling Rare Genetic Disease
Kasım Diril

S130
DEVELOPMENT OF GEL-BASED ELECTROCHEMICAL IMMUNOSENSORS FOR CASPASE-3 ANALYSIS
Kezban Kartlaşmış, Nurten Dikmen

S131
Acidic And Basic Fibroblast Growth Factor Secondary Structure Analysis With Curve-Fitting And Model-Based Inspection Of The FTIR Spectral Data
Filiz Korkmaz, Ayça Doğan, Yekbun Adıgüzel

S132
EVALUATION OF THE RELATIONSHIP BETWEEN PLATELET/HEMOGLOBIN RATIO IN VITAMIN B12 DEFICIENCY
Almila ŞENAT

S133
RELATIONSHIP OF B12 DEFICIENCY AND THE HEMATOLOGICAL PARAMETERS WITH TRACE ELEMENTS
Esra Güler Aksoy Narinoğlu, Nurten Bahtiyar, Fatıma Betül Nogay, Yusuf Algül, Cenan Demir, Cengiz Karacaer, Buket Küçük Ataman, Leyla Sevinç, Birsen Aydemir, Mehmet Ramazan Şekeroğlu, Taha Sencer Narinoğlu, Fatma Behice Cinemre

S134
INVESTIGATION OF VITAMIN D 25(OH)D LEVELS IN MERSIN REGION
İrem Köse, Rojda Tanrıverdi, Şenay Balcı Fidancı, Mehmet Burak Çimen , Lülüfer Tamer

17:30-19:00 - Session 8 - Hall C - Chairs: Funda Kosova, Soycan Mızrak

S135
Using Median And Indirect Reference Range Determination Methods Together To Improve Internal Quality Control Assessment
Hamdi Oğuzman, Serdar Doğan

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BREAST CANCER: AN ENVIRONMENT STORY AND/OR A MICRO-ENVIRONMENT STORY?

Xavier Coumoul
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The pollution of our environment is associated with the increase of numerous pathologies among which metabolic diseases (e.g., obesity and obesogens), cancer and neurological diseases. Among the chemical pollutants, some are persistent and can exert their toxicity over the long term by their storage in the adipose tissue. This tissue is present at different levels in the body and is part of the tumor microenvironment. Some adipocytes are thus in contact with tumor cells and can influence their behavior. We conducted a clinical study to identify which pollutants stored in the adipose tissue, could enhance the phenotype of breast tumor cells. In parallel, we have developed a co-culture model to study the interactions between adipocytes and tumor cells (+/- in the presence of certain pollutants). We were thus able to correlate clinical and experimental data and to identify certain risk factors for the development of metastases. This work is part of a perspective aiming at changing the regulation of chemicals for which carcinogenesis is insufficiently evaluated.

IS002
GREEN LABS TO IMPROVE ENVIRONMENTAL SUSTAINABILITY. WHAT ARE THE PRIORITIES FOR CLINICAL LABORATORIES TO SWITCH TO GREEN LABS?

Tomris Özben
European Federation of Clinical Chemistry and Laboratory Medicine (EFLM), President
EFLM Task Force-Green Labs, Chair

Laboratory medicine should contribute to a sustainable healthcare system ensuring that resources are used efficiently from ecological, social, and economical perspectives, while providing high-quality services to patients and physicians. It will be a challenge for clinical laboratories to achieve sustainable operations. Clinical laboratories use more energy and water than offices and generate huge amounts of hazardous and non-hazardous wastes every year. Clinical laboratories can limit their environmental impact and provide sustainable laboratory services making reductions in four key areas—energy consumption, water consumption, waste production, and use of hazardous chemicals. Establishing sustainable development goals and applying multiple means for reductions in these key areas, clinical laboratories can reduce their environmental impact. By being mindful of the environmental impact of everyday actions in a lab, and by taking steps to minimize energy, water, and hazardous chemical use, as well as waste generation, a clinical lab can be transformed into a safe, sustainable space. Sustainability measures should be a key feature in the rapidly changing healthcare environment to reduce their negative impacts on the environment and economy. Laboratory medicine community should lead the shift to carbon neutrality by decreasing their deleterious environmental impact and implementing efficient approaches to address the effects of climate change and pollution without compromising the quality of healthcare. In order to provide high-quality, effective, and safe healthcare services, sustainable healthcare systems need to overcome major economic and social challenges. Though there will be initial capital costs, there is a long-term cost-saving potential of a more efficient use of energy and other resources in healthcare systems. Despite this, there is a long way to go for environment-friendly hospitals, healthcare structures, and clinical laboratories to become the norm. Good collaboration among the healthcare systems and a common vision for future actions would help to achieve such goals.

IS003
PLAYING OUR PART IN GOING GREEN FOR A BETTER FUTURE

Ferhan Girgin Sağın
Ege University, Türkiye - EFLM Green Lab Task Force

European Federation of Laboratory Medicine (EFLM) set up a “TASK-FORCE on GREEN LABS” to help medical laboratories to implement sustainable practices and improve their sustainability performance across Europe and beyond. The Task Force aims at gathering and sharing best practices to guide laboratories on their transition towards more sustainable spaces by decreasing their deleterious environmental impact and implementing efficient actions in laboratories, and taking steps to minimize energy, water, and hazardous chemical use, as well as waste generation without compromising the quality of healthcare. The initial focus of this new Task Force is to develop guidelines, criteria, and key recommendations for mainstreaming sustainable practices in clinical laboratories (Green Lab Guide). Clinical laboratories can work to improve their sustainability performance by following the EFLM TF-Green Labs Guidelines, a set of recommendations and good practices in four major areas of their activity: energy, water, waste, and use of hazardous chemicals. The EFLM Task Force-Green Labs put in place a system that can guide, support, monitor European Laboratories’ efforts to become Green Labs. This wrap-up will provide the roadmap for clinical laboratories to fulfill the criteria to obtain EFLM Green Lab Certificate.

IS004
WASTEWATER/LIQUIDE WASTE PROBLEM OF CLINICAL LABORATORIES AND ITS SOLUTION PROCESS IN TURKEY

Doğan Yücel
Lokman Hekim University

Almost all human activities negatively impact the environment. Pollution of the environment may result in morbidity and mortality. One of the most important constituents of environmental pollution is water pollution. Clinical laboratories generate a huge amount of wastewater every day. Therefore, clinical laboratorians should have a responsibility against environmental pollution; they must minimize the environmental consequences of their activities. Water pollution is a big problem in Turkey as well as in the world. Before 2014, the Republic of Türkiye Ministry of Environment, Urbanization and Climate Change, was circulating legislation according to European Union directives and regulations. But, these legal regulations were not suitable for the field of clinical laboratories and hemodialysis units. Unskilled or uninformed municipal inspectors imposed high fines on clinical laboratories and hemodialysis units. There was a big mess. In 2014, we organized a working group for clinical

laboratory and hemodialysis wastewater under the Public Hospitals Institution, Ministry of Health. We inspected American, Canadian, English, German and Australian guidelines for wastewater disposal at health institutions. We prepared a guide for clinical laboratory and hemodialysis wastewater disposal and presented it to the Ministry of Health. And, we recommended the collaboration of the Ministry of Environment, Urbanization and Climate Change and the Republic of Türkiye Ministry of Health and a project to solve the problem. Our recommendation was approved by the two sides and a TUBITAK Project was started as a pilot study in Istanbul public hospitals in 2015. The project was completed in 2017 and a new guideline considering all of our recommendations was circulated by the Ministry of Environment, Urbanization and Climate Change. The guideline brought rational solutions for wastewater problems in health institutions, especially in clinical laboratories in Turkey.
Keywords: environment, pollution, wastewater, liquide waste, clinical laboratory

IS005
THE ROLE OF ASTROGLIA-NEURON INTERACTIONS IN GENERATION AND SPREAD OF SEIZURES

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Astroglia-neuron interactions are involved in multiple processes, regulating development, excitability and connectivity of neural circuits. Accumulating number of evidences highlight a direct connection between aberrant astroglial genetics and physiology in various forms of epilepsies. Using zebrafish seizure models, we showed that neurons and astroglia follow different spatiotemporal dynamics during transitions from pre-ictal to ictal activity. We observed that during pre-ictal period neurons exhibit local synchrony and low level of activity, whereas astroglia exhibit global synchrony and high-level of calcium signals that are anti correlated with neural activity. Instead, generalized seizures are marked by a massive release of astroglial glutamate release as well as a drastic increase of astroglia and neuronal activity and synchrony across the entire brain. Knocking out astroglial glutamate transporters leads to recurrent spontaneous generalized seizures accompanied with massive astroglial glutamate release. We are currently using a combination of genetic and pharmacological approaches to perturb astroglial glutamate signalling and astroglial gap junctions to further investigate their role in generation and spreading of epileptic seizures across the brain.

IS006
THE VALUE OF CLINICAL LABORATORY IN NEURODEGENERATIVE DISEASES

Zübeyde Erbayraktar
Erbayraktar Laboratories, Türkiye

Neurodegenerative diseases are a group of disorders that result in movement and coordination disorders, decreased strength, sensory differences, and loss of cognitive functions, one by one or all. A neurodegenerative disease occurs as a result of a process called “neurodegeneration” that continues with the progressive loss of structure and function of neuron cells. The main factors causing neurodegeneration are oxidative stress, hypoxia and inflammation, which disrupt the neuroimmunological balance. These damages in neuron cells trigger mechanisms that can result in cell death. The main of these diseases are; It can be listed as Multiple Sclerosis, Alzheimer’s disease, Parkinson’s disease, Huntington’s disease, Amyotrophic Lateral Sclerosis, Neuromyelitis Optica and Myasthenia Gravis.
In the diagnosis of these diseases, the place of Clinical Biochemistry laboratory is very important together with imaging. The basis of the methods used in the laboratory is based on the antigen/antibody interaction. For this purpose, Elisa (Enzyme-Linked Immunosorbent Assay) tests and immune electrophoretic techniques are used together with immunofluorescence tests. Test results are evaluated quantitatively, semi-quantitatively and qualitatively and require competence and a high level of experience in this regard. The diagnostic sensitivity of these analyzes is in the range of 95-99%, and their specificity is in the range of 85-90%.
There is a multidisciplinary approach in the diagnosis and treatment protocols of neurodegenerative diseases. In the planning, follow-up and direction of the treatment, the decision is made according to the test results studied in the Clinical Biochemistry laboratories.

IS007
POLLUTANT RECEPTORS: A COMPLEX EVOLUTIONARY HISTORY?

Xavier Coumoul
Université Paris Cité, INSERM (Medical Research Institute) - UMR-S 1124 – T3S

Pollutants are detected in vertebrates by receptors that coordinate detoxification responses. But these receptors have other functions that have recently been identified. In invertebrates, one of them, AhR, is expressed in neurons. However, in vertebrates, few studies have been conducted on its function in the nervous system. Using AhR KO mice, we have shown that these animals develop a disease called nystagmus (eye instability), linked to a myelin deficit and inflammation. This raises many new questions and work perspectives about the phylogenetic evolution of the receptor function.

IS008
SCIENTIFIC APPROACHES AGAINST LONGEVITY AND DIRECTIONS TO THE CLINIC

Perinur Bozaykut Eker
Acıbadem Mehmet Ali Aydınlar University, Türkiye

Increasing chronological age is the greatest risk factor for human diseases. Several pharmacological, dietary and genetic interventions that target aging and age-related diseases are known, but the general principles of these interventions remain unclear. Since aging is an extremely complex and multifactorial process, the transcriptome of well-known longevity interventions is analyzed to characterize common perturbations in gene expressions. The detection of common longevity signatures allows predicting new longevity compounds by drug repurposing which is superior to traditional drug discovery in terms of time and budget. As a result of this analysis, it is found that the target molecules with the highest scores include a variety of molecules including antioxidants, hypertension drugs and mTOR inhibitors (1). Experimental validation of the predicted compounds is provided by senescent human fibroblast and human progeroid cells with an accelerated aging disease. The potential effect of these candidate drugs on cellular senescence are being tested as senotherapeutic drugs have been already involved in clinical studies. In addition, omics studies are also being carried

out in alternative tools such as long-lived mole-rat to determine the further mechanisms of aging and to utilize their regenerative capacities (2). As a result, our studies focus on perturbations targeting aging and age-related pathologies that could be translated into clinics by further studies.

1-Tyshkovskiy A, Bozaykut P, Borodinova AA, Gerashchenko MV, Ables GP, Garratt M, Khaitovich P, Clish CB, Miller RA, Gladyshev VN. Identification and Application of Gene Expression Signatures Associated with Lifespan Extension. Cell Metabolism, (2019); 30(3): 573-593.

2-Inci N, Akyildiz EO, Bulbul A, Turanli ET, Akgul E, Baykal AT, Colak F, Bozaykut P. JAK signaling and inflammatory phenotype during cellular senescence in blind mole rats: the reflection of being long-lived and cancer-resistant

IS009
REFERENCE INTERVALS FOR ELDERLY PEOPLE; ITS CLINICAL SIGNIFICANCE AND A STUDY FROM TURKEY

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The reference intervals provided by the laboratories are commonly given by the manufacturers which the reagents are produced. A much more accurate and valid approach is to use direct reference intervals determined by measuring the values in samples obtained from healthy individuals. However, since indirect reference intervals calculated from hospital data are easier, more practical and cheaper than direct reference intervals, interest in indirect reference intervals has increased in recent years. Although direct reference direct are recommended as the first choice by the Clinical and Laboratory Standards Institute (CLSI) guideline, EP C28-A3c (Defining, Establishing, and Verifying Reference Intervals in the Clinical Laboratory), indicates that indirect reference intervals obtained by using hospital data may also be preferred for the challenging groups such as children and the elderly, where particularly the sampling is difficult. Furthermore, as the age inceases, the probability of finding a healthy individual without a chronic disease and does not use medicine decreases.

Between 2011 and 2020, two joint projects were coordinated in cooperation with the International Federation of Clinical Chemistry (IFCC), Committee on Reference Intervals and Decision Limits (C-RIDL). The Multicenter reference interval studies were conducted throughout the country in Turkey, and the direct and indirect reference intervals for adults aged 20-65 years for routine biochemical analytes and hematological tests have been determined. The issue of determining the reference intervals for individuals over the age of 65 is still a gap that needs to be completed in our country and also all over the Word. For these reasons, the aim of the new project initiated by IFCC-CRIDL is to determine continuous indirect reference intervals that change with age. Indirect reference intervals are determined by the Truncated Maximum Likelihood (TML) and Truncated Minimum Chi-square (TMC) methods, and compared with direct reference intervals obtained from samples taken from apparently healthy individuals (at least 120 individuals for both sexes) over 65 years of age and consequently the reference intervals that can be used for elderly individuals are evaluated. In the calculation of direct reference intervals, logarithmic transformation and Tukey exclusion methods were used in accordance with the CLSI guideline. While indirect reference intervals for some parameters (eg. albumin, BUN, triglycerides) show significant changes in reference intervals with increasing age, the reference intervals of some parameters (eg. AST, amylase, sodium) did not change.

Comparing laboratory results from elderly people with conventional reference intervals for adults under the age of 65 can be misleading or even dangerous, as normal conditions may appear pathological, or vice versa and thus lead to unnecessary or even harmful treatment. There are relatively few published studies specific to geriatric reference intervals as compared to the adult population. For these reasons, the results to be obtained from this study and bringing these results to the literature are important.

IS010
INTERPRETATION OF FREQUENTLY USED LAB TESTS IN GERIATRICS FROM A CLINICAIN'S PERSPECTIVE

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Laboratory tests are tests that are used for diagnosis, differential diagnosis, early recognition of hidden presymptomatic diseases, screening, determination of the severity of the disease, determination of prognosis and evaluation of response to treatment, and direct diagnosis when combined with anamnesis and physical therapy. As a general rule, when ordering any laboratory test, one should consider whether the test is really necessary, its suitability for the patient, and the sensitivity and specificity of the test. How to interpret the results is the most important step. Asking for LDL levels may not be a necessary test in a patient with advanced dementia. Similarly, requesting stool occult blood from a bedridden patient or an effort test for a patient with osteoarthritis are examples of inappropriate test choices.

There are many factors that affect laboratory tests. Age, gender, body mass, alcohol intake, diet, physical stressors and medications are some of them. There are also factors that can be defined as technical factors. These are sampling location, sampling time, tourniquet, sample transport, test method. Age-related physiological and anatomical changes, chronic diseases, atypical presentation of patients, changes in nutrition and fluid intake, and pharmacological agents are among the factors that affect laboratory results in the elderly.

While evaluating the laboratory results of the elderly, values outside the normal limits may belong to a benign or pathological condition due to the factors mentioned above. Values within normal limits may also belong to newly started or developing pathological conditions. The patient should be evaluated as a whole, not just based on laboratory results. For example, hemoglobin synthesis decreases with age, but the hemoglobin level remains within normal limits. Considering the anemia diagnostic criteria, values below 13 g/dl for men and 12 g/dl for women are accepted as anemia, and this is the same for the elderly. So anemia is not a physiological change. Serum iron also decreases with age. The incidence of iron deficiency anemia increases with age. The secretion of HCL in the stomach decreases, and accordingly, the decrease in acidity reduces iron absorption. Ferritin, the storage iron, also begins to decrease over time. Ferritin is also an acute phase reactant, so it should be careful in the differential diagnosis. This finding, which may be a warning sign of gastrointestinal system malignancies, requires further investigation with endoscopy and colonoscopy.

As a result, tests such as glucose, cholesterol, LDL and vitamin B12, which deteriorate due to age and thus pose a risk and require treatment, should be treated in case of disorder. It should also be noted that one should be careful when interpreting values such as sedimentation, uric acid and parathormone, which can deteriorate due to age and are accepted as benign values up to a certain level. It should be known that parameters such as hemoglobin, white blood cell, platelet, liver function tests, albumin, which are considered pathological when outside their normal values, are values that should be corrected regardless of age.

IS011
ANALYTICAL PROBLEMS AND SOLUTIONS IN CLINICAL BIOCHEMISTRY

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In the Medical Biochemistry laboratory, imprecision and bias should be low and follow the guidelines. The test system must produce stable internal quality and external quality control results. It will prevent the vast majority of random and systematic errors. Despite the quality control assurance system, some errors, especially before and after analysis, can be a source of critical medical errors and pose a risk to the patient's health. Before analysis, especially hemolysis, Icterus and Lipemia (HIL) create significant analytical problems. Automated HIL measurement and the possibility of test-based rejection can prevent most of these errors. Apart from this, for extremely lipemic samples, accurate results can be obtained with tabletop high-speed (>10.000g) centrifuge treatment. It is appropriate to use the system's substrate consumption and kinetic control (not to be transferred to LIS or HBYS) to avoid false low results that are too high (especially in enzyme measurement tests). In this context, automatic dilution protocol application is a practical tool to obtain accurate results without tiring the user. Some of the problems we experienced and solved in our laboratory are listed below (Roche Cobas 6000, c501):

Bicarbonate example: In the Biochemistry Laboratory, we perform a Bicarbonate test in a biochemistry auto analyzer besides blood gas. After routine maintenance of the distilled water system, random errors and inconsistent control results were found in Bicarbonate internal quality control. An abnormally high and inconsistent blank (distilled water) signal was observed in the examination of the calibration data, and the condition did not improve with the calibration of the test. The water system conductivity was found at the appropriate conductivity value (<0.1 µS/cm, following the Purified Water Guidelines for Clinical Laboratories, TBD, 2019). We examined distilled water in the blood gas analyzer (Radiometer ABL 835 Flex), and the carbon dioxide pressure was measured as abnormally high at 35 mmHg. A comprehensive overhaul of the water system has been made, and the carbon dioxide pressure has reached an undetectable level (<5 mmHg). Calibration data and controls exhibited stable and conventional performance when calibrations were performed with fresh distilled water.

Ethanol sample: When the internal quality controls are stable and appropriate in the ethanol test (even if the 1st and 2nd Level controls are appropriate), the results may be falsely high due to the blind rising in the lower values of the measurement. Therefore, the ethanol system calibration warning should be considered, and the calibration should be performed. When the system gave a calibration warning, the distilled water reading was 0.04 g/L, and the distilled water reading after calibration was 0.00 g/L.

Chloride sample: We measure Chloride in serum, plasma, or urine samples using the ISE indirect method. Sometimes, when we insert a new electrode, we find false high (in control and patients) serum chloride levels. We must apply a correction factor to the device because the control results did not improve due to quality control rule violation (2*3s) and calibration. This way, the controls were suitable, and the patient averages reached the typical target (our patient target value is 102 mmol/L). In addition, we confirm that the situation has improved with daily patient device comparisons (we have two c501 devices) and third-party (Biorad UNITY) interlaboratory quality control samples.

Example of HbA1c: Since it is a diagnostic test, HbA1c is a test that should be very well controlled. The intermediate CV of the system we use is 1.8% (Level 1 control 5.65% SD=0.1% NGSP). A performance in line with Roche's (Cobas 6000, c501) prospectus. Based on the ADA criteria, the CV between days of the HbA1c test should be <2%. Despite the stable internal quality control performance of the test, there may be a risk of incorrect results in some cases:

Patient with diabetes and simultaneous Hb F Hemoglobinopathy (HbF 42.1%) HbA1c read false low. The interaction limit for HbF of the test is 10%, and we obtained false low HbA1c at higher concentrations, and in this case, the patient's health could be adversely affected by incorrect treatment.

We found lower HbA1c than expected in a patient with hemolytic anemia (Anisocytosis, Reticulocytosis, LDH elevation). So discordant plasma Glucose and HbA1c levels should be checked.

Because clotted samples read low HbA1c (immune turbidimetric) and very low Total Hb (photometric), abnormally high, clinically inconsistent results may be obtained in the manual calculation of HbA1c.

IS012
ANALITICAL ERRORS IN IMMUNASSAYS

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Immunoassays are currently the methods of choice for the measurement of a large panel of hormones and cancer markers owing to full automation, short turnaround time, high specificity and sensitivity. Within the past few decades, the pre- and post-analytical phases of the total testing process seem to be cared of on an international discussion level. On the other hand, there is a need to address analytical errors capable to cause clinically significant bias in individual patient results. Analytical errors are commonly classified as exogenous errors or endogenous errors [1]. Exogenous errors are to be linked to analytical procedure impairments (e.g., calibrator or reagents degradation, imprecise pipetting, washing issues). These should be excluded through an adequate quality monitoring by checking results from internal (IQC) and external quality controls (EQC) and through a careful analysis of automatically issued messages from the analyzer. Then, endogenous errors are subdivided in two categories: type 1 endogenous errors (i.e. hemolysis, icteria or lipemia (HIL)) that can be detected prior to the analytical phase and type 2 endogenous errors (e.g., heterophilic antibodies, biotin, autoantibodies)

When we decided that an exogenous error was absent and there was no problem with serum indexes, we repeat the testing process. If it changes, the problem could be carry-over, outlier (flyer) or inappropriate pipetting. If we found the same result, a type 2 endogenous error colud be present.

Type 2endogenous errors are specific to the sample and cannot be detected by normal laboratory quality control procedures.

They are also called irregular (individual) analitical error. An irregular analytical error is given when a test result generated for a sample using a routine method deviates from the reference measurement procedure result generated for this sample more than the measurement error estimate of the routine method. This is just by definition, of course, a reference measurement method is not present for all tests rutinly assayed. The doubtful result should be compared with a different method (e.g., different antibody immobilization system (e.g., biotin-streptavidin), number of washes, contact between patient sample and tracer (e.g., one-step vs. two-step) [6], different type of antibody (e.g., mouse, sheep, horse), different detection systems (e.g., ruthenium) If the method has been carefully selected, it will be possible to detect most interferences. Dilution test, PEG Polyethylene glycol (PEG) 6000 precipitation, blocking agents also can be used.

IS013
COMPLETE BLOOD COUNT ANALYTICAL ERRORS

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Automated Hematology Analyzers (HA) have become the mainstay of clinical laboratories globally. HA provide fast and accurate results in most cases.

In some cases, false positive or false negative results are observed, either regarding platelets or other parameters from the complete blood count (CBC). Every laboratory will occasionally encounter some samples that give incorrect results for one or more of the CBC parameters, even when the HA is working properly and the manufacturer's instructions are strictly followed. Technical considerations regarding insufficient blood samples, conditions induced by the anticoagulants used, specific changes in patient pathology, and the performance of various HAs should be considered. Erroneous results that may adversely affect patient care are clinically unreliable and require the attention of laboratory professionals. The flags generated depend on the software version in the HA used, the performance of detecting the same anomalies may differ depending on which analyzer is used, including those from the same manufacturer. Laboratory professionals should recognize unreliable results, identify possible causes, and be familiar with ways to obtain reliable results on such samples. Operators must be aware of the characteristics of their analyzers and be able to recognize and resolve abnormal results.

We provide a brief overview of known causes of unreliable automated CBC results, ways to recognize them, and commonly used methods for obtaining reliable results.

Key Words: Complete Blood Count (CBC), Automated Hematology Analyzers, Analytical Errors

IS014
NEW HORIZONS LED BY LIQUID BIOPSY

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Cancer is a common cause of death worldwide, second only to heart disease. Despite significant advances in cancer treatments, morbidity and mortality are still very high. The reasons for this situation are the inadequacy of biomarkers with high sensitivity and specificity in the early diagnosis of cancer, the persistence of difficulties in tumor treatment due to tumor heterogeneity, especially intratumoral heterogeneity, the development of resistance to drugs by showing adaptive changes in tumor cells in line with the theory of clonal evolution, and the development of metastases predominantly through blood as a result of the inability to control the disease. . In order to overcome these difficulties, the need for biomarkers that will enable us to diagnose and monitor cancer rapidly, specifically, practically and economically continues. In this context, although there are sensitivity and specificity limitations, in addition to the currently used blood biomarkers, we can also identify tumor cells (Circulating Tumor Cells-CTC) released from tumor tissue and circulating extracellular tumor DNA (ctDNA), which are defined as "liquid biopsy". Blood-based analyzes containing blood-based analyzes have attracted attention in recent years because they are noninvasive, specific, practical and economical. With the use of these sample types, which create a market for themselves with an extremely rapid increase in the health sector, the development of a new generation diagnosis and diagnosis is also extremely fast. The reason for this is that a standard method has not been developed yet. The Global Liquid Biopsy Market was estimated at $634 million in 2016 and is projected to reach $3.805 billion by 2024, with an annual growth of 28.9% from 2017 to 2024. The liquid biopsy market size is expected to grow from US$7.1 billion in 2020 to US$26.2 billion by 2030 and grow at a CAGR of 14% from 2021 to 2030. With all these parameters, liquid biopsy offers certain advantages over traditional diagnostic techniques such as low cost, accuracy, rapid results and early diagnosis, making liquid biopsy a popular technique among physicians and scientists. Therefore, it opens new horizons in research and diagnosis.

IS015
IMPORTANCE AND FUTURE OF BIOSENSORS IN CLINICAL APPLICATIONS

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Biosensor applications have become increasingly important in medicine for biomedical diagnostic studies. These applications are carried out for screening, chronic disease treatment, and health management, from infection to early diagnosis. Advanced biosensor technology capabilities allow detecting disease and monitoring the body's response to treatment. They have good potential in this regard as they are easy, scalable, and effective in their production processes. Furthermore, the intelligent wearable features of biosensors make the medical information of patients directly interchangeable with healthcare providers. Therefore, biosensors can be used in health, fitness, athletics, and more. There are numerous possibilities for consumer and commercial uses in different areas.

Many different types of biosensor studies have been applied to the medical field. The working mechanisms of these biosensors are determined according to the areas in which they will be used. For example, POCT Glucose biosensors are based on enzyme-based electrochemical methods. On the other hand, biosensors for pathogen detection are immunosensor-based, mostly optical and electrochemical biosensors. Apart from these, molecularly imprinted polymers are used in detecting and measuring various markers in the medical field in surface plasmon resonance-based biosensors. Some of these are used for personal measurements at the bedside and are doctor-controlled due to their portable and body-integrable features.

Types of biosensors for clinical applications, the latest state of their

development, problems, and futures are gaining importance and being investigated in non-laboratory applications.

IS016
REGIONAL LABORATORIES AND REFERENCE LABORATORIES IN TURKEY

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Procedures and principles regarding the planning, licensing, opening, inspection, classification and monitoring of medical laboratory services in Turkey are carried out within the scope of the Bacteriology and Chemistry Laboratories Law No. 992, the Law No. 1219 on the Branches and Applications of the Art of Medicine and the Regulation on Medical Laboratories. Universities, public institutions/organizations, private law legal entities and medical laboratories belonging to real persons in our country provide services within the scope of this legislation.
The number of laboratories serving as public-private in total in our country is as follows; 1434 Medical Biochemistry Laboratories, 1154 Medical Microbiology Laboratories, 562 Medical Pathology Laboratories, 112 Genetic Diseases Evaluation Centers, 52 Tissue Typing Laboratories, 4 Regional Laboratories, 4 Test-based Confirmation Laboratories and 1 National Reference Service Laboratory. Approximately 2900 tests have been included in the scope of reimbursement within the scope of diagnostic services in our medical laboratories. Considering the device, equipment, personnel, and infrastructure requirements of medical laboratories, it is not cost-effective to run all tests in laboratories. In order to meet this need, external laboratory services are provided especially in Molecular Microbiology, Molecular Genetics, Molecular Pathology, Metabolism, Allergy-immunology, and proteomics studies.
The main objective of the Ministry of Health is to conduct preanalytical, analytical, and postanalytical processes in a cost-effective and sustainable manner on the basis of international standards in all medical laboratories of our country. In this context, it is aimed to establish new Regional Laboratories where advanced tests can be performed, and to increase the number of accredited National Reference Laboratories so that the device/method or test studies that are weakened by the external laboratory service are not lost in the institutional memory, the correct test result can be given to the right patient, at the right time and at the right cost. These laboratories will be of critical importance for the effective and efficient use of public resources, serving as incubation training centers, and achieving faster results.

IS017
APPLICATIONS OF DATA ANALYTICS AND MACHINE LEARNING FOR CLINICAL LABORATORY OPERATIONS

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All across the healthcare industry, laboratory services are facing an IT transformation. The sheer amount of data and the never-ending introduction of new technology to clinical laboratory providers present a significant opportunity to strive for maximum efficiency while increasing the quality of care. As the quantity of data increase, the systems necessary to process, categorize and analyze this data are becoming more complex. Recent studies show that with the increase of both test numbers and quality demand, data analytics tools become essential as the traditional management tools reliant upon a human-centric approach are no longer sufficient to meet laboratories' mounting workload. These tools can be employed to gain insight from otherwise indecipherable amounts of data to decrease costs, improve process quality, and increase patient benefit. Data analytics has four basic types (1) Descriptive, (2) Diagnostic, (3) Predictive, and (4) Prescriptive. They answer different questions. Each type of analytics has an increasing complexity in technical needs and value, and the next step depends on the previous one. Higher-order analytics includes applications that leverage artificial intelligence and machine learning. As the amount of data increases, the systems necessary to process, categorize and analyze this data are becoming more complex. Artificial Intelligence, novel machine learning, and advanced algorithms are more ubiquitous now. A clinical decision support system is health information technology, providing healthcare professionals as well as patients the information and tools necessary to determine the correct and complex diagnosis based on relevant patient and clinical data. CDSS can reduce medical errors, improve patient safety, and optimize administration. Laboratory professionals must implement and utilize these tools in efficient clinical laboratory operations. More and more this classical role of the laboratory will undergo revolution with the addition of digital health and the utilization of data analytics and CDSS. These advances will revolutionize healthcare generally and clinical laboratories specifically. Therefore, clinical laboratories should be familiar with various data analytics tools and integrate them into their daily practices and routines for effective laboratory operations.

IS018
UTILIY OF LABORATORY RESULTS IN MACHINE LEARNING BASED CLINICAL DECISION SUPPORT SYSTEMS

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Laboratory medicine is fundamentally being changed by automation and artificial intelligence technologies. These recent advances offer more work to be done with a lower workforce in the laboratory. Today, physicians face a vast diversity of data such as imaging, routine laboratory results, genomics, proteomics, and clinical observations. Machine learning (ML) based tools will undoubtedly be useful for the robust interpretation of this data. There is growing literature addressing the implementation of laboratory results in ML models used to interpret electrophoresis, mass spectrometry results, flow cytometry, and as a clinical decision support tools for vast clinical setting. However, some of these ML-based clinical decision support systems suffer from a lack of external validation. In addition, recent studies pointed out that ML-based clinical decision support systems are beneficial for reducing interobserver agreement of clinicians rather than improving diagnostic performance.
Nevertheless, to show the overall performance of ML-based clinical decision support systems, we should consider supported human decisions as endpoints rather than evaluating the individual performance of it. There are numerous challenges related to ML-based systems, such as deskilling, uncertainty, explainability, ethical issues, privacy, insufficient data quality, liability, and transferability. The optimal way of the utility of ML-based clinical decision support systems is a combination of human and artificial

intelligence as a hybrid intelligence.

IS019
BIG DATA AND ARTIFICIAL INTELLIGENCE ALGORITHMS IN MEDICAL LABORATORIES

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Data is the plural form of the word “datum” and means “the given, present” in Latin [1]. Data is defined as information containing elements or numbers used to be analyzed, taken into account and aided in decision making [2]. Recently, industries worldwide have entered a data-centric era. The widespread use of electronic health records, rapid production of multidimensional data in laboratories, and the ease of obtaining large amounts of healthcare data have revealed the concept of big data in the medicine [3]. The emergence of big data in healthcare provides solutions to public health problems that were previously thought impossible [4].
Big data is expressed as heterogeneous, large volume, rapid, valuable data that also can be obtained from various sources. The concept of big data has 5 components: Volume, Velocity, Variety, Veracity, Value, and it is abbreviated as “5V” of big data. Volume is the data size increasing over time; velocity is the rate at which data is produced and retrieved; variety, complexity, and heterogeneity of data; veracity, consistency, and reliability of data; value refers to the benefit of the data [5]. Healthcare data is also notorious for being large, dispersed, and complex [4]. The substantial number of test results produced by clinical laboratories has led to challenges in data management and analytics. Because of the potential diagnostic value of examining these results in aggregate, it is important to use emerging tools for the analysis of high-dimensional data. With the advancement in machine learning methods, open source machine learning packages, affordable fast-growing computing power and the recent merger of cloud storage, artificial intelligence is one of the most suitable tools to serve this purpose [6].
Artificial intelligence (AI) is the ability of a computer or robot to perform tasks that require human intelligence and judgment [7]. Although its roots date back to 1956, a scientific and public consciousness has emerged in the field of artificial intelligence thanks to the recent technological developments. Although artificial intelligence is a computer science, it is gradually changing the perspective of research in healthcare and biomedicine, and artificial intelligence studies in laboratory medicine have recently increased exponentially [8].
Artificial intelligence systems, which have been used recently, make use of machine learning methods by making complex calculations to identify patterns from data. Machine learning uses a variety of computational algorithms to analyze complex datasets and make powerful predictions. It can be divided into four main categories as supervised, unsupervised, semi-supervised and reinforcement machine learning algorithms, according to the problem need to be solved. Supervised learning methods analyze the patterns in all labeled input-output pairs, learns to produce the correct output for a given input for unknown situations. Classification and regression methods are the most commonly used supervised machine learning models. In unsupervised learning, data with unknown outputs are used and tasks such as finding subsets, finding outliers, or generating low-dimensional samples are performed. In semi-supervised learning, machine learning is carried out by using labeled and unlabeled data together, conceptually positioned between supervised and unsupervised learning, allowing the large amount of unlabeled data available to be used in conjunction with typically smaller labeled datasets. In reinforcement learning, learning is conducted by receiving feedback from the model environment [5, 6, 8, 9].
Artificial neural networks are a subclass of machine learning and consist of artificial neurons (perceptrons) that are similar in structure to biological neuron structures. The basic architecture of artificial neural networks consists of an input layer, an output layer, and a series of hidden layers between them, so that complex relationships between input and output can be modeled. In deep learning, which is a subclass of artificial neural networks, there are more layers and different methods are applied while creating layers [10].
In order to train AI models reliably, high-quality training data and data that represents the target patient population are needed. The heterogeneous data obtained from different healthcare environments contain various biases and noise, which may prevent the generalization of the trained models to the population. At this point, data is made suitable for training of models thanks to data preprocessing, which is vital [11]. Another challenge is that almost all of the medical applications performed with artificial intelligence are carried out on retrospective data [12]. To validate the real-world utility of medical AI systems, real-time and prospective studies evaluating the performance of the systems in clinical settings are needed. Prospective trials will allow for better identification of the vulnerability of the AI model and to find ways to integrate the model into the clinical workflow in clinical environments that host heterogeneous and noisy real-world data [13].
With the use of artificial intelligence systems in healthcare, it is likely that new situations will arise in terms of social, economic, and legal aspects. With the development of artificial intelligence, it is predicted that human-induced errors and employee fatigue will decrease, the quality of care will improve, time can be allocated to more complex tasks and more interaction with patients may be possible. In routine tasks, there is a possibility that some healthcare workers may be replaced by artificial intelligence, which could reshape the healthcare workforce [14, 15].
Multidisciplinary and multisectoral collaborations are needed for the development and dissemination of medical artificial intelligence applications. It is also thought that providing the necessary infrastructure in medical education and transferring the necessary information to adapt to new roles will be beneficial [8].

IS020
ETHICAL AND LEGAL ISSUES IN COVID AND ARTIFICIAL INTELLIGENCE APPLICATIONS

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Before the Covid 19 pandemic, there was some doubt about artificial intelligence and robotic applications. While dystopian depictions of technology initially shaped suspicions in science fiction, some business applications of AI led to job loss, reinforcement of prejudice, and data privacy breaches. The use of artificial intelligence applications to mitigate the spread of the virus seems to have set aside the concerns.

Extensive data collection may be necessary to reduce the spread of the disease: Privacy concerns regarding data collection and data accuracy: COVID-19 apps on Google and Apple platforms which are phone-based applications that monitor individuals’ communication with those diagnosed or survivors of the virus.

The issue of what these applications and the data they collect will be after the pandemic ends is essential. Many examples of data being misused by companies and selling data sets without user knowledge. It recommends that it be returned to people and destroyed as soon as it is not used within the scope of the European Union Data Protection Regulation. Another consequence of artificial intelligence applications will be possible job losses. In terms of the effects of this result, it is necessary to do sociological planning.

There are many regulations regarding the processing of data in laboratory medicine. MedTech for the European Union; European Union regulation for the ethical rules of Artificial Intelligence applications; There is a legal status of Artificial Intelligence for our country. In our country, patient records are transferred to the E-Pulse system of the Ministry of Health through Hospital Software programs and are processed by the Ministry. With the users' permission, other physicians can see the data. In our country, the necessary data for the regulation of the COVID-19 algorithm using artificial intelligence is obtained from the Ministry of Health with special permission within the scope of the authorities and responsibilities related to the epidemic patients within the area of Articles 57, 64, and 279 of the Public Health Law No. 1593. White House directives determine ethical issues in Artificial Intelligence and its Applications for the United States.

The invalidation of citizens' rights to consent and privacy in the name of Covid 19 surveillance increases insecurity and can become disadvantageous for Artificial Intelligence. It is observed that China and a few other countries violate many personal rights in digital epidemic control. This distrust is much lower in citizens' governments, such as in Italy, France, and the USA. Confidentiality regarding data access and use should be avoided. Transparent public communication regarding data processing for the public interest should be ensured. For example, data processing agreements should explain which data is transmitted to third parties and for what purpose. Personal data protection regulations must be complied with regarding geolocation applications.

IS021
VISIBILITY OF BIOCHEMISTS AND EFFECTIVE USE OF SOCIAL MEDIA

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OBJECTIVE: Using social media is getting important in our lives in every passing day. Nowadays, most of politicians, celebrities, civilians, institutions and organizations have been making use of it due to various reasons.
MATERIALS and METHODS: Biochemists have been subjected to discriminations according to their colleagues who work in the other clinics by the last published supplementary payment regulation. The most effective powerful of us has been our social media accounts as a Turkish Biochemical Society.
RESULTS: As of the date published last supplementary payment regulation we sent messages intensively some physician unions and senior health ministry officials. Moreover we kept contact our members of societies and constantly informed them about developments. Some of our members also supported us through their personal social media accounts. As a result we witnessed that the effective use of social media contributed to gain some rights back in a short time.
CONCLUSION: We have experienced that the effective use of social media accounts of the association is very effective in order to make biochemists more visible and to defend their rights more effectively.

IS022
PROBLEMS AND EXPERIENCES IN EDUCATION AND RESEARCH HOSPITAL AND STATE HOSPITAL LABORATORIES

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Health Institutions in Turkey are classified as primary, secondary and tertiary healthcare institutions in Turkey. In addition hospitals are rated by using different criteria including bed capacity etc. In this context, Sivas Numune Hospital is a public hospital with secondary level and category A2. The total bed capacity of the hospital is 1070. Five clinical biochemist specialist and fifty-seven laboratory technicians are actively working in the biochemistry laboratory. The laboratory consists of clinical chemistry, immune analysis, complete blood count, urine analysis, and thalassemia sections. Problems regarding with the biochemistry laboratories serving in secondary health care institutions can be classified in general; (i) Insufficient number of clinical biochemistry specialist, (ii) Providing services to family physicians in provinces where there is no public health laboratory. (iii) The responsibility of the other small medical biochemistry laboratories in the same city. In the panel where the presentation will be made, it is aimed to discuss the problems of hospitals with similar status, to identify them and to get solutions.
Keywords: State hospital, biochemistry laboratory, laboratory problems

IS023
An OVERVIEW OF THE PUBLIC HEALTH LABORATORIES IN TURKEY

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OBJECTIVE: Public Health Laboratories (PHL) have been one of the essential establishments of public health services. These laboratories now serve 81 provinces. PHLs are divided into L1 (19 laboratories, in 17 different provinces, 3 laboratories in Istanbul) and L2 (65 laboratories, in 64 provinces and Alanya) types according to analysis capacity and competence level. Laboratories perform both non-clinical and clinical analyses.
MATERIALS and METHODS: L1 laboratories are accredited according to TS EN ISO/IEC 17025 standards. Detailed microbiological and chemical analyzes of pool/spa/swimming and also drinking water are carried out in all L1 laboratories. In addition, Water and Food Toxicology, Biocidal product analysis, Inorganic toxic substance analysis, Peloid analysis, Legionella analysis, and Chemical warfare agents' analysis are also carried out within L1 PHLs. Devices that require advanced competence and experience

such as ion chromatography, LC-MS, GC-MS, ICP-MS, and PCR are used in the performing of these analyses. Water analyses in L2 laboratories are in the form of basic microbiological and chemical analyzes. These analyzes are carried out continuously according to weekly/monthly/yearly plans.
RESULTS: In the Clinical section of PHLs, the analysis of the examinations requested from the primary health care services (Family Health Centers, Community Health Centers) is carried out. In laboratories, Laboratory specialists are responsible for administrative responsibility, the proper performance of non-clinical and clinical analyzes, and other routine activities.
CONCLUSION: Making the public health services of PHLs visible can lead to a better understanding of their function and value. Clarifying the structure of Clinical and Non-Clinical Laboratories in regulations can make PHLs more effective. For laboratory specialists and competent personnel, it seems essential to deal with the law of work rights according to employees at other state levels. Preparing the legal infrastructure for all these can help the process proceed healthily.
Keywords: Public Health Laboratories, L1 Laboratories, L2 Laboratories

IS024
PUBLIC HEALTH LABORATORIES AND RELATED PROBLEMS? EXPERIENCE OF MARDIN PUBLIC HEALTH LABORATORY

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Mardin Public Health Laboratory, Turkey

OBJECTIVE: Public health laboratories in Turkey are established to evaluate the clinical and non-clinical public health issues, such as the quality of water, detection of communicable diseases, and evaluation of samples taken from patients who are applied to family medicine clinics. Because of the difference in their founding purpose, they have unique problems compared to the state and private hospital laboratories. The presentation aims to discuss the issues that a public health laboratory may face and seek possible solutions.
MATERIALS and METHODS: The laboratory performed 3.102.613 tests from 109400 patients in the first ten months of 2022. Abbott Architect C8200 (Abbott, Abbott Park, Illinois, U.S.A.) for routine chemistry and immunoassay, Sysmex XT1800i and XT2000i (Kobe, Japan) for hematology, ADAMS HA-8180T (Kyoto, Japan) for hemoglobinopathies and ORTHO VISION for blood typing are used in the laboratory. Preanalytical, analytical and postanalytical processes, and related problems are evaluated in this presentation.
RESULTS: A total of 5511 Prostate-specific antigen tests were performed from the beginning of 2021 to 15th October 2022. Among 5511 samples, 973 (17.65%) were ordered from female patients. As an example of an inappropriate test request, 2% of the HbA1c samples were ordered from patients who had <2 years old.
CONCLUSIONS: Improvements in the preanalytical phase in public health laboratories are immediately needed. Organizing panels with family medicine physicians and/or other people who participate in the preanalytical process would be helpful to solve problems.
Keywords: Public Health Laboratories, Preanalytical Phase, Family Medicine

IS025
CLINICAL TOXICOLOGY LABORATORY AND THERAPEUTIC DRUG MONITORING

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Clinical toxicology is a very comprehensive concept and includes emergency toxication situations (toxidrome), therapeutic drug monitoring and addictive substance analysis. Within this scope, clinical laboratory actually performs toxicological analyzes in multiple ways. Apart from routine parameters, drug analysis is an important step in clinical laboratory. In particular, it is essential to know the profiles that can be detected widely in the current population and to provide a variety of tests for them. Clinical biochemistry can provide information to the clinician with the efficiency of analysis in laboratory-targeted (determined) or screening (uncertain) situations. For this purpose, simultaneous screening of many toxins or analysis of the concentration of a substance in body fluids is important in terms of clinical course. For this purpose, various commercial kits have been produced for scanning in our country and in the world. Their sensitivity is high, especially the fact that kits for every agent have not been produced and the problems in their specificities lead to the prominence of mass spectrometric methods in the clinical laboratory. Chromatographic methods that can perform multiplex measurements at the same time become diagnostically valuable. Immunoassay systems renew their already existing toxicological profile inclusive panels with antibody-based technology with a very high capacity every day. However, it is a serious problem that kits for drug screening cross-react with chemicals with similar molecular structure. This point popularizes the use of mass spectrometric systems that can provide a precise distinction between mass and charge ratio. Both different sample types and different biological sample types make the toxicology laboratory different from routine laboratories with its own functioning.

IS026
UYUŞTURUCU VE UYARICI MADDE TARAMA VE DOĞRULAMA ANALIZLERINDE GÜNCEL DURUM VE GEREKLILIKLER

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Bu bölümde uyuşturucu ve uyarıcı madde tarama ve doğrulama analizleri ile ilgili, ülkemizdeki güncel durumlar tanımlanacak ve hemen ardından bununla ilgili avantajlı ya da dezavantajlı noktalara değinilecektir.
Ulusal uyuşturucu ve uyarıcı madde ile mücadelede, savcılık makamı, narkotik şube polis yetkilileri ve denetimli serbestlik kurumlarının tarafımıza bildirdikleri, kullanıcı ile ilgili olarak, fiziksel şüphe olsa bile, tıbbi biyokimya uzmanının raporladığı klinik laboratuvar sonuç kanıtı olmadan işlem yapılamadığıdır. Bu durumda, uyuşturucu ve uyarıcı madde analizi yapan tıbbi biyokimya uzmanlarının doğru sonucu üretme sorumluluğu bulunmaktadır.
Ülkemizde, mevcut durumda, uyuşturucu ve uyarıcı madde tarama ve doğrulama analizleri ile ilgili genel bilgi ve yönergeleri takip ettiğimiz kılavuzlara göre, Sağlık Bakanlığı ve Üniversite hastane laboratuvarlarının büyük çoğunluğunda tarama analizi için, CEDIA, EMIT, KIMS gibi immunkimyasal yöntemleri kullanmaktayız.

Sağlık Bakanlığı tarafından doğrulama analizi için yetkilendirilmiş olan, Hacettepe Üniversitesi, Erciyes Üniversitesi, İstanbul 3. Bölge Halk sağlığı laboratuvarı, İzmir Atatürk Eğitim ve Araştırma Hastanesi laboratuvarlarında, genelgeye uygun olarak, doğrulama analizinde kromatografik ayırım ve ardışık kütle ölçüm yöntemi kullanılmaktadır. Ayrıca birkaç tane devlet/üniversite resmi hastane kurumunun klinik biyokimya laboratuvarında, sorumlu tıbbi biyokimya uzmanının kendi isteğine bağlı olarak tarama analizi için de, immunkimyasal yönteme göre daha kesin sonuçlar üreten LC-MSMS yöntemi kullanılmaktadır.

Tarama analizi yaptığını bildiren birçok özel laboratuvarda ise, genelge kuralları dışında, kart testler ile sonuç verilmektedir.

Amatem, denetimli serbestlik, acil servis, yoğun bakım hastaları, adli süreçler ile takip altına alınan kişiler, ve yeni iş girişi, sosyal hizmetler gibi nedenlerle işlem yapılan sağlık kurulu hastaları için tarama analizleri bir devlet kurumu laboratuvarında yapılmaktadır. Şöförler, pilotlar, gemi adamları ve diğer özel işletmeler ile ilgili tarama sonuç raporları ise genellikle özel bir laboratuvarda ücret karşılığında bu laboratuvarlar tarafından oluşturulmaktadır.

1. tartışma konusu: Bu noktadaki problem, özel laboratuvarlarda yapılan analizlerde yaygın olarak, kart testlerin kullanılıyor olmasıdır. Kart testler, genellikle sübjektif yorumlamalara yol açabilecek, vizüel olarak değerlendirilen yöntemdir. Kart testleri kullanan laboratuvarların, kaç maddenin taranmasına izin veren kartı kullandıkları, satın alma sırasında genelgede belirtilen eşik değerleri gözetip gözetmedikleri, kartta oluşan sonucu yorumlamadaki becerileri, kalite kontrol numunesi kullanma durumları, idrar örneğinin gözetimli olarak alınması, idrarda bütünlük testlerinin yapılması konuları sıkı bir denetim altında değildir. Genelge ile kart test kullanımı sadece acil örnekler ile sınırlandırılmış olmakla birlikte, halen özel laboratuvarlarda, bazı özel kurumların taleplerinin kart test yöntemi ile çalışarak sonuç üretilmesi konusu, uyuşturucu madde kullanımına karşı gerçek bir mücadelede doğru bir kanıtın oluşturulabilmesi için çözülmesi gerekli başlıca problemlerimizden biridir.

2. tartışma konusu: Madde analiz sonuçlarına göre sonucu pozitif olarak raporlamak için eşik değerler tanımlanmıştır. Bu değerler immunkimyasal yöntemle yapılan tarama ve kromatografik yöntemler için ayrı ayrı belirtilmiştir. İmmunkimyasal yöntemle yapılan analizlerde, amfetamin, metamfetamin, ekstazi için; 500, opiat için; 2000, kokain için; 150, benzodiazepinler için; 300, esrar için; 50 ng/ml eşik değerler kullanılmaktadır. Bu değerlerin kullanılmasının temel sebebi, immunkimyasal yöntemle yapılan analizin doğasında, antikor antijen tanıma reaksiyonunun var olması ve aslında uyuşturucu/uyarıcı olmayan bir ilaç ya da gıda maddesinin benzer yapısal özelliği nedeni ile yanlış pozitif sonuç verebilecek olmasıdır. Ancak sorun şudur; gerçekten bu tür bir gıda ya da ilaç tüketmemiş olan kişinin, eşik değer altında, belki de sınır değere çok yakın olan sonucu bu durumda negatif olarak yorumlanmaktadır. Üstelik, kullanılan maddeye göre değişmekle birlikte, genellikle 3-4 gün yarı ömrü olan maddenin kullanılması sonrası birkaç gün ara verildikten sonra idrardaki değerinin azalacağı, belki de eşik değer altında sonuçlanacağı açıktır. Narkotik şube yetkilileri, rutin işleyişte klinik laboratuvarlarda kullanılan eşik değerlerden muzdarip olduklarını belirtmektedir. Birçok kullanıcı için, madde kullandığını bildikleri halde, eşik değerlerin altında sonuçlanan, ama sıfırdan da bir hayli yüksek olan madde analiz sonuç raporlarında kantitatif sonucun yanında, doğal olarak negatif yazdığı için, işlem yapamadıklarını ifade etmektedirler. O halde, immunkimyasal çalışmalarımızdaki eşik değerlerimizi yeniden yapılandırmamız gerektiği görülmektedir. Değerlerimizi tekrar gözden geçirmeliyiz.

3. tartışma konusu: Doğrulama analizleri için kullanılan eşik değerler de, SAMSHA tarafından oluşturulmuş değerlerdir. Doğrulama analizinde kullanılan yöntem, kromatografik ayırım ve kütle ölçüm yöntemi olduğuna ve bu yöntemle maddenin molekül ağırlığı ve yüküne göre analiz sonucu verildiğine göre şimdi ki doğrulama eşik değerlerimiz güncel midir? Amfetamin grubu; 250, opiat; 2000, kokain; 100, benzodiazepinler 200, esrar; 15 ng/ml uygun mudur? Yıllar önce analitik tekniklerde kullanılan cihazlar daha az gelişmişken belirlenen bu değerler, bugün çok daha hassas yöntemlerle doğrulama yapıldığına göre güncel olmamalıdır. Adli tıp laboratuvarlarında yapılan analizlerde oluşmuş olan en küçük bir analit piki bile pozitif olarak değerlendirilirken, doğrulama eşik değerlerimizin bu kadar yüksek olması kurumlar arasında yorum farkı oluşturmaktadır. Gerek tarama gerekse doğrulama eşik değerlerimizin güncellenmesi ile ilgili olarak, Sağlık Bakanlığı Laboratuvar hizmetleri dairesi başkanlığının yönetiminde halihazırda çalışmalar sürdürülmektedir.

4. tartışma konusu: Suçlara karışmış kişilerden madde analizi isterken, savcıların farklı tutumlarıdır. Bazı savcılar idrarda madde analizini, Adli Tıp kurumu laboratuvarlarından isterken, bazıları hastane laboratuvarlarından istemektedir. Ve bu durumda, acil servise gelen savcılık hastası için, halen kart test ile analiz yapılan bazı devlet kurumlarında, sonuçlar hala kart test sonucu olarak, olası pozitif ya da negatif olarak raporlanırken, bazı savcılara, Adli tıp kurumlarından 1 ng/ml değerler bile pozitif olarak raporlanmaktadır. Ortada bir karışıklık ve standardizasyon eksikliği bulunmaktadır.

Tartışılması gerekli başlıca diğer konular; taranması gerekli en az madde çeşidinin arttırılması gerekliliği, rutin tarama programında olmadığı için halen taranmayan ama kötüye kullanılan, başta pregabalin, gabapentin, katinonlar gibi maddelerin kullanım sıklığı, immunkimyasal yöntemle yapılan tarama analiz sonuçlarından pozitif olanların doğrulanması gerekliliği ancak doğrulamaya örnek gönderme hareketliliğinin halen çok yavaş olması, hangi hasta grubunun numunelerinin öncelikle doğrulanması gerekliliği, ağır ve tehlikeli işlerde çalışan kişilerin işe giriş ve periyodik muayenelerinde tarama yapılması gerekliliğidir.

Uyuşturucu ve uyarıcı madde analizlerinde etkin sonuçlar üretebilmek ve mücadelenin kolaylaşması adına klinik laboratuvar desteğini tam olarak sunabilmek üzere, çözüm önerilerimizden birincisi; Adalet Bakanlığı yetkilisi savcılara ve denetimli serbestlik müdürlerine, bilgilendirme amaçlı olarak, klinik laboratuvarlarda neyi nasıl yaptığımızı anlatabilmeliyiz, konferanslar vermeliyiz. İkincisi, öncelikle, yurt dışındaki bazı ülkelerde olduğu gibi, ulusal bir çalışma grubu kurmalıyız. Bu grubu Sağlık Bakanlığı oluşturmalı, klinik biyokimya uzmanları dışında, Adalet Bakanlığı savcılık makamı, denetimli serbestlik müdürleri, İçişleri Bakanlığı narkotik şube temsilcileri, işveren temsilcileri, geri ödemelerle ilgili olarak, ilgili sosyal güvenlik kurumu, mal müdürlüğü kurumları bu çalışma grubunda yer almalıdır. Problemler tek tek konuşulmalı, en uygun çözümler bulunmalı, standart uygulamalar yazılı olarak genelgeleştirilmelidir.

IS027
DECIPHERING THE FUNCTIONALITY OF HUMAN GENES BY RE-ENGINEERING THE HUMAN GENOME

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CRISPR is arguably the most powerful tool in molecular biology. Once known as the bacterial immune system against viruses, the programmable capabilities of the Cas9 enzyme are now revolutionizing diverse fields of medical research, biotechnology, and agriculture. In this talk, I will present how we use CRISPR

technology for high throughput genome screening for novel tumor suppressors and combinatorial drug targets in cancers. Furthermore, I will present the MorPhic consortium project where we utilize CRISPR and auxin-induced degron technology to rapidly deplete target proteins and characterize all known human genes in pluripotent stem cells.

IS028
JOURNEY OF NANOBIOTECHNOLOGICAL DRUGS FROM BENCH TO BEDSIDE

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According to the latest reports, cancers figure among the leading causes of morbidity and mortality worldwide, with approximately 9.9 million cancer related deaths in 2020. Quality of life for cancer patients is drastically debilitated due to deleterious side effects of chemotherapy. The chemotherapy agents are extensively toxic to the entire body, attacking cancer cells as well as healthy cells, leaving the patient vulnerable to other diseases. In an effort to provide more efficacious and less toxic medication for cancer chemotherapy, a multitude of nanomedicines has been explored. A class of nanomedicines, polymer therapeutics share many properties of the biologics (proteins, antibodies, oligonucleotides) with a bonus of synthetic chemistry utilities: tailoring of molecular weight and addition of biomimetic and bioresponsive features to the man-made construct.
This presentation will exemplify a polymer therapeutic initially synthesized at Bogazici University, moved through in vitro and in vivo studies at the Center for Life Sciences and Technologies in an academic setting and finally developed through preclinical studies and currently clinical studies by RS Research Inc, a pharmaceutical biotechnology start-up. Polymeric constructs of interest also carry a biological moiety such as a peptide or a monoclonal antibody (mab) as a targeting unit. The successful polymer-drug conjugates have many advantages including improved water solubility, pharmacokinetic properties and better toxicity profile.
Keywords: nanomedicine, targeted drug delivery

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IS029
AN OVERVIEW OF LABORATORY TESTS IN NEW STREAM MEDICAL PRACTICE IN TERMS OF EVIDENCE-BASED MEDICINE: RELIABILITY, VALIDATION, CLINICAL USEFULNESS

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Hippocrates said that the diagnosis, treatment, and prognosis processes of modern medicine should be based on detailed observation, cause-effect relationships, and accumulated experience. After Hippocrates, medicine was no longer a mixture of superstition, magic, religious views, and empirical therapy, but a true science practiced by doctors accumulating experiences. After the beginning of the 1800s, medical practice continued as “evidence-based medicine”, which means “supporting clinical experience with scientific research results”. With the contribution of basic sciences such as biochemistry, microbiology, and pharmacology, important developments have been achieved up to the present day in the diagnosis, treatment, and follow-up processes of diseases. However, although there is still no consensus on the nomenclature in recent years, new stream medical practice, described as functional, complementary, alternative, naturopathic medical practices have become popular. In these applications, unusual diagnostic procedures and laboratory tests which differ from those used in modern medical practice can be applied.
With the increase in the use of new stream medical practice, there has been a parallel increase in the number of laboratories serving the varid philosophies and diagnostic strategies of practitioners. Studies show that some diagnostic techniques used for this purpose are practical, valid and reliable, while others are not. These tests include others in addition to those that we often hear about in the media, such as genetic or food intolerance testing. Besides old methods such as living blood cell analysis, extremely advanced analysis techniques such as ICP-MS can be employed.
In general, risk and safety issues are not a problem in traditional laboratory tests due to stringent quality assurance programs. However, even with conventional tests biological variation, preanalytical, analytical and postanalytic variables are known to affect the accuracy and reliability of test results, especially if the result is unusual or does not fit the clinical picture. These new stream laboratory tests and their interpretation do not escape the quality and accuracy problems associated with traditional laboratory tests. Moreover, little research has been done to evaluate the effectiveness of these tests, casting many of their claims for scientific usefulness into question.

IS030
TRACE ELEMENT MEASUREMENTS NEED MORE ATTENTION

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Trace elements with nutritional value (iron, zinc, selenium, iodine, manganese, chromium, cobalt, copper, nickel) and those without nutritional value (lead, mercury, aluminum, cadmium, chromium, arsenic, antimony, bismuth, beryllium, thallium, etc.) may be appropriate to examine in two groups.
It is true that trace element measurements are a special clinical laboratory area because their nutritional deficiencies and toxicities are rare (?) (except for iron deficiency) and difficult to evaluate.
Trace element measurement methods, in-house methods, special equipment and training requirements, limited standardization of measurement methods, being affected by many preanalytical and analytical factors, using very complex biological materials, different evaluation criteria, installation and maintenance It differs from other laboratory measurements due to its high cost. For this reason, it is among the relatively less known and severely abused laboratory tests in recent years.

In this presentation, we will focus on tests that use atomic absorption spectrometry ,ICP-OES and ICP-MS devices and which are much more abused, such as iodine, Hg, Pb, Cr, As.
Due to the simultaneous multi-analyte measurement (!) in ICP-MS systems, it causes an increase in unnecessary test requests. Especially, many trace element measurements, which are used in occupational diseases and exposure assessment, are made in unrelated diseases or in healthy populations, causing serious social problems. . This causes Ulysses syndromes especially due to false positive results. The use of incorrect reference intervals, especially outside the biological exposure index or occupational exposure limit values, contributes to the increase in false positive test results. It is very important to make a request only in necessary and evidence-based situations, to use appropriate measurement techniques and to evaluate results without exaggeration. These tests, which are avoited by biochemists, increase their importance day by day. Especially, making trace element test requests from external laboratories, and even mostly from foreign laboratories, requires that this issue be resolved in a short time.

IS031
UNNECESSARY VITAMIN USE AND TEST REQUESTS IN ROUTINE LABORATORY PRACTICE

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Vitamins are important compounds that can cause disease as a result of long-term deficiencies in our body. Vitamins must be taken in a certain amount to maintain health. Since they are common in foods and some of them can be synthesized in our body, vitamin supplements are not included in general treatment schemes, except for risky groups. Vitamin B12 and folic acid, which cause disease as a result of deficiency in the general population, are widely examined in routine practice. Recently, it has been claimed that vitamin D may be associated with many diseases because the vitamin D receptor is found in many tissues except bone. The increasing trend of using off-label vitamins and minerals in order to stay healthy, results with the increased amount of test analysis from medical biochemistry in worldwide. Scientific studies investigating the extent to which the use of vitamins depend on indications often show that vitamin supplements do not provide any clinical benefit in their final reports. According to the report of the US Preventive Service Task Force, it was reported that the use of beta carotene can aggravate the development of lung cancer and the clinical condition associated with existing lung cancer. In this report, cohort, randomized clinical trials were reviewed in detail and a grade of “D”, which means “dissuasion of the use of this service”, is recommended for the use of vitamin supplements. In many European countries, it is recommended that routine vitamin analysis requests be requested only as “indication” and measures are taken to request them in primary health care institutions. Vitamin analyzes for screening purposes are not recommended. Recently, it is seen that the intensive use of biotin for nails and hair causes serious interference with the biotin-avidin reaction, which is widely used in immunoassay analyzes in routine practice. False high and low patient outcomes due to biotin interference have been reported. As a result, it should be kept in mind that treatment and diagnostic analysis requests that do not comply with “evidence-based medicine” can bring a serious financial burden to health insurance institutions, as well as pose a serious threat to the health of the individual and cause erroneous laboratory results.

IS032
METABOLOMICS-BASED TECHNOLOGIES IN THE EVALUATION OF PHYSIOLOGICAL AND PATHOPHYSIOLOGICAL PROCESSES

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All chemical reactions that occur in living organisms are defined as metabolism. Various molecules are formed during metabolic processes and these molecules are called metabolites. Various molecules are formed during metabolic processes and these molecules are called metabolites. Metabolome is a broad term encompassing all metabolites (typically <1500 Da) and represents metabolite profiles caused by a variety of internal and external factors, including genetics, environmental factors, disease, diet, microbiome, toxicity, infection, and inflammation. Sine metabolites serve as essential components of biochemical pathways, they have been measured for decades for their regulatory roles and their importance in the diagnosis of the diseases. In the previous, a limited number of metabolites could be detected by analytical methods, however due to the advances in chromatographic techniques, the metabolome profile in biological samples can be obtained more detailed. Metabolomics is a new member of the ‘omics’ family of systems biology technologies. It is generally defined as the qualitative and quantitative analysis of metabolites (<1,500 Da) involved in biological reactions. Metabolomics is a dynamic portrait of the metabolic state of living systems and thousands of different metabolites can be traced. In this way, the metabolic process can be analyzed with new perspectives, or the cell metabolism can be handled more comprehensively. This analytical approach is a powerful tool for biomarker discovery, elucidation of pathophysiological processes, personalized medicine, identification of new drug targets, disease monitoring and management. Different analytical strategies, such as targeted and untargeted, can be used in metabolomic analysis. In targeted metabolomics analysis, chemically characterized and biochemically predefined groups are measured. In untargeted metabolomic analysis, the scope is broader than targeted analyses and it is aimed to simultaneously identify as many metabolites as possible from biological samples. Many techniques have been used in metabolomics, such as nuclear magnetic resonance spectroscopy (NMR), gas chromatography-mass spectrometry (GC-MS), liquid chromatography-mass spectrometry (LC-MS), and capillary electrophoresis-mass spectrometry (CE-MS). Blood and urine are commonly used samples, but other biological samples, including saliva, cerebrospinal fluid, amniotic fluid, milk, cell culture or tissues, can also be used in metabolomic studies. Metabolomic studies are performed in different clinical conditions such as cancer, psychiatric disorders and metabolic disorders of the newborn. Due to limitations in reproducibility and comparability of results and quality control of analytical and preanalytical steps, non-targeted metabolomics analyzes cannot currently be routinely used in the clinical management of patients. However, after the standardization of preanalytical, analytical and postanalytical processes, non-targeted metabolomic analyzes have the potential to be used routinely in the diagnosis, treatment and follow-up of diseases in the near future.
Keywords: Metabolomics, metabolite, metabolome, LC-QTOF-MS, NMR

IS033
TRANSCRIPTOMICS IN CANCER

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The fact that effective treatment options have not yet been developed for some types of cancer emphasizes an absolute need for expanding our knowledge of the etiology and molecular mechanisms of these diseases.
Here, it will be discussed how high-throughput transcriptome profiling can be utilized to propose new therapeutic targets as well as multifunctional biomarkers in cancer.

IS034
AUTOPHAGY AS A POTENTIAL THERAPEUTIC TARGET IN CANCER

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Autophagy is a key biological catabolic event that occurs at low basal levels in all cell types from yeast to mammals to maintain homeostasis. It is rapidly upregulated during cellular stress, providing cells with recycled intracellular building blocks and substrates for energy generation, hence allowing them to survive unfavorable conditions. Autophagy dysregulations play critical roles in the pathogenesis and progress of several human health problems, including cancer. According to the current view, autophagy seems to serve as a tumor suppressor in the early phases of cancer formation, yet in later phases, autophagy may support and/or facilitate tumor growth, spread, and contribute to treatment resistance. Therefore, autophagy manipulations could serve an emerging role in the field of cancer therapy. MicroRNAs (miRNAs) are small, evolutionary conserved and single-stranded RNAs that are involved in diverse biological functions e.g., autophagy through the repression of target genes. As important gene regulatory elements, miRNAs have expanded therapeutic opportunities as oligonucleotides with efficient miRNA delivery strategies. We designed and modified SPION (Super Paramagnetic Iron Oxide Nanoparticle)-based functionalized, theranostic, innovative RNA-loading nanoparticles to carry miRNAs into specific breast cancer cells. These functionalized nanoparticles selectively deliver an effective amount of the miRNA into the cells or tumor, successfully blocked autophagy and also increased the efficacy of the anti-cancer treatment both in vitro in cells and in vivo in nude mice. In recent years, attention to autophagy in tumor stroma which is referred to as “autophagic tumor stroma” has created a new paradigm to understand the role of autophagy in cancer. However, mechanisms regulating autophagy in the tumor-stroma interaction context are not clear. Here we propose that the autophagic tumor stroma is a phenomenon of adaptation at a certain stage of tumor development, and has a prominent role in tumor growth, progression and spread of tumors. We identified cancer-derived secreted factors as activators of autophagy in fibroblasts and carcinoma-associated fibroblasts (CAFs). Our results suggested that these factors are crucial for tumor-stroma interactions, stromal fibroblast activation and cancer metastasis. In conclusion, we both developed theranostic nanoparticles that are efficiently used as innovative gene therapy tools and also discovered a novel factor that facilitates the talk between cancer cells and their stroma which can be used for targeted cancer therapy.

Keywords: Autophagy, Theranostic nanoparticle, Cancer treatment, Stroma

IS035
INSULIN RESISTANCE AND METABOLIC SYNDROME

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Insulin resistance (IR) is an essential mechanism for metabolic syndrome (MetS), also known as Syndrome X or insulin resistance syndrome.
MetS begins with insulin resistance and it is an endocrine disorder accompanied by systemic disorders such as obesity, glucose intolerance, dyslipidemia, hypertension and coronary artery disease (CAD).
Studies conducted in our country show that our society is gaining weight, and abdominal obesity and the risk of metabolic syndrome is increasing rapidly especially in young-middle aged women.
Insulin resistance is classically a state of reduced sensitivity of target tissues to normal levels of circulating insulin and plays an important role in the development of type 2 diabetes mellitus.
Adipose tissue plays a central role in the pathogenesis of obesity-associated insulin resistance.
Studies have shown that adipocytes produce bioactive substances known as adipocytokines or adipokines. Irregular adipokine production contributes to the development of metabolic syndrome. Adipocytokines secreted by the adipose tissue have been shown to affect insulin sensitivity of other peripheral tissues such as skeletal muscles and liver.
Metabolic syndrome and adipocytokines: Among the adipocytokines, leptin, adiponectin, TNF-α, plasminogen activator inhibitor type 1 (PAI-1), heparin-binding epidermal growth factor-like growth factor are produced in other organs as well as adipocytes and may contribute to the development of vascular diseases. Visfatin has been identified as a visceral fat-specific protein that may play a role in the development of obesity-related diseases such as diabetes mellitus and cardiovascular diseases.
Contrary to these adipocytokines, adiponectin, a collagen-like protein specific to adipose tissue, has been noted as an important antiatherogenic and antidiabetic protein or an anti-inflammatory protein.
Experimental Animal Models in Metabolic Syndrome: Rats are the most commonly used experimental animals for MetS models. MetS models are tried to be created by diets such as high fat, high sucrose, high fructose, high fat and high fructose, high fructose and high sodium, in both healthy and transgenic or knockout rodents. Many rodent models show defects in glucose metabolism and insulin action, similar to human.In rat models, there are many variables such as the concentration of fructose given (35-72% in diet or 10-20% in drinking water), breed of the rats (usually Wistar albino or Sprague-Dawley), gender of the rats, duration of experiment (2 weeks – 12 weeks or even longer), and there is no fixed modelling procedure.
Fructose and Insulin Resistance: A high fructose diet easily causes hyperinsulinemia in animal models. Leptin resistance caused by fructose-based diets has also been shown to cause insulin resistance. Another possible mechanism may be the underproduction of adiponectin; because the circulating concentration of this hormone is related to insulin resistance. Inflammatory pathways (such as TNF-α) activated by fructose-feeding have a direct effect on hepatic and intestinal secretions of lipoproteins. It is known that fructose

negatively affects endothelial dysfunction. The main proposed mechanism for this is oxidative stress.

IS036
TISSUE-SPECIFIC EFFECTS OF FRUCTOSE IN OBESITY

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High fructose corn syrup is used in the food industry because of its low cost and very sweetness. The current obesity epidemic and its associated metabolic diseases and the parallel increase in fructose consumption have required a better understanding of the relevant pathophysiological pathways. It is stated that fructose stimulates de-novo lipogenesis and causes hepatic and extrahepatic insulin resistance, dyslipidaemia, high blood pressure, fatty liver and inflammation in all tissues. The main cellular mechanisms underlying the metabolic effects of fructose are the production of reactive oxygen species, the activation of cellular stress pathways and the increase in uric acid synthesis and the triggering of inflammation. Studies reveal that a high-fructose diet differentially affects glucocorticoid and MIF levels in adipose tissue and liver, and that excessive fructose consumption has tissue-specific effects on the regulation of metabolic inflammation. The main sites of fructose metabolism are the liver, intestines and kidneys. Studies of fructose metabolism have focused more on the liver. Little is known about the metabolism of fructose in other tissues. Increased glucocorticoid levels with excessive fructose influx into adipose tissue, especially increased production of active glucocorticoids in adipose tissue due to increased 11β-hydroxysteroid dehydrogenase 1 activity, has been associated with metabolic diseases. Moreover, recent evidence has shown that fructose in adipocytes increases the availability of NADPH, stimulating 11β-hydroxysteroid dehydrogenase 1 expression and activity, thereby promoting the adipogenic effects of glucocorticoids and opening the door to metabolic disease. Fructose induces the release of proinflammatory cytokines and reduces the production of anti-atherosclerotic cytokines such as adiponectin. In addition, it interacts with the hunger and satiety control systems, inducing leptin resistance, causing an increase in calorie intake. Fructose negatively affects the gut microbiome and gut barrier function by producing endotoxins and intermediates of de-novo lipogenesis. Fructose can affect basic functions involved in energy homeostasis. By affecting the testicles and ovaries, it causes infertility, advanced glycation end products and cataract development. High fructose load enhances the reabsorption of salt from the kidneys and causes high blood pressure. Salt absorption is modulated by several transporters such as NHE3 and PAT1. High fructose intake also modulates the renin-angiotensin-aldosterone system. Experimental studies have shown that cardiomyocytes have a unique ability to transport and utilize fructose due to the expression of all components involved in fructose metabolism. It is also known that the heart is one of the tissues most exposed to free radicals as a result of high fructose nutrition. Tissue-specific fructose metabolism is not well defined for the deleterious effects of fructose. Inhibitors targeting fructose metabolism have been developed for the management of non-alcoholic fatty liver disease and diabetes. When using these drugs, it has become more important to understand how they can affect fructose metabolism in other tissues. High fructose intake may affect central appetite regulation via the endocannabinoid system. It also affects cognitive function by affecting the phosphorylation levels of the insulin receptor, synapsin 1 and synaptophysin. Fructose affects appetite control by increasing serum ghrelin levels and hypothalamic CB1 mRNA and decreasing activation of brain satiety centers. It causes insulin resistance in the brain, impaired learning and memory, and decreased neurogenesis. There is evidence suggesting that exposure to high fructose during critical developmental stages of the fetus, neonate, and infant may act as an obesogenic by affecting lifelong neuroendocrine function, appetite control, feeding behaviour, adipogenesis, fat distribution, and metabolic systems. Increased fructose intake is a risk factor for numerous metabolic complications. Strict control of the use and consumption of sweetened foods, raising public awareness will help reduce the global burden of metabolic diseases that may occur.
Keywords: Fructose, obesity, metabolic effect, inflammation

IS037
BEIGE FAT TISSUE AND RELATED ANTI-OBESITY MECHANISMS

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Adipose tissue is composed mostly of mature adipocytes and stromal vascular tissue consisting of preadipocytes, fibroblasts, and endothelial as well as immune cells. There are different types of adipose tissue, such as white adipose tissue (WAT), brown adipose tissue (BAT), and beige adipose tissue.
Obesity is a chronic metabolic disease caused by genetic, environmental, psychological and social factors. It is characterized by the imbalance of white adipose tissue (WAT) and brown adipose tissue (BAT).
For many years, it was considered that the only function of the adipose tissue was to store energy in the form of fat. However, evidence accumulated over the last two decades has demonstrated that adipose tissue plays other important roles. Adipose tissue works as an endocrine organ capable of synthesizing and secreting a large number of su bstances that regulate energy balance and metabolic homeostasis.
In recent years, thermogenesis has gained interest as it can have a significant impact on energy expenditure, and therefore on the control of obesity. It is now known that brown and beige adipose is of great importance in the generation of thermogenesis. Although the origin of these two types of adipose tissue is different, both express the uncoupling protein known as UCP1, which uncouples oxidative phosphorylation, generating heat. Several studies have shown that overexpression of this protein in experimental animals makes them resistant to obesity despite consumption of a high-fat diet. This has given it an important relevance in the search of strategies against obesity.
WAT that encloses adipocytes with thermogenic properties is termed ‘beige adipose tissue’ (bAT). As brown adipocytes, beige adipocytes have numerous mitochondria and express high levels of UCP-1. Chronic cold exposure, agonists of the β-adrenergic receptor or peroxisome proliferator active receptor gamma (PPARγ), exercise, BAT transplantation, intermittant fasting and caloric restriction stimulate white to beige transformation. Global consequences of such transformation on adipose metabolism and inflammation and on insulin sensitivity are not described but it can be expected that by dissipating energy they may act in a protective manner. Interestingly, the switch from white to beige adipocytes is reversible. Beige adipocytes will lose their UCP-1 activity, reverse their thermogenic properties and reverse to white adipocyte like cells within 5 weeks of warm adaptation . In the same way, chronic high fat feeding in mice stimulates the differentiation of potent beige adipocyte precursors into white adipocytes. In humans,

the distribution of bAT within WAT is unknown. Similarly, the reactivity of the white to beige switch and contribution to energy dissipation remain elusive.
In addition to classic BAT activation to treat obesity and T2DM, the recruitment of beige adipocytes has recently attracted much attention as a novel therapeutic target for obesity and T2DM. Beige adipocytes also play a paramount role in weight control, energy balance regulation and amelioration of glucose and lipid metabolism. Under external stimuli (such as cold exposure, β3-adrenergic agonists, etc.), beige adipocytes recruited by WAT accelerate the absorption of circulating glucose and lipids, and increase energy consumption and thermogenesis. The consumption of glucose and lipids indirectly improves glucose tolerance, insulin sensitivity and beta-cell function. In fact, brown and beige adipose tissues are potential therapeutic targets to treat obesity and T2DM due to their inherent thermogenic capacity and their ability to improve glucose metabolism.
As a result, the stimulation of beige adipose tissue formation, its protective effects against obesity and T2DM appear as interesting areas that will allow the determination of new treatment approaches.

IS038
CURRENT TREATMENT IN METABOLIC SYNDROME AND OBESITY

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Metabolic Syndrome is a cluster of diseases characterized by the association of central obesity, hypertension, glucose intolerance and dyslipidemia, leading to increased cardiovascular risk. While the treatment of metabolic syndrome consists of the early treatment of each component separately, the main goal in prevention and treatment is the treatment of the underlying pathophysiological mechanisms.
Obesity has become a health problem that concerns the whole world, that starts now at a younger age. Obesity treatment is grouped as lifestyle changes, medical treatments and surgical treatments. Lifestyle changes are still far from sustainable in the long term. The fact that quite different pathways play a role in the development of obesity reduces the effectiveness of obesity treatments considerably, and drug combinations that affect different pathways can now be used. Bariatric surgery may be an appropriate choice in obese patients who do not respond adequately to lifestyle changes and pharmacological treatments.

IS039
CURRENT STATUS IN OXIDATIVE STRESS, DISEASES AND ANTIOXIDANT TREATMENT

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The terms oxidative stress, oxidative eustress, and oxidative distress will be evaluated. Unfortunately, oxidative stress and oxidative damage are often used inappropriately as synonyms. What is measured and defined as oxidative stress in many cases is in fa ct an oxidative damage. In fact, damaging oxidations and signaling oxidant events can be good or bad for the organism. They can be present simultaneously in different parts and multiple locations of a cell, tissue or body. Presently there is no officially approved therapy to prevent or cure oxidative stress or oxidative damage. Biomarkers such as overproduction of reactive oxygen species (ROS) could play a role in disease through oxidative stress. In classification of biomarkers related to oxidative stress based on their biological meaning, Type zero biomarkers are the direct measurement of ROS in vivo. Type 1 biomarkers are indicators of oxidative stres and are represented by oxidized lipids, proteins or nucleic acids and their bases. Type 2 biomarkers are indicators of the activation of biochemical pathways that can lead to the formation of ROS. Type 3 biomarkers are host factors such as small-molecular weight antioxidants and antioxidant enzymes. Type 4 biomarkers measure genetic factors and mutations that could modify the susceptibility of an individual to oxidative stress. Oxidative stress is a component of many diseases, such as atherosclerosis, chronic obstructive pulmonary disease, Alzheimer disease and cancer. Although numerous small molecules evaluated as antioxidants have exhibited therapeutic potential in preclinical studies, clinical trial results have been disappointing. In chemistry, antioxidant is simply conceived as a compound that removes reactive species, mainly those that are oxygen-derived. However, the term antioxidant is one of the most confusing definitions in biological/medical sciences. Within a cell the conceptual definition of an antioxidant is poorly understood. Non-clinically recommended antioxidants are often consumed in large amounts based on the belief that cancer, inflammation and degenerative diseases are triggered by ROS and can be prevented by antioxidants. In fact, ROS play a dual role in dealing with different disorders. They may contribute to disease onset and/or progression but may also play a key role in disease prevention. The ability of the most commonly used supplements, such as vitamins C, E, selenium, and herbal supplements to decrease pathologic ROS production is not clearly established.

IS040
DNA REPAIR MECHANISMS IN CANCER DRUG RESISTANCE

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According to World Health Organization, cancer is a leading cause of death in the world. Chemotherapy takes an important part of the treatment. Cancer drugs exerts their cytotoxic effect via inducing DNA damages either directly or indirectly, and subsequentially inducing cancer cell death. However, intrinsec or acquired chemotherapeutic drug resistance is a critical limiting problem for the treatment. Drug resistance leads tolerance to cancer drugs, decreased therapeutic effectivity and is a major cause of cancer relapse increasing cancer mortality rate. Various mechanisms had been suggested in the cancer drug resistance (e.g. decreased influx or increased eflux, inactivation of the drug) but within them deregulation or increased response to drug-induced DNA damages is critical. Altered expression of damage response genes/proteins and efficient/highly efficient repair of drug-induced DNA damages can prevent the drug's cytotoxic effect and lead drug resistance. This presentation will outline DNA repair mechanisms implicated in drug resistance and strategies targeting DNA repair - mainly focusing on nucleotide excision repair mechanism- to overcome chemotherapeutic resistance.

IS041
AUTOMATIC URINE ANALYSERS FROM A TO Z AND THEIR FUTURE IN CLINICAL LABS

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Urinalysis is one of the most commonly performed tests in Medical Biochemistry laboratories because it is non-invasive, easy to sample, analysis is economical, and provides information about general metabolism, diagnosis, and treatment of kidney and/or urinary system diseases. Complete urinalysis consists of macroscopic analysis, chemical analysis, and microscopic analysis. Developed in the 1950s, urine strips increased the number of samples that could be analyzed in a given period, eliminating the chemical preparation step, and enabling the measurement of many chemical parameters at once. It was followed by the proliferation of semi-automatic urine analyzers that read colored urine strips. Since the 1980s, the fully automatic urine analyzers, which can perform microscopic analyzes as well as chemical and physical properties, has started to maximize productivity and test quality by shortening the costs and test request result time.

Manufacturers have developed fully automatic urine analyzers that combine automatic strip readers and microscopic analyzers to enable urinalysis to be done from a single tube. Strip reader units use the reflectance photometer method as in semi-automatic urine analyzers. All processes are automatic as the system can be fully integrated with hospital automation by connecting to LIS. The user places the labeled urine tubes into a sample cassette or carousel. The test is initiated by pressing a button on the instrument display or panel. From this point on, the device controls the movement of the sample cassette, identifies each sample, mixes it, aspirates the urine using the sample probe, and dispenses it into a urine strip. At a certain time, each reaction is read using the appropriate wavelengths of light for that specific test. The systems also determine the physical properties of urine (color, clarity, and specific gravity (SG)), but the methods may differ. To perform a urine color assessment, some manufacturers add an extra pad to the urine strip to determine urine color by reflectance photometry. Others also use multiple wavelength spectrophotometry to determine the color. Light transmittance or light scattering is used for determining urine clarity. The SG test measurement can be performed on a urine strip, but most fully automated urine analyzers use the refractometric measurement because of its higher accuracy. A microprocessor aggregates all the results (color, clarity, SG, and chemical tests) that are sent to the data store, but also printed on a report form or sent to the LIS.

Fully automated analyzers can use different technologies in microscopic evaluation. These methods are fluorescent flow cytometry, automatic particle identification with digital imaging, and digital imaging with automatic microscopy. The standardization is provided to eliminate the variability among users in all systems. Since the waiting time for the samples is shortened, the possibility of cell fragmentation, microbial contamination, or cell collapse is reduced. As a result, the quality of the results and the reproducibility of microscopic examinations increases. However, studies comparing the microscopy results obtained on automatic analyzers with the results of manual urine microscopy suggest that these systems are not error-free and that the need for manual microscopy has not disappeared. It is recommended to compare the results of the chemical analysis of urine with the results of automated microscopy and to reexamine the urine by manual microscopy in the presence of inconsistent samples.

With the effective use of new technologies, including image processing/deep learning, fully automatic urine analyzers have a potential in terms of creating new areas of use, such as a body fluid analysis, rapid diagnosis of urinary tract infections, and determination of abnormal cell structures, as well as the urinalysis. Advances in microfluidics have enabled the development of new chip-based assays that will change the field of automated urinalysis in the near future. The presence of new systems and analyzers using these technologies in a matrix that is extremely easy to absorb, such as urine, might provide unique tools in the early diagnosis and treatment of diseases in the future.

IS042
WHOLE BLOOD ANALYZERS FOR CLINICAL LABORATORIES: FROM THE PAST TO THE PRESENT AND EVEN TO THE FUTURE

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Blood cells were first discovered in the late 1600s, but erythrocyte counting was possible in the 1850s with the aid of hemoglobin content and advanced microscopes. In the following years, different hemocytometers were developed to count diluted blood cells in calibrated chambers. The complete blood count, one of the most requested tests in clinical laboratories, was performed using manual techniques and a microscope until the 1950s. The impedance-based cell counting technique discovered by the Coulter brothers was a landmark for automated hematology analyzers. With the development of fluorescent antibodies in the 1970s, the first fluorescence-activated cell sorting (FACS) device was made for the separation of antibody-labeled cells. In 1976 flow cytometric technique was discovered and by scattering laser beams directed at the cells, the size and granule content of leukocytes could be determined. Combining DNA/RNA labeling fluorescent dyes and light scattering techniques allowed us to differentiate the leukocyte subsets. Today's modern hematology devices increase their discrimination power by using fluorescent or nucleic acid dyes, and monoclonal antibodies in addition to impedance and optical methods based on light-scattering. Thus, while counting immature fractions of reticulocyte, platelet, or granulocyte, population data was provided for also leukocyte subsets. Hematology analyzers have made tremendous advances over the past 50 years, even though they were discovered 70 years ago. While the performance of in vitro blood count devices improves, on the other hand, with the increase of wearable and even implantable technologies, the development of in vivo devices will be inevitable. Although developing technology and new discoveries make it difficult for us to predict the upcoming processes, it is obvious that these innovations will quickly adapt to clinical laboratories (or vice versa).

IS043
CELL CULTURE BEFORE AND AFTER PUTTING ON THE LAB COAT: EXPERIMENTAL DESIGN AND DATA PRESENTATION

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There is clear evidence indicating a crisis in preclinical research especially regarding reproducibility and robustness. Quality of in vitro cell culture studies is of critical concern as the lack of guidelines leads to poor experimental design, misinterpretation of experimental findings and inadequate visualization of the data.
Here we designed and carried out a workshop focusing on cell culture experimental design and data presentation. At the end of the workshop participants were expected to
-Decide suitability of cell culture as a model for their hypothesis.
-Explain general cell culture terms such as: viability, cytotoxicity, proliferation, cell death, and select a suitable method to measure any.
-Explain the main principals of experimental design in cell culture and design experiments utilizing common methods.
-Remember the key points of data visualization in cell culture and interprets drawn graphs accordingly.
We carried out a pre-test before and post-test after the five-hour workshop. Both results of the tests and comments of the participants indicate that majority of the participants achieved aimed competency regarding the listed outcomes.

ORAL PRESENTATION ABSTRACTS

S001
ANTIMICROBIAL EFFECTS OF THE TRIPLE ENZYME (AMYLASE-LIPASE-PROTEASE) EMBEDDED NANOFLOWERS AS A PROMISING APPROACH AGAINST ANTIBIOTIC RESISTANCE

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BACKGROUND AND AIM: Organic-inorganic hybrid nanoflowers (hNFs) are flower-shaped nanoparticles spotlighted since they have high stability, low production cost, cheaper purification processes, overcoming substrate/product inhibition and easy recovery. We have synthesized triple enzyme (amylase, lipase, and protease) embedded organic-inorganic hybrid nanoflowers (TrpE@Cu(II)) and tested their antimicrobial activity in comparison with chitosan.
MATERIALS and METHODS: We synthesized chitosan from shrimp shells and (TrpE@Cu(II)) using lipase, amylase, and protease enzymes. SEM analysis, thermogravimetric analysis (TGA), and the degree of deacetylation (%DD) were performed for chitosan characterization, where SEM, FTIR, EDX, and XRD analysis were performed for the characterization of (TrpE@Cu(II)). Agar dilution and broth dilution methods were used to evaluate the antimicrobial activity of nanoflowers alone and combined with chitosan on the *E. coli* and *S. aureus*.
RESULTS: Our nanoflowers showed significantly enhanced enzyme activity and stability at higher pH and temperatures than each free enzyme. Following we evaluated antimicrobial activity of (TrpE@Cu(II)) compared with chitosan, which is natural, non-toxic, biodegradable, and biocompatible polymer with antioxidant, antibacterial, antifungal, antiviral, and anti-allergic properties because of its polycationic structure. Antimicrobial properties of chitosan have been spotlighted and enabled the industry to use it in various industrial products, including cosmetics, food, pharmaceuticals, and personalized medicine. Our data showed that synthesized chitosan has the same characteristic as a commercial one, where TrpE@Cu(II) showed significant antimicrobial activity on both gram-positive and gram-negative bacteria, similar to chitosan first time in the literature.
CONCLUSION: We showed TrpE@ihNFs, which can be considered as a promising approach for antibiotic resistance and personalized medicine.
Keywords: chitosan, antibioticresistance, nanoflower, enzyme, antimicrobial

S002
PERSONALIZED MEDICINE IN PRACTICE: CYP2D6 (*3, *4, *41) VARIANT DETECTION BEFORE OPIOID USE FOR SAFE PAIN MANAGEMENT IN SICKLE CELL ANEMIA PATIENTS

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BACKGROUND AND AIM: Individuals with sickle cell anemia (SCA) experience serious complications of clinical pain due to vaso-occlusive crisis and hemolysis. The underlying mechanis-

ms of individual differences due to single nucleotid polimorphisms (SNPs) cause variations in the activities of drug metabolizing enzymes and affect drug response. We investigated CYP2D6 variants *CYP2D6 (*3, *4, *41)* that affect opioid metabolism in SCA patients.
MATERIALS and METHODS: Blood samples were collected from 54 SCA patients. After DNA isolation,
*CYP2D6 (*3, *4, *41)* allelic variants detected analyzing high resolution melting (HRM) assay by real-time PCR.
RESULTS: Genotype distribution was; wild type for 30 (55.5%) of 54 patients (**1/*1*), 6 (11.1%) of 54 detected eterozygote (**1/*4*), 13 (24.0%) of 54 were mutant (**4/*4*) and 5 (9.2%) of 54 detected heterozygote for both allele (**4/*41*).
CONCLUSION: Pharmacogenomic testing for better management of pain appears to be an increasingly valuable tool in SCA. Cytochrome P450 2D6 (CYP2D6) is important in the metabolism of commonly used opioids in SCA patients. SNPs in the CYP2D6 gene may affect drug activation and the efficacy of these drugs. Genotyping of the CYP2D6 gene is a reasonable approach for personalized medication use and pain management in patients with SCA. Personalized medicine demonstrates that the use of pharmacogenetic testing for these drug-metabolizing enzyme gene variants may improve the likelihood of reducing a particular toxic effect or increasing the beneficial effect of drug use in these patients.
Keywords: personalized medicine, sickle cell anemia, cyp2d6 gene polymorphism, pain management

S003
OPTIMIZATION STUDY FOR DNA METHYLATION QUANTITATION BY HRM ANALYSIS FOR DAPK1 And MGMT GENES

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BACKGROUND AND AIM: In this study, it was aimed to optimize the HRM (High Resolution Melt Analysis) method, which will enable the methylation determination of the promoter region of the programmed DAPK1 and MGMT genes, and to optimize the binding temperature of the primers, $MgCl_2$ concentration, and the number of PCR cycles.
MATERIALS and METHODS: Bisulfite conversion was carried out , after bisulfite conversion of methylated and non-methylated genomic DNAs, they are gravimetrically prepared as 0%, 20%, 60% and 100% methylated . A smear of x% methyl was also prepared to determine the methylation level. Gradient PCR and HRM methods were used.
RESULTS: For DAPK1, the temperature was 63°C, the MgCl2 concentration was 3 µM, and the number of PCR cycles was 31 cycles, with an R^2 value of 0.9991 in the calibration curve graph; For MGMT, 57°C and 3 µM MgCl2 concentration were selected and the result was obtained with an R^2 value of 0.996 in 33 cycles.
CONCLUSION: The HRM method precisely detects the conversion of cytosine to thymine in DNA methylation, thanks to its ability to detect down to a single nucleotide. However, performing the method analysis manually, selecting the normalization values from the melting curve graphs and determining the number of cycles require expertise. It has been shown that it is possible to determine the appropriate PCR conditions for the gene of interest in the promoter region methylation with the HRM method and by using standards, and the optimization of DAPK1 and MGMT has been carried out.
Keywords: Epigenetic, Methylation, Metrology, HRM

S004
INVESTIGATION OF THE EFFECT OF CA-IX ENZYME INHIBITION ON THE EZH2 GENE AND HISTONE 3 MODIFICATIONS

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BACKGROUND AND AIM: Colon cancer is the most common gastrointestinal cancer worldwide with high morbidity and mortality rates. In acidosis caused by hypoxia, which is a common feature of tumors, it is known that many physiological events such as CO2/bicarbonate transport, pH, CO2, homeostasis, tumorigenesis are catalyzed by the carbonic anhydrase enzyme family (CA, EC 4.2.1.1). The main purpose of our study is to elucidate the interaction mechanism of the H+ ion concentration effect in the CO2/$HCO3^-$ buffer system of tumor-associated CA-IX enzyme inhibition in the HT-29 colon cancer cell line on cell epigenetic modifications.
MATERIALS and METHODS: Cell culture was performed using the human colon cancer cell line HT-29. The results of the cell viability test and inhibition were evaluated. Extracellular pH measurements were performed. Total histone protein isolation was performed and Histone H3 modifications were analyzed by ELISA method. Complementary DNA (cDNA) synthesis was performed by RNA isolation. RT-PCR was performed to determine the gene expression levels of HIF1A, EZH2, and CA9.
RESULTS: CA-IX enzyme inhibition in the HT-29 cell line decreased the expression of CA IX ($p<0.05$) and HIF1A ($p<0.01$) genes, and increased the expression of the EZH2 gene ($P<0.05$). There was a significant decrease in the expression of CA IX ($p<0.05$) and HIF1α genes as a result of inhibition with AZA performed under hypoxic conditions. It was observed that CA-IX enzyme inhibition increases the expression of the EZH2 gene by more than 3 times ($P<0.01$). As a result of AZA inhibition, methylation levels were observed to increase in normoxic conditions, while methylation levels were observed to decrease in hypoxic conditions.
CONCLUSION: Observing the changes in the H3 modifications and changes in the expression of CA9, HIF1A and EZH2 genes in this study supports that CA-IX enzyme inhibition plays an active role in epigenetic modifications.
Keywords: Colon Cancer, CA-IX, Histone3 Modifications, EZH2, HIF1A

S005
THYMOQUINONE PREVENTS PROTEIN GLYCOXIDATION AND AGGREGATION FORMATION: A BIOPHYSICAL ASPECT

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BACKGROUND AND AIM: Thymoquinone (TQ) is a naturally occurring substance with antioxidant, anti-inflammatory, antiproliferative, and proapoptotic properties. In this study, TQ's physiological interactions and binding characteristics with proteins like Bovine Serum Albumin (BSA) and Hemoglobin (Hb) have been

studied.
METHODS: The binding interactions of the TQ, with BSA/Hb, were investigated by computer simulation. The protein's secondary structure was examined using circular dichroism (CD). The non-enzymatic glycation process was analyzed with parameters like browning, fructosamine content, carbonyl content, individual advanced glycated end products (AGEs) content, and total AGE spectroscopically. The glycation-induced aggregates of amyloid β-structure were assessed with congo red and Thioflavin T. Also, the degree of glycoxidative DNA damage was assessed using agarose gel electrophoresis.
RESULTS: The results indicate that the TQ provided a high physiological binding constant (K_b =1.364 x 10^4 M^{-1}) at 25ºC with bovine serum albumin (BSA) as compared to hemoglobin (Hb). The dynamic interaction was observed to be spontaneous with negative Gibb's energy. The secondary structure of BSA was preserved while glycation-induced thermal aggregation was inhibited. The computational analysis determined that the binding between BSA/Hb and TQ occurred through van der Waals forces, hydrogen bonds, and hydrophobic interactions with significant steric stability. Our research shows that the interaction of glucose at the glycation site is disrupted by the interaction of TQ with BSA/Hb. To examine the structural perturbation mechanism of BSA/Hb at various time intervals in the absence/presence of TQ, we carried out a time-based (28 days) *in-vitro* glycoxidation investigation at 37 °C.
Keywords: Aggregation, Hemoglobin, Glucose, Glycoxidation, Thymoquinone

S006
HYDROXYPROPYL METHYL CELLULOSE-S. HORTENSIS L. ETHANOL EXTRACT MIXTURES AS AN ANTIMICROBIAL COATING FOR SUTURES, IDENTIFICATION OF PHENOLIC ACIDS

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BACKGROUND AND AIM: Surgical site infection is one of the most common complications after surgical intervention. These infections are commonly brought on by surgical sutures, and bacteria's capacity to bind them is crucial in this process. This situation is tried to be eliminated by closing the seams with coating agents with antimicrobial properties.
MATERIALS AND METHODS: In this study, the phenolic acid content of *Satureja hortensis L.*ethanol extract was investigated using TLC and LC-MS-MS methods and thymol, vanillic acid, and caffeic acid were identified. Antimicrobial activity of prepared Hydroxypropyl methylcellulose (HPMC)-plant ethanol extract mixture was screened against *E. coli (ATCC 25922), S. aureus (ATCC 25923),* and *B. cereus (ATCC 14579)* species by using TLC-bioautography, disk and well diffusion methods.
RESULTS AND CONCLUSION: Both plant extract and the extract-biopolymer mixture showed inhibition activity on Gram-positive species according to TLC-bioautography results. Considering the disk diffusion test results, it was found that the inhibition activity increased with biopolymer plant extract mixtures for Gram-positive bacteria. Finally, the combination of plant extract with HPMC was used as a coating for surgical sutures, and antimicrobial activities were performed by using the agar diffusion method. All coated sutures showed antimicrobial activity against *S. aureus*. The absorbable coated suture also exhibited antimicrobial activity against *B. cereus*.
Keywords: antibacterial, lcmsms, phenolic acid, satureja hortensis l, suture coating, tlcbioautography

S007
PEPTIDE PD29 AND UPADACITINIB (ABT-494) SUPPRESS FIBROSIS

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BACKGROUND AND AIM: Scleroderma(SSc) is a systemic disease characterized by fibrosis affecting the skin and other organs of the body. The aim of the study is to investigate the anti-fibrotic and anti-inflammatory effects of peptide PD29 and upadacitinib(Upa) in SSc.
MATERIALS AND METHODS: The experimental design in the animal SSc model was based on five animal groups, each consisting of eight Balb/c female mice:1)Control group;2)Bleomycin Group; 3)Bleomycin + Upa group;4)Bleomycin+peptide PD29;5) Bleomycin+peptide PD29+Upa.SSc animal model studies were approved by Kütahya Health Sciences University,Faculty of Medicine, Experimental Animals Local Ethics Committee (47799).Mice were sacrificed at the end of day 21. Masson trichrome staining was performed for Dermal Thickness measurements. α-SMA + cells were evaluated by immunohistochemical examination.
RESULTS: Dermal thickness increased significantly in the Bleomycin applied group, and decreased significantly in the Upa and PD29 group. α-SMA + cells increased significantly in the bleomycin applied group; It was significantly decreased in the Upa and PD29 administered group.α-SMA, TGF-β,collagen-1,smad-2,-Jak-1,Jak-2,Jak-3,stat-3 gene expressions in dermal samples were analyzed by qPCR method. While there was a significant increase in the relevant genes in the bleomycin applied group, the gene expressions were significantly decreased in the Upa and PD29 groups. Collagen-1,α-SMA,Jak-1 protein expressions were investigated in dermal samples by western blotting method. In these experiments,collagen-1,α-SMA,Jak-1 protein expressions were significantly increased in the bleomycin applied group but decreased in the Upa and PD29 group. In addition, upa and PD29 reduced SSc fibrosis.
CONCLUSION: The use of Upa and PD29 hybrids may be effective in the treatment of SSc.
Keywords: scleroderma, pd29, upadacitinib, antifibrosis

S008
INVESTIGATION OF TMAO LEVELS IN EXPERIMENTAL ACUTE LUNG DAMAGE CAUSED BY BLUNT THORACIC TRAUMA IN RABBITS

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Thoracic trauma often results in devastating injury with high morbidity and mortality. Acute lung injury(ALI) occurs in 50-60% of patients with blunt thoracic trauma.Trimethylamine-N-oxide(T-

MAO) is a molecule produced in intestinal microbial metabolism and is more prominent in studies on microbiota,but recent clinical studies show positive relationship between high plasma TMAO levels,other pathological conditions such as death,myocardial infarction,and inflammation.Our study aims to evaluate the relationship between TMAO levels in ALI caused by blunt thoracic trauma created by applying different energy levels to healthy rabbits.
The study was conducted on 27 New Zealand type rabbits 1-2 years old,trauma was created by applying different levels of energy. Four groups were studied as control(C),low(G1),medium(G2),and high(G3) trauma groups.Blood samples were taken at 0, 12 and 24 hours,and TMAO levels were analyzed by LC-MS/MS device.
While there was no change according to time in the K,G1 groups the TMAO value decreased significantly at the 12th,24th hours compared to the 1st hour in G2($p<0.001$). In G3, the TMAO value decreased significantly at the 24th hour compared to the 1st,12th hours ($p<0.005$).Significant differences were found between the groups according to the change in time ($p<0.001$).
It has been observed that TMAO levels vary between groups and in relation to time in ALI due to blunt thoracic trauma created by applying different energy levels,TMAO levels increase as the severity of the trauma increases.We think that the TMAO levels of our study may contribute to the evaluation of the prognosis of trauma and to the follow-up of the inflammation process.
Keywords: lcmsms, trimethylaminenoxide, blunt thoracic trauma

S009
THE ROLES OF SEMI ELEMENTS IN MEN'S INFERTILITY AND EVALUATION OF THE RELATIONSHIPS BETWEEN ELEMENTS And SEMEN PARAMETERS

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BACKGROUND AND AIM: Infertility has reached to 10- 15% of couples. The male factor is effective in 30-40% of and the female factor is effective in 40-50% of infertile couples. As of 2000, negative effects of heavy metals exposure on the reproductive system are seen such as impairing spermatogenesis and hormonal balance in testicles.It was aimed to investigate the relationship between spermyogram parameters and trace element levels in infertile men.
MATERIALS and METHODS: The semen samples taken from the volunteers, who came to the IVF Unit Andrology Laboratory of the Medicine Faculty of Selcuk University, were divided into two groups. Group I; Normozoospermic individuals (n = 35, sperm concentration≥15 million/mL), and Group II; Oligozoospermic individuals (n = 35, sperm concentration<15 million/mL). Cobalt, Nickel, Copper, Arsenic, Cadmium, Lead, Selenium, Aluminum, Crom, and Cupper levels in seminal plasma were measured. (Perkin Elmer Elan DRC-e ICP-MS).
RESULTS: Cobalt (10,96±2,53µg/L vs 0,02±0,002 µg/L), Nickel (0,357±0,088 vs 0,110±0,035 mg/L), Copper (0,749±0,224 vs 0,367±0,052 mg/L), Arsenic (4,951±1,354 vs <0,0004 µg/L), Cadmium (0,134±0,108 vs <0,00007 µg/L) and Lead (50,60±4,87 vs 0,0051±0,000514 µg/L) levels were found higher in oligozoospermic than in normozoospermic ($p<0.05$). Selenium levels were lower in oligozoospermic individuals (66.51±10.26 µg/L) than normozoospermic (296,49±36,088 µg/L). A significant correlation was found between element levels and spermiogram analyses.
CONCLUSION: High concentrations of trace elements in seminal plasma, which have roles in fertilization, have toxic effects, and the relationships of these elements with spermiogram results show that elements may have effects on various biological pathways that cause infertility.
Keywords: trace elements, fertilization, infertile male, semen, spermyogram

S010
INVESTIGATE THE DIFFERENCES OF CAMP AMOUNT OF R68W, ΔR67-G69 AND T273M MUTANT AVPR2 PROTEINS AFTER OPC-41061, OPC-31260 AND OPC-21268 TREATMENT

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BACKGROUND AND AIM: Antidiuretic hormone arginine vasopressin (AVP), arginine vasopressin receptor (AVPR2) and aquaporin water channel protein 2 have important roles in maintaining water homeostasis regulated by kidneys. Mutations in AVPR2 gene can lead to functional loss, resulting in Nephrogenic Diabetes insipidus, which is rare and characterized by excessive urine formation. Types of mutations in AVPR2 can cause functional loss at different levels and consequently, symptoms may vary in patients. AVPR2 mutations can cause misfolding and protein can be trapped in the Endoplasmic reticulum (ER) which is quality control mechanism of cell. Pharmacological chaperones (PCs) are cell-permeable, small molecules that help folding process of proteins and are frequently used in rescue of mutant AVPR2s. The aim of this study is to investigate functionality of R68W, ΔR67-G69 and T273M mutants which were rescued by OPC-41061, OPC-31260 and OPC-21268 via cAMP accumulation assay.
MATERIALS and METHODS: COS-1 cells were transiently transfected with mutant AVPR2 plasmids and incubated separately with 3 different PCs. After the stimulation of mutant receptors with AVP, cAMP accumulation assay was performed as a functional analysis. The data were analyzed with GraphPad Prism sofware.
RESULTS: R68W, ΔR67-G69 and T273M which were previously found to had functional loss coul be rescued with OPC-41061, OPC-31260 and OPC-21268 and they could be functional at different levels.
CONCLUSION: Recovering problems in protein folding because of type and localization of mutation with PCs and determining that these mutant AVPR2s can be re-functionalized, bringing a new perspective to possible treatment strategies of a rare endocrinological disease that negatively affects daily life of patients.
Keywords: avpr2, camp, opc41061, opc31260, opc21268

S011
INVESTIGATION OF THE PHARMACOMIMETIC EQUIVALENCE OF RAT TESTICULAR-BRAIN TISSUES RELATED TO NMDAR EXPRESSION IN THE NMDAR HYPOFUNCTION MODEL

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BACKGROUND AND AIM: In the N-methyl-D-aspartate receptor (NMDAR) hypofunction model, the expression levels of the receptor in brain-testis tissues and the amounts of NR2A-NR2B subunits at these expression levels were investigated.Whether the testicular tissue can be a reference tissue to the brain tissue was discussed according to the research findings.
MATERIALS and METHODS: NMDAR expression levels of tissues and the percentage of NR2A-NR2B subunits at these expression levels were investigated by ELISA method. Brain and testicular tissues of 6-week-old male rats (Wistar Rat) were used. In total, 3 different functional areas (thalamus-olfactory-striatum; epididymis-rete testis-seminiferous tubules) belonging to both tissues were examined in total, in the control and ketamine groups. Statistical significance of the data was evaluated with SPSS 26 program.
RESULTS: The fact that the expression levels of all tissues in the control groups did not differ statistically (p<0,154) is the most important finding that the receptor refers to the distribution in the testis and the brain. In modeling, the semineferous tubules respond to ketamine by decreasing the amount of NR1(p<0,009); rete testis responded by reducing the amount of NR2A-NR2B (p<0,002-p<0,014) without differentiating the amount of NR1 from the control level. When modeling in brain tissue, the thalamus responded by reducing the amount of NR1(p<0,001), while only olfactory field decreased NR2A levels (p<0,025) and preserved NR2B levels without differentiating the NR1 amounts from the control level.
CONCLUSION: Testicular tissue rete testis area, like brain tissue olfactory area, participates in hypofunction of NMDA receptor by NR2A-NR2B isotype selection.
Keywords: NMDAR, Shizophrenia, Ketamine, Brain tissue, Testicular tissue

S012
DETERMINATION OF THE EFFECT OF VPA985 PHARMACOLOGICAL CHAPERONE ON MUTANT ARGININE VASOPRESSIN RECEPTORS BY ELISA

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BACKGROUND AND AIM: The aim of this study was to investigate effect of VPA985 pharmacological chaperone (PC) treatment on cell surface expression of R68W, V162A and T273M mutant arginine vasopressin receptors which causes a rare X-linked hereditary disease Nephrogenic Diabetes Insipidus.
MATERIALS and METHODS: Non-toxic dose of VPA985 for COS-1 cells was determined by MTT assay and trypan blue staining method. Cells were transfected with wild type and mutant pLV2R plasmids. After VPA985 treatment, cell surface ELISA and sandwich ELISA methods were used to determine cell surface expression and total expression of mutant receptors, respectively. Data were analyzed using GraphPad Prism software. This study was supported by H.Ü. Coordination Unit project number with FBA-2020-18843.
RESULTS: It was determined that there was no difference in intracellular total expression of mutant receptors after treatment with VPA985 but there was a slight increase on cell surface expressions of mutants.
CONCLUSION: The decrease in expression of mutant receptors on cell surface, whose total intracellular expression does not change, may be due to the fact that these mutant receptors have folding problems and as a result they are trapped in quality control mechanism of cell. PCs such as VPA985 are thought to increase cell surface expression of receptors where they are functional by helping the mutant receptor to be folded correctly. In this study, VPA985 caused an increase on cell surface expressions of mutant receptors at different levels which consequently they might be functional and results of this study may be a basis for possible treatment approaches.
Keywords: vpa985, nephrogenic diabetes insipidus, avpr2, elısa

S013
THE EFFECT OF OLANZAPINE ON INSULIN LIKE GROWTH FACTOR 1 AND ITS RECEPTOR IN PREFRONTAL CORTEX AND HYPOCAMPUS

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BACKGROUND AND AIM: To determine the changes in insuline like growth factor 1 (IGF-1) and its receptor (IGF-1R) the emergence of bipolar disorder and its treatment with olanzapine.
MATERIALS and METHODS: Of 48 adult male albino wistar rats, the control group (n=12) saline (0.5 ml), ketamine group (n=12) ketamine (0.5 ml,25 mg/kg), olanzapine group (n=12) olanzapine (0.5 ml,2 mg/kg), ketamine+olanzapine group (n=12) ketamine (0.5 ml, 25 mg/kg) was administered intraperitoneally once a day for 14 days. In addition to ketamine administration, olanzapine (0.5 ml,2 mg/kg) was administered once a day to ketamine+olanzapine group between 8-14 days. IGF-1 and IGF-1R gene expression and protein levels were measured in prefrontal cortex and hippocampus.
RESULTS: In prefrontal cortex, while IGF-1R gene expression levels decreased by 0.277-fold in ketamine group, IGF-1 gene expression levels increased by 2.082-fold in olanzapine group, and IGF-1R gene expression levels increased by 1.431-fold in ketamine+olanzapine group. In hippocampus IGF-1 gene expression levels decreased by 0.592-fold in ketamine group, protein levels accompanied this decrease. IGF-1 protein levels decreased and IGF-1R gene expression levels increased by 3.712-fold in olanzapine group. IGF-1 and IGF-1R protein levels decreased, IGF-1R gene expression levels decreased by 0.003-fold in ketamine+olanzapine group.
CONCLUSION: Decrease in IGF-1R gene expression levels in prefrontal cortex and decrease in IGF-1 gene expression and protein levels in hippocampus may be effective in development of bipolar disorder. Olanzapine may show its effect by increasing IGF-1 gene expression levels in prefrontal cortex and IGF-1R gene expression levels in hippocampus.
Keywords: Olanzapine, IGF-1, IGF-1R, Prefrontal cortex, Hippocampus

S014
THE PRELIMINARY RESULTS OF THE MAINLY EFFECTIVE GENE EXPRESSION LEVELS IN EET METABOLISM IN PATIENTS WITH DIABETIC RETINOPATHY

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BACKGROUND AND AIM: Diabetic retinopathy (DR) is one of the most common microvascular complications of diabetes. The molecular mechanism and pathogenesis of this disease still remain unclear. It has been shown that individual differences in epoxyeicosatrienoic acid (EET) levels and metabolism, which have regulatory functions in the endothelium and vasculature, are associated with clinical conditions such as hypertension, atherosclerosis and ischemic stroke, and diabetes. The major enzymes that determine the major levels of EET in the human vasculature are CYP2C9, CYP2J2, and soluble epoxide hydrolase (çEH) encoded by the CYP2S1 and EPHX2 gene. In this study, blood levels of gene expression of EPHX2, CYP2C9, CYP2J2 and CYP2S1, which we think may be effective in the pathogenesis of DR, were examined for the first time.
MATERIALS and METHODS: A total of 379 individuals, including 137 healthy controls, 113 non-DR and 129 DR, were included in the study. Blood samples were taken from the volunteers, total RNA isolation from the blood and DNA synthesis were performed from these samples. Gene expression levels were determined by qPCR.
RESULTS: A result, statistically significant changes were detected in the expression levels of the relevant genes in the non-DR and DR groups compared to the control group.
CONCLUSION: Significant differences in the expression levels of the major genes that are effective in EET metabolism and levels may also lead to differences in EET levels, which may affect the regulatory functions of these molecules in the biological processes of the endothelial and vascular system, and in this case, may be effective in the pathogenesis of DR. However, further comprehensive studies are needed in this regard.
Keywords: Diabetic retinopathy, qPCR, EPHX2, CYP2C9, CYP2J2, CYP2S1

S015

S016
EFFECTS OF PACLITAXEL ON VARIOUS IMMUNE SYSTEM RELATED GENES EXPRESSION LEVELS IN MICE SCIATIC NERVE

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BACKGROUND AND AIM: Anticancer agents are one of the most important elements of cancer treatment. The efficacy of Paclitaxel (PTX) has been demonstrated in different types of cancers. However, significant side effects in the nervous system are also observed in cancer patients treated with PTX. Considering the high doses of PTX, it is one of the most important anticancer agents causing peripheral neuropathy.
MATERIALS and METHODS: Saline as control (SLN, n=11), also vehicle (VEH, n=8), and PTX dissolved in vehicle (n=8) were applied to 27 male BALB/c mice intraperitoneally during a nine-day trial. The expressions of immune system-related proteins like; Jchain (immunoglobulin joining chain), Fcer2a (Fc receptor IgE low affinity II alpha), and Slamf6 (SLAM family member 6) in the sciatic nerve were examined by qRT-PCR. β-actin was used as the housekeeping gene.
RESULTS: It was revealed that Jchain, Fcer2a, and Slamf6 expressions statistically significantly downregulated after chemical applications.
CONCLUSION: The cross-talk between the immune system and catabolic cellular processes are important targets to examine. The expressions of various immune system-related genes need further investigation and those genes may have important roles in peripheral neurotoxicity after PTX application.
Keywords: balbc, peripheral neurotoxicity, qrtpcr, cancer

S017
EVALUATION OF MEASUREMENT UNCERTAINTY OF CARBAMAZEPIN AND VALPROIC ACID TESTS

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BACKGROUND AND AIM: Carbamazepine and valproic acid are antiepileptic drugs used in the treatment of epilepsy. Antiepileptic drugs are the cornerstone of the treatment of epileptic patients. Monitoring the blood levels of these drugs is crucial in the clinical evaluation of patients. Therefore, it is important whether the results of these tests are reliable. Uncertainty of measurement is the quantitative expression of the quality of test results by evaluating the effects of possible sources of error. In this study, we aimed to calculate the measurement uncertainty values of carbamazepine and valproic acid tests.
MATERIALS and METHODS: Carbamazepine and valproic acid tests studied in the Roche Cobas 6000 C501 in the Biochemistry Laboratory of Yozgat Bozok University Research and Application Hospital. Using the internal quality control results and external quality control results of these tests, the measurement uncertainty calculations were made according to the Nordtest guideline. The calculated results were compared with the total allowable error (TEa) values in CLIA.
RESULTS: The expanded uncertainty of measurement for carbamazepine was 7.48% at the 95% confidence interval, it was calculated as 19.24% for valproic acid. The measurement uncertainty values for both tests were below the target TEa values (25%).
CONCLUSION: Calculating the measurement uncertainty and informing the relevant clinic will guide clinicians in evaluating the results obtained from the laboratory. It will also inform about the reliability of our measurement results.
Keywords: Uncertainty of measurement, Carbamazepine, Valproic acid

S018
CLINICAL LABORATORY USE OF LITHIUM HEPARIN TUBES INSTEAD OF SERUM GEL TUBES

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BACKGROUND AND AIM: Because of its many benefits, plasma is increasingly being used instead of serum in clinical laboratory. WHO advised using plasma because it consist features that, compared to serum, more accurately reflected a patient's pathological

status.In this study, it was intended to compare the results of the analysis of 25 biochemistry tests and 15 immunoassay tests from blood samples drawn from 80 randomly selected volunteers who applied to the emergency department of our hospital. Samples were drawn into the tubes of the mechanical separator, lithium heparin gel separator, and serum gel separator.
MATERIALS and METHODS: Gel separator tube for serum and for plasma with lithium Heparin gel separator (VACUETTE) and mechanical separator plasma tubes (BD Barricor) were used. Samples were studied Roche Cobas analysers.
RESULTS: The calculated total error values from tests were compared across all tube types. Serum lithium heparin tubes, the total error percentages were found K: 8, Albumin: 3.92, Na: 2.46, Cl: 2.86, CA: 2.44, LDH: 12.85. The total error limits calculated for these values and the desired EFLM biological variation percent error limits are respectively: 4.8; 3.4; 0.70; 1.30; 2.30; 7.7. Except for these analytes, all analytes were within the percent total error limits of biological variation.
CONCLUSION: Mechanical separator and the lithium heparin gel separator tubes were comparable to the serum gel separator tubes for all analytes evaluated. Plasma can be used instead of serum in these tests because of the advantages of using plasma and its potential to reduce TAT times.
Keywords: lithium heparine, plasma sample, sample tube

S019
TWO DIFFERENT PROCEDURE, TWO DIFFERENT RESULTS. EVALUATION OF URINE PROTEIN TEST METHODS

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BACKGROUND AND AIM: Urine samples are one of the most used sample types in the clinical laboratory. There has always been a debate about whether there is a correlation between the results from different analytical devices. Our study compared urine protein values measured in Bezmialem Foundation University Hospital using the Dirui FUS-200/H-800 urinalysis system and Abbott Architect c16000.
MATERIALS and METHODS: Urine protein test results from both systems performed in our hospital laboratory between January 1, 2022 and May 31, 2022 were examined. Abbott Architect autoanalyzer measures urine protein with the turbidimetric method and gives qualitative results, and Duriu systems measure urine protein with the dipstick method and give quantitative results. Statistical analysis was done using MedCalc version 19.6.3, and a p-value of <0.05 was considered significant.
RESULTS: It was shown that 52315 test results were approved in these five months. Most of these tests were requested from the nephrology department. Since 2152 of those tests were done consecutively on the same sample from the same patient, only these results were used for correlation statistics. Using Spearman's correlation test, a strong correlation was found between those two methods, r=0.798 (p<0.0001, 0.776-0.819 95% CI).
CONCLUSION: Urine protein tests are one of the most requested tests in our laboratory, and these results are essential in the clinical course of the patients. In our study, we found a strong correlation between these two different test procedures.
Keywords: urine, protein

S020
METHOD COMPARISON BETWEEN "TRIMARIS NEONATAL TSH FEIA" KIT AND ITS PREDICATE "TRIMARIS NEONATAL TSH EIA" KIT

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Congenital hypothyroidism (CH), which is characterized by thyroid hormone deficiency, is one of the important causes of preventable mental retardation in newborns, and concordantly is one of the first parameters included in newborn screening programs worldwide. The high TSH level typically observed in CH is used as a distinguishing feature in newborn screening and is measured by immunological methods from dried blood spots (DBS). Neonatal CH screening in Türkiye was performed by the colorimetric Trimaris Neonatal TSH EIA kit. To benefit analytical performance advantages of fluorometric measurements, the new Trimaris Neonatal TSH FEIA kit which performs fluorometric measurements with a lower limit of detection (LOD) and a higher linearity range has been developed.
BACKGROUND AND AIM: This study compares the quantitative TSH measurements performed by Trimaris Neonatal TSH EIA and FEIA kits from DBS.
MATERIALS and METHODS: Parallel TSH measurements were performed with both kits in 150 DBS samples, correlation of the results was examined by Passing–Bablok regression analysis, and bias between the results was examined by Bland–Altman analysis.
RESULTS: In the Passing–Bablok regression analysis, the correlation(R) value was found to be 0.96, with slope: 0.94 (95% CI: 0.88-1.04) and intercept: 1.84 (95% CI: 1.06-2.53). Bland–Altman analysis indicated that the bias was 0.60 (95% CI: -8.87–10.08).
CONCLUSION: Trimaris TSH FEIA Kit, which has the advantages of lower LOD, wider analytical range, higher linearity, and longer signal stability, was found to have a high correlation with kit Trimaris Neonatal TSH EIA kit in TSH measurements from DBS.
Keywords: neonatal screening, dried blood spots, congenital hypothyrpidism, tsh, feıa, eıa

S021
USE OF REFERENCE CHANGE VALUE IN FOLLOW-UP OF PATIENTS USING ISOTRETINOIN FOR ACNE VULGARIS

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BACKGROUND AND AIM: Isotretinoin is used for acne treatment. Since isotretinoin has many side effects, it is recommended to take samples from patients for laboratory tests during follow-up. In our study, it was aimed to detect side effects earlier by investigating whether the difference in recurrent total cholesterol(TC), triglyceride(TG), AST, ALT, GGT, WBC,RBC,HB,HCT,PLT,NEU measurements exceeds the Reference Change Value(RCV). .
MATERIALS and METHODS: 59 patients using 30 mg/day isotretinoin for 24 weeks were analyzed retrospectively. The analytical coefficient of variation(CVA) was calculated from the internal quality control results. The intraindividual coefficient of variation(CVI) and interindividual coefficient of variation values were obtained from Westgard's website. The individuality index(BI) for each test was calculated as the CVI/CVG ratio. The RCV% was taken as

the basis for the evaluation of the tests with a BI value below 0.6. It was calculated with the formula RCV%=(z.2$^{1/2}$.[CVA^2+CVI^2] $^{1/2}$) with the obtained data.
RESULTS: RCV% results; for AST, ALT, GGT, TC, TG, WBC, RBC, HB, HCT, PLT, NEU were 30%, 46%, 32%, 15%, 47%, 27%, 8%, 6%, 7%, 22%, 40% respectively. Among the parameters that changed greater than the RCV% value, HCT showed a clinically significant decrease at the end of both 1 and 6 months, while TG increased only at the 6th month.
CONCLUSION: The %RCV values we calculated are consistent with the literature. When evaluating the laboratory results of the patients, interpretation should be made by considering whether they exceed the RCV value. RCV-based assessment appears to be a more sensitive approach than population-based reference intervals.
Keywords: acne vulgaris, reference change value, biological variability, isotretinoin

S022
ROYAL JELLY EXHIBITS CYTOTOXIC EFFECTS IN HL-60 CELLS BY INDUCING APOPTOTIC CELL DEATH

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BACKGROUND AND AIM: Royal jelly is called a superfood in terms of its rich nutritional content. In general, since it is effective on cell renewal, production, and metabolism in the body, it provides vitality in all tissues of the organism and as a result, health, energy, and immunity. This study, it was aimed to investigate the cytotoxic and apoptotic effects of royal jelly on HL-60 acute promyelocytic leukemia cells.
MATERIALS and METHODS: To determine the effective concentrations of royal jelly on HL-60 cell line, 100-0.001 mg/mL of royal jelly were incubated for 24, 48, and 72 hours. MTT test was performed after each incubation period. Apoptotic activity of royal jelly IC_{50} values calculated according to MTT results was analyzed by Annexin V-FITC test in flow cytometry.
RESULTS: According to MTT results, IC_{50} values of royal jelly concentrations at 24, 48, and 72 hours were 13.95, 6.45, and 2.06 mg/mL, respectively. According to the results of Annexin V-FITC at the end of 24, 48, and 72 hours incubation, the percentages of apoptotic cells in HL-60 cells of royal jelly were found to be 13.48%, 22.17%, and 23.27%, respectively. In the control group to which royal jelly was not added, the rate of apoptotic cells was 6.23%, 3.23%, and 6.82%, respectively.
CONCLUSION: Our findings showed that royal jelly has a cytotoxic effect on HL-60 cells, and it achieves this effect in a controlled manner by promoting apoptosis. Further molecular analyzes with royal jelly may be a glimmer of hope for the treatment of leukemia.
Keywords: Royal jelly, cytotoxicity, apoptosis

S023

S024
IS T. VULGARIS EFFECTIVE IN PREVENTING HUMAN BREAST ADENOCARCINOMA CELL METASTASIS?

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BACKGROUND AND AIM: The genus Thymus, belonging to the family Lamiaceae, has multiple biological and pharmacological properties, including antimicrobial, antiseptic, antiviral and antifungal activities. This study aimed to determine the cytotoxic effect and metastatic potential of methanol/water phase extract prepared from Thymus vulgaris (TV) in human breast adenocarcinoma cell line (BT-474) by combining it with the chemotherapeutic agent paclitaxel (PAC).
MATERIALS and METHODS: The IC25 and IC50 concentrations of TV and PAC in BT-474 cells were determined by the modified MTT method we developed in our laboratory.Cell migration as an indicator of metastatic potential; with in vitro wound healing method, colony formation potential was evaluated with Spheroid Model. The evaluation of the data was made with SPSS program. Conformity of the variables to the normal distribution ANOVA was used to compare the groups.
RESULTS: In wound healing assays, TV50 dose was found to be statistically significant in “cell migration rate” measurements compared with treatment groups.P<0,05. When the spheroidal formation in the 10-day 3D agarose gel is taken into consideration, there is no significant statistical difference between the PAC 50 and TS50 groups, while in the combined group; spheroid formations larger than the reference value were statistically significantly lower. A significant reduction in spheroidal formation was observed in combined (TV25+PAC25) and TV50 doses compared to the control group. P<0.05
CONCLUSION: These findings are due to the fact that TV therapy in breast adenocarcinoma cells; especially when combined with PAC, it reveals that it may be effective in preventing tumor cells from becoming spheroidal and tumor cell migration.
Keywords: metastasis, migration, invasion, thymus vulgaris

S025
THE EFFECT OF TOLL LIKE PROTEIN ON DOXORUBICIN RESISTANCE IN HEPATOCELLULAR CARCINOMA CELL LINES

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BACKGROUND AND AIM: Transcatheter arterial chemoembolization is one of the current approaches used in hepatocellular carcinoma, the most common type of liver cancer. In this approach, various cancer drugs are injected into the hepatic artery, followed by embolizing agent administration. However, after this application, cases where malignancy increase in hepatocellular carcinoma tissue can be seen. Therefore, it is important to increase cancer drug effectiveness during this treatment. One of the cancer drugs used in this procedure is Doxorubicin. In this study, it was investigated whether Toll-like protein, the human ortholog of the *CUE5* gene that is determined to play role in doxorubicin resistance in yeast cells in our previous studies, plays a similar role in resistance to

make hepatocellular carcinoma cell lines more sensitive to doxorubicin.
MATERIALS and METHODS: Expression of Toll-like protein in well-differentiated(Hep3B) and poorly differentiated(SNU449) cell lines was increased by plasmid transfection and silenced by siRNA. The proliferation and viability of these cells in the presence of doxorubicin were then monitored.
RESULTS: The effect of Toll-like protein differed depending on the differentiation status of the cells; Its overexpression caused approximately 2-fold increase in resistance in SNU449 cells in the first 48 hours, while only its silencing in Hep3B cells resulted in approximately 2-fold more sensitivity at 48th hour.
CONCLUSION: Although further studies are needed, the findings show that the toll-like protein may play role in doxorubicin resistance in hepatocellular carcinoma cells and its silencing in well-differentiated cells may help sensitizing them to the treatment.
This project is supported by TUBITAK (Grant No: 119Z221).
Keywords: hepatocellular carcinoma, doxorubicin, Transcatheter arterial chemoembolization, tollip

S026

S027
BORIC ACID INDUCES OXIDATIVE STRESS AND APOPTOSIS IN U251 GLIOBLASTOMA CELL LINE THROUGH SEMA3A/PLEXIN A1/NEUROPILIN 1 SIGNAL PATH

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BACKGROUND AND AIM: Gliomas represent the most common type of central nervous system tumor in adults, accounting for 81% of malignant brain tumors. The predominant therapeutic approach is to increase oxidative stress factors to a high enough level to prevent proliferation of glioma cells. Although the unique cytotoxic abilities of boric acid (BA) for cancer cells have been presented in partial studies, its effect on the semaphorin-plexin signaling pathway in the U251 glioblastoma cell line, how it regulates oxidative stress and apoptosis has been the main target of our research.
MATERIALS and METHODS**:** Using the MTT method, the cytotoxic activity of BA at 24, 48 and 72 hours was determined in U251 glioblastoma cells, cell viability was calculated, and the IC50 concentration of Boric Acid was determined. After cell lysates were prepared, cells were treated with low and high concentrations of Boric Acid (IC25, IC50 and IC75). Biochemical analyzes were performed with semaphorin-plexin signal pathway parameters such as SEMA3A, PLXN A1, NRF1 levels, TAS, TOS and GSH levels indicating oxidant-antioxidant status, CASP3 and CYCS.
RESULTS: When SEMA3A, PLXN A1, NRF1 signaling pathway was examined, it was determined that overexpression of SEMA3A increased in glioblastoma cells with dose-dependent BA application. OSI showing oxidative stress index and apoptotic markers were observed to trigger cells in a dose-dependent manner.
CONCLUSION: BA application may help develop glioblastoma treatment strategies. The functional role of SEMA3A in GBM appears controversial. SEMA3A found to be responsible for proliferative or cytotoxic activity in U251 GBM cells.
Keywords: bor, glioblastom, semaphorin

S028
IN PATIENTS WITH TYPE 2 DIABETES; ANTIOXIDANT MINERALS AND THE RELATIONSHIP OF OXIDATIVE STRESS AND ANXIETY

OBJECTIVE: Diabetes Mellitus (DM) is a common metabolic disease associated with increased oxidative stress as well as psychosocial disorders. The aim of this study; To investigate the relationship between serum magnesium, copper, zinc, paraoxanase and arylesterase levels and obesity, oxidative stress and anxiety in Type 2 DM patients with and without anxiety.
MATERIALS AND METHODS: Our study was carried out on a total of 79 patients, 34 of whom were non-anxious, 32 mild and 13 moderate-severe Type 2 DM patients who applied to Medipol University Mega Medipol Hospital Laboratory. Glucose, HDL cholesterol, LDL cholesterol, total cholesterol, triglyceride, HbA1c, zinc, magnesium, copper, total oxidant capacity (TOS), total antioxidant capacity (TAS), paraoxanase and arylesterase levels were measured quantitatively by colorimetric method and CRP by immunoturbidimetric method. The oxidative stress index was calculated using the TOS/TAK formula.
RESULTS: When examined in terms of TAK values, a difference was found between the control group (0.96 ± 0.16) and the mild anxiety group (0.90 ± 016) and the moderately severe anxiety group (0.86 ± 0.08). In addition, TAK values were statistically significantly lower in the moderately severe anxiety group compared to the mild anxiety group ($p<0.05$). Although serum ARES/PON values were lower in the group with moderate-severe anxiety compared to the control group, it was not statistically significant ($p>0.05$). Although the zinc values were lower in the anxiety group and the copper values were higher in the anxiety group compared to the control group, no statistical difference was observed ($p>0.05$).
CONCLUSION: It is known that oxidative stress increases in diabetes mellitus. However, the increase in the severity of anxiety in parallel with the increase in oxidative stress was revealed in this study.
Keywords: Anxiety; Aryl Esterase; Diabetes; Oxidative Stress; paraoxanase

S029
COMPARISON OF PERCENT RECOVERY AND REFERENCE RANGE IN SCREENING FOR MACROPROLACTINEMIA

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BACKGROUND AND AIM: It is recommended to report results in macroprolactinemia screening based on percent prolactin(PRL) recovery after precipitation with Polyethylene Glycol (PEG) or method-specific post-PEG prolactin reference intervals (RI). In this study, our aim is to compare the current recovery cut-off values used in the screening of macroprolactinemia with the reference intervals in the literature.
MATERIALS and METHODS: The data of patients aged >18 years who were screened for macroprolactin between June 2021-August 2022 were retrospectively analyzed. PRL concentration was measured before and after PEG treatment using Roche Cobas e801 (Germany) immunochemistry device. The percent recovery was calculated using the formula (PRL/PRL after PEG)x100). Macroprolactinemia screening of results with ≤40% and ≤60% reco-

very cut-off value and remaining RI post-PEG were grouped as "positive". SPSS IBM version26 was used for statistical analysis.
RESULTS: The mean age of 543 patients (86% female, 14% male) included in the study was 35.8 ±11.7 years. While the median prolactin (IQR) values in women and men were 39.1 (30.9)µg/L, 52.4 (36.1)µg/L, respectively, post-PEG they were 34.8 (26.6)µg/L and 26.3 (21.8)µg/L. In our data, the prevalence of macroprolactinemia determined using recovery criteria ≤40%, ≤60% and post-PEG RI was 8.5%(46), 26.1%(142) and 8.3%(44), respectively. The positive predictive value according to RI was calculated as 0.73 for ≤40% cutoff value and 0.30 for ≤60%. A statistically significant difference was found between the groups (p<0.001).
CONCLUSION: As a result, false positive rate was high for ≤60% recovery percentage post-PEG.A recovery cut-off value of ≤40% was found to better detect macroprolactinemia
Keywords: Macroprolactinemia, post-PEG prolactin reference intervals, percent recovery

S030
INCREASED SERUM LEVELS OF NON-ESTERIFIED FATTY ACIDS IN ADRENAL ADENOMA

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BACKGROUND AND AIM: Recent genetic and epidemiological studies have shown that triglyceride and triglyceride-rich lipoprotein are the main causal risk factors for atherosclerotic cardiovascular disease. Triglycerides and their metabolites can promote atherosclerosis by modulating inflammation, oxidative stress, and the formation of foam cells. We wanted to investigate whether there's a variation in serum non-esterified fatty acid (NEFA) levels in patients diagnosed with adrenal adenoma and its relationship with inflammation.
MATERIALS and METHODS: We included healthy subjects (N=35) with patients (N=40) diagnosed with adrenal adenoma who attended endocrinology outpatient clinics. We excluded patients with known malignity. Serum NEFA was measured by immunoturbidimetric method, and other laboratory data were retrieved from the records.
RESULTS: There was no difference between the groups regarding gender and comorbidities (p>0.05). NEFA and glucose levels were significantly higher in patients (p=0.015, p=0.002, respectively). In all cases, NEFA was correlated with monocyte-lymphocyte ratio (r=-0.385, p=0.013) and gamma-glutamyl transferase (r=0.451, p=0.040), according to Spearman's correlation analysis. In cases with adrenal adenoma, the only correlation was found between NEFA and total cholesterol (r=0.414, =0.040).
CONCLUSION: As a rate-limiting enzyme, serum lipoprotein lipase (LPL) activity might probably differ in adrenal adenoma, related to inflammation status or any other molecules released into the circulation. It has been shown that NEFA is responsible for the induction of inflammatory events and oxidative stress in tissues targeted by insulin, such as endothelium, liver and skeletal muscle. In adrenal adenoma, the relationship between NEFA and monocyte-lymphocyte ratio may indicate the role of NEFA in the inflammatory process.
Keywords: adrenal adenoma, nonesterified fatty acid, monocyte-tolymphocyte ratio, inflammation

S031
COMPARISON OF HEMOGLOBIN GLYCATION INDEX IN NEWLY DIAGNOSED DIABETES, PREDIABETES AND HEALTHY GROUPS

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BACKGROUND AND AIM: The hemoglobin glycation index(HGI) has been proposed as a biomarker measures interindividual variation in glycation.This study aimed to examine the relationship between HGI and fasting blood glucose(FBG), hemoglobin A1c(HbA1c) and 75g oral glucose tolerance test(OGTT) which are indicators of glycemic control.
MATERIALS and METHODS: The study were planned as a retrospective study.There were two different groups in the study:the screening cohort group(SCG) and the reference group(RG).SCG was formed with the results of patients whose HbA1c and FBG were measured simultaneously between the 01.06.2022-30.06.2022. RG were included results of patients who were performed simultaneous HbA1c,FBG and OGTT between 01.01.2020-30.08.2022. Patients classified as healthy, prediabetes and newly diagnosed diabetes according to American Diabetes Association2010 criteria .Data from screening population results were used to linear regression between the and FBG and HbA1c.Estimated HbA1c(eHba1c) was calculated from the regression formula.HGI calculated as the difference between an individual's observed HbA1c and estimatedHbA1c(eHba1c).Participants were divided into 3 groups as high(≥0.150), moderate(-0.150-0.150) and low(<-0.15) subgroups. All statistical analyses were performed using IBM SPSSVer.22.
RESULTS: According to the data obtained from hospital information management system(HIMS), 6335 patients were selected for SCG(72% female, 28%male, mean age50.7±16.74). The reference group that is also obtained from HIMS were included diabetes:122, prediabetes:276 and healthy:204.(Totally 602patients 76%female, 24%male, mean age44.87±13.44)The regression equation we found as Hba1c= 3.256+0.023*FBG. HGI values in diabetes, prediabetes and healthy groups are 0.54(0.83), 0.17(0.58), -0.025(0.35) that are significant difference between the groups (p<0.001). According to HGI high(279), moderate(170) and low(153) patients' FPG (108.1±16.9 mg/dL,100.4±13.0 mg/dL ,104.0±15.5 mg/dL), Hba1c (%6.22±0.52, %5.61±0.33,%5.36±0.41), eHbA1c(%5.69±0.34,%5.60±0.32,%5.78±0.53) values were significantly different(p<0.001).
CONCLUSION: Due to Hba1c variations, discrepancies could be between FBG and HbA1c.According to our study, HGI was strongly associated with newly diagnosed diabetic patients.HGI can be used with FBG and Hba1c to diagnose possible diabetic patients.
Keywords: hgı, hba1c, blood glucose, diabetes

S032
ANALYSIS OF INRELEUKIN-17, INTERLEUKIN-23, NEOPTERIN AND NESFATIN-1 LEVELS IN THE SERA OF HASHIMOTO PATIENTS

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BACKGROUND AND AIM: Hashimoto's thyroiditis (HT) is the most common cause of autoimmune hypothyroidism and may present as goiter or atrophic thyroiditis that may result in various metabolic and inflammatory disorders. The aim of this study is to determine the changes in serum levels of interleukin-17 (IL-17), IL-23, neopterin and nesfatin-1 parameters in HT patients and to evaluate the possible relationship among these parameters.
MATERIALS and METHODS: The study was carried out with 90 HT patients and 30 healthy individuals. IL-17, IL-23, neopterin and nesfatin-1 levels were measured in the serum samples of the participants by the ELISA method.
RESULTS: Serum IL-17, IL-23, neopterin and nesfatin-1 levels were found to be significantly higher in the HT group compared to the control group. However, statistically no significant correlations were observed among the studied varibles.
CONCLUSION: Our study showed that IL-17 and IL-23, neopterin and nesfatin-1 levels are involved in the etiopathogenesis of HT especially contribution of both IL-17 and IL-23 to inflammmation seen in autoimmune disease such as Hashmotos. These variables could be used as potential biomarkers in diagnosis, prognosis and fellow up of HT disease. Further studies may be needed to elucidate the exact mechanisms in the interaction of these variables in in the disease process.
Keywords: Hashimoto thyroiditis Interleukin-17 Interleukin-23 Nesfatin-1 Neopetrin

S033
RELATIONSHIPS OF OREXIGENIC AND ANOREXIGENIC HORMONES WITH BODY FAT DISTRIBUTION IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA SYNDROME

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BACKGROUND AND AIM: We aimed to examine the relationships of disease activity and risk factors of serum levels of α-melanocyte stimulating hormone, which has anorexigenic and sleep regulatory effects, and another anorexigenic hormone, cocaine and amphetamine regulated transcript, and the orexigenic hormones agouti-related peptide and neuropeptide Y (NPY) in patients with obstructive sleep apnea syndrome (OSAS).
MATERIALS and METHODS: Fasting blood samples were drawn in the morning for hormonal analysis of all participants, abdominal/neck bioimpedance measurements were recorded, and polysomnography analyses were performed in the sleep laboratory. According to the Apnea Hypopnea Index (AHI) the orexigenic/anorexigenic hormone levels and abdominal and neck bioimpedance measurements of the groups consisting of 34 patients with newly diagnosed OSAS and 34 participants without OSAS were compared.
RESULTS: The body mass index measured in the OSAS group was 30.39kg/m^2 and AHI was 18.95 and these values were 25.40kg/m^2 and1.55, respectively, in the control group.There was a higher level of visceral adiposity and NPY in the moderate-to-severe OSAS group compared to the mild OSAS and control groups, and in the mild OSAS group compared to the control group($p=0.001$, $p<0.001$).A moderate positive correlation was found between the level of NPY and AHI and BMI($p<0.001$, $p= 0.011$).There was a moderate negative correlation between NPY levels and oxygen saturation($p= 0.001$).
CONCLUSION: The visceral adiposity ratio and increase in NPY levels are important parameters that increase the severity of OSAS. Considering the negative effects of NPY on vascular endothelium, measurement of basal NPY level before polysomnography in patients with OSAS is considered a parameter related to disease severity that can provide information about morbidity and mortality.
Keywords: anorexigenic hormone, neuropeptide y, obstructive sleep apnea syndrome, orexigenic hormone, body fat distribution

S034
GENETIC VARIATION ANALYSIS OF OBESITY-ASSOCIATED APOLIPOPROTEIN

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BACKGROUND AND AIM: Obesity, which has become important health problems of societies around the world in which is a bigger problem than malnutrition and infectious diseases, type 2 diabetes mellitus, hypertension, coronary heart diseases, certain types of cancer, sleep breathing disorder and osteoarthritis. Obesity is a multifactorial chronic disease that develops from the interactions between gene-gene and gene-environment. Apolipoproteins play a critical role in the regulation of plasma lipid transport in metabolism. Recent studies have shown that Apolipoproteins contain critical gene mutations, especially APOA5, APOA2 and APOE2, and cause obesity with genetic background in individuals. Our aim here is to reveal the relationship between APO genes and Obesity.
MATERIALS and METHODS: In the study, a gene-specific primer was designed and DNA isolation was made from the samples taken from the patients and the qPCR method was used.
RESULTS: The aim of this study is to determine the effects of APOA5, APOA2 and APOAE2 gene variations in obese individuals, in comparison with biochemical parameters. According to the results of the analysis made from the data obtained, statistically HDL($p<0.007$) K($p<0.005$) and BMI($p<0.001$) were found between biochemical parameters and control, overweight, obese

and morbidly obese groups. ApoA5 A<G(p=0, 162) and ApoA2 T<C(p=0.012) were not significant. Significance was observed in the ApoE2 T<C gene variation. An increase in mutation was also observed with obesity (C allele, p<0.001), which appeared to be significant.
CONCLUSION: ApoA5 A<G(p=0, 162) and ApoA2 T<-C(p=0.012) were not significant. Significance was observed in the ApoE2 T<C gene variation.
Keywords: Obesity, Apoa5, Apoa2, Apoe2, Genotype

S036
MOLECULAR INVESTIGATION OF PSEUDOMONAS AERUGINOSA IN THE PRESENCE Of 4-HYDROXYBENZOIC ACID

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BACKGROUND AND AIM: Plant phenolic acids are produced naturally in plants for defense against insects, bacteria etc. Since they have beneficial properties for humans by showing antimicrobial, anticancer and anti-inflammatory features, investigating the mode of action of their antimicrobial effect is highly important as a solution to the infections. We report the antimicrobial activity of 4-HBA on
P. aeruginosa and analyzed its antimicrobial action mechanism at the protein level.
MATERIALS and METHODS: The growth of *P. aeruginosa* was tested in the presence of different concentrations of 4-HBA by the spectrophotometric measurements to determine the subinhibitory concentration, MIC and MBC. Total protein profile of bacteria was analyzed by LC-ESI-MS/MS technique and MASCOT software was used for protein identification. STRING database was utilized for protein interaction analysis. The morphological changes of the bacteria were observed by SEM.
RESULTS: MIC and MBC values of 4-HBA were found as 1.9 mg/ml and 2.1 mg/ml, respectively. The protein profile analysis of *P. aeruginosa* demonstrated that differences between 4-HBA treated group and the control group were especially in membrane-related proteins, ribosome and protein synthesis related-proteins. 136 proteins, for instance, YidC and FtsY significant membrane proteins weren't detected after the treatment and 280 new ones were detected.
CONCLUSION: It was shown that it affects the protein profile of the bacteria during antimicrobial action. It led to defects in maintaining RNA and protein metabolism and caused membrane-related defects. These results show that 4-HBA is a promising antimicrobial agent and could potentially provide contribution to the treatment of *P. aeruginosa*-infected patients.
Keywords: Pseudomonas aeruginosa, phenolic acids, 4-hydroxybenzoic acid, proteomics

S037
CIRCULATING RECEPTOR FOR ADVANCED GLYCATION END PRODUCTS (SRAGE) LEVELS AND RAGE GENE POLYMORPHISMS IN PATIENTS WITH ENDOMETRIAL CANCER

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BACKGROUND AND AIM: The receptor for advanced glycation end products (RAGE) play a critical role for cancer progression and pathogenesis, along many diseases. The soluble form of RAGE (sRAGE) is an endogenous inhibitor of pathological effects mediated via RAGE. The aim was to investigate whether RAGE gene polymorphisms and circulating sRAGE levels are associated with susceptibility to endometrial cancer (EC); and identify the effect of genetic variants on sRAGE levels.
MATERIALS and METHODS: 45 EC patients and 40 healthy controls were included in the analysis. Patients were subdivided according to their clinicopathological features. *RAGE* SNPs (-374T/A and Gly82Ser) were genotyped by RT-PCR. Circulating sRAGE levels were measured by ELISA.
RESULTS: Circulating sRAGE levels of EC patients were significantly increased compared with controls (p<0.01), and this increasement was not to be linked to *RAGE* -374T/A and Gly82Ser SNPs. Additionally, sRAGE levels were found to correlate with tumor grade and size. Grade-3 patients had higher serum sRAGE levels than patients with grade-2 and controls. Grade-1 patients had higher sRAGE levels than controls(p<0.01). In EC group, sRAGE levels were negatively correlated with tumor size(r=-0.329, p=0.027).
CONCLUSION: These results indicate that *RAGE*-374T/A and Gly82Ser polymorphisms may not be associated with susceptibility to EC or its progression, and serum sRAGE levels. Also, these findings suggest that sRAGE levels may be increased as such compensatory mechanism, have endogenous protective role and be useful as diagnostic marker for tumor histological grade. This is the first study investigating *RAGE* gene polymorphisms and circulating sRAGE levels in patients with EC.
Keywords: endometrial cancer, cancer progression, receptor for advanced glycation end products, single nucleotide polymorphism

S038

S039
EVALUATION OF LIPEMIA INTERFERENCE WITH NATURAL ULTRALIPEMIC MATERIAL AND INTRAVENOUS LIPID EMULSION FOR THE ERYTHROCYTE SEDIMENTATION RATE TEST

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BACKGROUND AND AIM: Lipemic samples affect erythrocyte sedimentation rate (ESR) results, according to interference studies. However, there are not enough studies on this subject, intravenous lipemic emulsion (IVLE) material was used to mimic lipemia and studied with different methods. Our study aimed to evaluate lipemia interference in high, normal, and low ESR results with natural ultralipemic material (NULM) and IVLE.

MATERIALS and METHODS: NULM and IVLE solutions were used to investigate the effect of lipemia in ESR measurements. The study was carried out with the EP7-A2 guideline published by CLSI for interference studies. Whole blood pools with high, normal, and low ESR results were diluted with both NULM and IVLE stock solution to create sub-pools containing five different concentrations of triglycerides. Vision c automatic ESR analyzer was used to measure ESR levels.
RESULTS: ESR values of 3 different pools prepared according to ESR results were 80.3±6.35, 21.3±1.15, and 4.7±1.15 mm/h, respectively. In the results of Repeated Measures ANOVA, significantly negative interferences were detected depending on the lipid concentration in pools containing NULM with high and normal ESR levels ($p<0.001$). No interference was observed in high and normal ESR pools containing IVLE, depending on lipid concentration. There was no change in both NULM and IVLE pools in the low ESR pool.
CONCLUSION: In this study, the effect of lipemia interference on ESR measurement was investigated. The results show that there was a negative effect on ESR measurement in samples that interfered with natural lipemia. The interference effect was not detected in IVLE pools.
Keywords: erythrocyte sedimentation rate, lipemia, interference, intravenous lipemic emulsion, natural ultralipemic material

S040
DETERMINATION OF HEMOLYSIS INDEX THRESHOLD VALUES AND INTEGRATION INTO LABORATORY INFORMATION SYSTEMS

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BACKGROUND AND AIM: The primary cause of poor-quality specimens is hemolysis. Management and standardization of hemolyzed specimen determination are necessary according to modern good laboratory practices. Additionally, because hemolysis management is not standardized, it is necessary to confirm manufacturer claims regarding hemolysis cutoff values. The aim of this study was to establish the hemolysis index cut-off values for three immunoassay tests, and the findings were evaluated against manufacturer claims and published research. The integration of cut-off values into LIS was our secondary goal.
MATERIALS and METHODS: To create serum pools with varying concentrations of hsTnT, insulin, and vitamin B12, residual serum specimens were used. In order to prepare different subgroups on varying analyte concentrations, we spiked hemolysat into the prepared pools. We calculated the total error values that result from biases according to the serum pool's basal values. The total allowable error limits were obtained from the EFLM-BVDataBase. To use on the result validation, the established threshold values were integrated with LIS.
RESULTS: Up to 5 g/L of free hemoglobin, neither hsTnT nor insulin showed any significant bias. When overt hemolysis occurs, it has been seen to significantly alter vitamin B12 concentrations above 1000 pg/mL.
CONCLUSION: HIL indices are a reliable and consistent tool for interference detection. In the literature, it is strongly advised to verification manufacturer claims. Each laboratory must establish its own HIL indices cut-off values and integrate them into the LIS. Consequently, reliable results and a desirable TAT would possible to achieve.
Keywords: hemolysis, interference, hıl indices, lıs

S041
EVALUATION OF HEMOGLOBIN, BILIRUBIN, AND LIPID INTERFERENCE IN ANTI-HLA ANTIBODY DETECTION USING LUMINEX TECHNOLOGY

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BACKGROUND AND AIM: We investigated the effect of serum interference of hemoglobin, bilirubin, and lipids (HIL) on the results of studies performed with solid phase assays used as the basis for anti-HLA antibody studies.
MATERIALS and METHODS: Our study included 1308 patients whose anti-HLA antibody test was studied. In 101 (7.7%) of these patients, sample-specific control bead Mean Fluorescent Index (SCB) values were repeated because they were not within the desired ranges. Thirty patients were included as the control group. Group I (n=28) consisted of patients with high SCB values in the first study. Group II was formed from patients whose SCB values were low in the first study and who were treated with serum Dithiothreitol (DTT) in the second study and then whose SCB values were within the acceptable range in the second study. Group III was formed from patients whose results could not be obtained with DTT in the second study, but results were obtained by dilution of serum. Serum indices of all patients were calculated using Roche Cobas 6000 analyzer.
RESULTS: Of the 101 patients whose studies were repeated, 88(87.1%) constituted group II and 9 (8.9%) constituted group III. Group II's bilirubin index was significantly higher than the control group. The lipemia index of Groups I and II was found to be significantly higher than the control.
CONCLUSION: Lipemia is the cause of interference in anti-HLA antibody detection with Luminex technology. It is recommended to look at the HIL indexes before the studies are carried out with this technology.
Keywords: antihla antibody, luminex, hemolysis, ıcterus, lipemia

S042
EVALUATION OF THE REASON OF NON-DECREASE HIGH SENSITIVE TROPONIN I VALUE AFTER MEDICAL TREATMENT WITH A CASE REPORT

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BACKGROUND AND AIM: Cardiac troponins(cTnI, cTnT) are important in the diagnosis, prognosis and monitoring of cardiovascular diseases. In this case, it was aimed to evaluate the interference in a patient who was admitted to the hospital with chest pain and continued high sensitivity cTnI(hs-cTnI) elevation after treatment.
MATERIALS and METHODS: A 20-year-old male patient admitted to the emergency department with chest pain lasting for 9 days. Anterior ST elevation was detected on ECG. It was observed

that the patient's cardiac and inflammatory biomarkers were high(hs-cTnI 6965ng/L,CK-MB 16.3ng/mL, CRP 45mg/L,Sedimentation 40mm/h). No vascular occlusion was found in the patient with angiography. Medical treatment was applied in the hospital. In the follow-ups, although the patient had no complaints and the CRP and sedimentation values decreased, the hs-cTnI value increased (hs-cTnI values 19163-21287-20299ng/L). The sample was run in the laboratory with a heterophile antibody blocking tube(HBT) to assess for interference. Since there was no decrease in hs-cTnI(22898ng/L) after HBT, hs-cTnT was analyzed on a different autoanalyzer(Roche-Cobas-e411). Furthermore, hs-cTnI(Abbott-Architect-i2000) and hs-cTnT were analyzed after precipitation with PEG-6000.
RESULTS: Respectively, the hs-cTnI and hs-cTnT values were measured 20299ng/L and 101ng/L in the untreated sample, 59ng/L and 71ng/L after precipitation with PEG-6000.
CONCLUSION: The low hs-cTnI value after precipitation with PEG may be due to the presence of macro cTnI or heterophile antibodies. The hs-cTnT result supports this situation. In case of clinically inconsistent results in immunoassay tests such as troponin, interference assessment can be performed by measuring the sample after HBT and PEG or analyzing it with different systems.
Keywords: Troponin, Interference, Heterophile antibody, Macrotroponin, Peg-6000

S043

S044
INVESTIGATION OF THE EFFECTS OF WJ460 MOLECULE AND ITS POTENTIAL SYNERGISTIC INTERACTIONS WITH GEMCITABINE IN AN IN-VITRO MODEL OF PANCREATIC CANCER

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BACKGROUND AND AIM: This study aimed to determine and compare the effects of WJ460 (Myoferlin inhibitor) and Gemcitabine on PANC-1 cells and to evaluate the potential synergistic interactions between the two drugs.
MATERIALS and METHODS: The effects of WJ460 on cell viability, apoptosis, cell cycle, and migration in PANC-1 cells were evaluated by crystal-violet cell viability assay, flow cytometry, and wound-healing assay, respectively. The results were compared with the efficacy of Gemcitabine treatment and potential synergistic interactions between the two drugs were evaluated by combination index (CI) analysis. $P<0.05$ was considered significant in all statistical analyses.
RESULTS: WJ460 treatment was shown to inhibit cell viability, trigger apoptosis and G2 phase cell-cycle arrest, as well as suppress migration in PANC-1 cells. WJ460 treatment was found to be more effective than gemcitabine treatment in all analyzes. The cell-cycle arrest was not observed in cells after treatment with the Gemcitabine-WJ460 combination, and the proportion of apoptotic cells was found to be less than that of cells treated with WJ460. In inhibition of migration, treatment with WJ460 showed a higher inhibition rate than the combination treatment.
CONCLUSION: Our results suggested an antagonistic interaction between the two drugs, and that single-agent WJ460 treatment may be more effective than single-agent Gemcitabine and WJ460-Gemcitabine combination treatments in PANC-1 cells. In further studies, demonstration of similar effects in
in-vivo pancreatic cancer models may contribute to the development of novel treatment strategies for patients with gemcitabine resistance.
Keywords: wj460 panc1 myoferlin pancreatic cancer gemcitabine

S045
THE EFFECT OF 8-OXOGUANINE DNA GLYCOSYLASE 1 EXPRESSION AND PROMOTER METHYLATION ON SURVIVAL RATE IN PATIENTS WITH PANCREATIC CANCER

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BACKGROUND AND AIM: This study aims to define a molecular marker and a new epigenetic treatment target that can predict treatment response and prolong survival by determining the relationship between the expression and promoter region methylation of the OGG1 (8-Oxoguanine DNA Glycosylase 1) gene, which is involved in DNA repair in pancreatic tumors, with the survival time of patients.
MATERIALS and METHODS: In the study, tumor tissue samples from 50 patients with pancreatic adenocarcinoma and normal tissue samples adjacent to the tumor were used. Total DNA was isolated from formalin-fixed paraffin tissue sections with the kit. OGG1 promoter methylation was determined by methylation-specific polymerase chain reaction after bisulfite modification in isolated DNA samples. OGG1 expression in tumor and normal pancreatic tissues was determined by immunohistochemical staining.
RESULTS: DNA repair gene OGG1 promoter methylation was found to be higher in pancreatic tumor tissue compared to normal pancreatic tissue. No significant difference was found when OGG1 immunopositivity in tumor and normal pancreatic tissue was compared. When the data were evaluated according to gender, no statistically significant difference was found between the OGG1 promoter methylation levels in tumor and normal pancreatic tissues in women, while OGG1 promoter methylation was found to be higher in tumor tissue compared to normal tissue in men. When survival was compared with OGG1 methylation levels and expression, no statistically significant difference was found.
CONCLUSION: OGG1 promoter methylation is increased in tumor tissue of patients with pancreatic adenocarcinoma. However, the increased promoter OGG1 methylation in these patients was not associated with OGG1 expression and survival.
Keywords: pancreatic cancer, ogg1, methylation, survival

S046
THE EFFECT OF DRACAENA CINNABARI RESIN ON PROLIFERATION AND APOPTOSIS IN HUMAN LUNG CANCER CELL LINE (A549)

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BACKGROUND AND AIM: Lung cancer is one of the most important and common diseases worldwide. Surgical intervention or treatment with chemotherapeutic drugs can be applied in lung cancer, depending on the type and stage of the disease. Dracaena cinnabari resin has been used for many years as a treatment tool for general wound healing, coagulation, diarrhea, reducing diarrhea, dysentery diseases, mouth sores, sore throat. In this thesis study, we aimed to investigate the effect of Dracaena cinnabari resin extract on apoptosis and cell proliferation in A549 cells, which is a human lung cancer cell line.
MATERIALS and METHODS: Cell proliferation test was studied by MTT method, and apoptosis analysis was studied with Annexin V method in Muse flow cytometer device. Methanol extract of Dracaena cinnabari resin was obtained and applied to A549 and HEK-293 cells. Dracaena cinnabari resin extract was applied to A549 and HEK-293 cells at concentrations of 50,75,100,125,150 µg / ml and proliferation analysis was performed by MTT method.
RESULTS: The IC_{50} value for A549 cells was 90.96 µg / ml at the 24th hour, and the IC_{50} value for HEK-293 cells at the 24th hour was 72.10 µg / ml. Apoptosis analyzes of A549 cells and HEK-293 cells were performed with Annexin V method in Muse / Flow cytometry device. A549 cells treated with Dracaena cinnabari resin extract at the IC_{50} concentration obtained attained approximately 65%, especially late apoptosis. Similar to A549 cells, HEK-293 cells also underwent more late apoptosis.
CONCLUSION: In other studies, with Dracaena cinnabari resin, mostly Dracaena cinnabari resin extract inhibited cell proliferation and led cells to apoptosis. However, none of the studies investigated the effect of Dracaena cinnabari resin extract on healthy cells. According to these results, we think that DC resin cannot be used directly as a supplementary treatment and that elucidation of its mechanism of action with advanced molecular research will guide other studies.
Keywords: lung kanser, Proliferation, Apoptozis, Dracaena cinnabari

S047
PEPTIDE PURITY ASSIGNMENT FOR CANDIDATE CERTIFIED REFERENCE MATERIAL MEASUREMENT

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BACKGROUND AND AIM: Cardiac troponin I (cTnI) is a gold standard for the diagnosis of acute myocardial infarction (AMI) and accurate measurement in serum is crucial in diagnosis and treatment. Due to the lack of standardisation of cTnI assays, TUBITAK UME aims to develop a candidate certified reference material (CRM) for use of cTnI measurements. Peptide purity assignment is required for quantification of candidate CRM. Recently, isotope dilution mass spectrometry amino acid analysis (IDMS-AAA) has been suggested as primary method for absolute quantification of proteins. In this study, SI-traceable purity assignments of the three signature peptides of cTnI and one signature peptide of anti-cTnI were performed by combining ID-MS and ultra performance liquid chromatography (UPLC).
MATERIALS and METHODS: The signature peptides undergoes hydrolysis under acidic conditions in the presence of 6M hydrochloric acid for 24 hours at a temperature 130°C. To correct for variations during analysis, labeled internal standards are added to the sample prior to hydrolysis. After hydrolysis, the hydrolysates are derivatized and then analyzed by LC-MS. ID-LC-MS/MS-AAA was performed by Thermo Ultimate 3000 LC system coupled with an Orbitrap MS. Traceability to SI was established using the amino acid standards.
RESULTS: SI-traceable value were assigned to signature peptides which are TLLLQIAK, NITEIADLTQK, AYATEPHAK and anti-cTnI peptide DLPSPIER. The uncertainty was evaluated. Value assigned peptides can be used as a primary calibrator material.
CONCLUSION: These peptides with the certified purity value are produced in order to quantify candidate certified reference material of cTnI.
Keywords: peptide purity, traceability, primary standards, ıdmsaaa

S048
COMPARISON OF ELECTROLYTE VALUES MEASURED BY DIRECT AND INDIRECT ISE METHOD

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BACKGROUND AND AIM: Ion Selective Electrodes(ISE) are a method used to measure electrolytes in the laboratory and are classified as direct and indirect. The aim of the study is to compare the Sodium, Potassium and Chlorine tests studied with direct and indirect ISE methods using the patient test results stored in the laboratory information system and to reveal the differences between two methods.
MATERIALS and METHODS: Sodium, Potassium, Chlorine results studied with RadiometerABL800 blood gas device(directISE) and BeckmanCoulterAU5800 biochemistry analyzer(indirectISE) in serum and whole blood with the same request number in patients who applied to Şahinbey Research and Practice Hospital between 2017-2021. Comparison of the two methods was made with Bland-Altman plot and Passing and Bablok regression analysis.
RESULTS: According to Bland-Altman chart for Sodium, Chlorine,Potassium, a difference of 1[-14.5-+12.4],3.3[-6.9-+13.6],0.2[-1.7-+1.4]mmol/L was found between two methods. According to Passing and Bablok regression analysis, significant difference($p<0.01$) was found between two methods for Sodium($y=-35.25+1.25x$) and Chlorine($y=-10.772727+1.136364x$), while for Potassium($y=-0.227132+1007752x$) no significant difference was found($p>0.30$).
CONCLUSION: Although the measurement principle of direct

and indirect ISE method used for electrolyte measurement in laboratories is basically the same, there may be differences in the results due to minor differences in the working method. Therefore, the results should be evaluated together with the patient's clinic and patient follow-up should be followed-up with the measurement results made with same method. In order to increase the clinician's awareness of this situation, it should be noted that there is a method difference for these tests in blood gas and biochemistry patient reports.

Keywords: direct ıse, ındirect ıse, method comparison, serum electrolyte

S049
EXAMİNATION OF THE RELATIONSHIP BETWEEN FECAL CALPROTECTIN AND FECAL OCCULT BLOOD

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BACKGROUND AND AIM: Fecal calprotectin (FC) is used to evaluate intestinal mucosal inflammation.The fecal occult blood (FOB) is used for detecting of invisible blood in stool. There are publications that the combined use of FC and FOB may be helpful in the diagnosis of some intestinal diseases, but also there are studies showing that gastrointestinal bleeding may cause high FC. The aim of this study is to examine the relationship between these two parameters in patients who have synchronous FC and FOB. Material-
MATERIALS and METHODS: 182 patients who had synchronous FC and FOB tests were included in the study, the data of the patients were analyzed retrospectively.
RESULTS: The patients with positive FOB comprised 44% of all patients (Group 1, n:78). The patients with negative FOB comprised 56% of all patients (Group 2, n:102). These groups were compared in terms of FC, group 1 (410 µg/g (30-1000)) FC levels were statistically higher than group 2 (70 µg/g (30-1000)) ($p<0.05$). 40% consisted of inflammatory bowel disease and 60% consisted of functional bowel diseases such as irritable bowel syndrome in this study. When the relationship between FOB positivity and FC according to grouping the diseases was examined, significant correlation was found between two parameters in both diseases ($r:0.525$, $p<0.05$).
CONCLUSION: FOB positivity may be late sign of inflammatory tissue damage. FC values above 80 µg/g may be an indicator of inflammation in the gastrointestinal tract, but there are some conditions that may affect. More studies are needed to show that FOB positivity can increase FC.

Keywords: Fecal calprotectin, fecal occult blood, inflammatory bowel disease, irritable bowel syndrome

S050
DISTRIBUTION OF ALLERGY PANELS BY MONTH AND TEST REQUEST EFFECTIVENESS IN ANTALYA

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BACKGROUND AND AIM: It is very important to question parameters such as family history, genetics and the time of encountering the suspected allergen when requesting an allergy test. In order to avoid unnecessary test requests, a request should be made for the allergen we consider in the preliminary diagnosis. In this study, we aimed to examine the effectiveness of allergy tests in Antalya Training and Research Hospital.
MATERIALS and METHODS: In this study, the results of patients who were requested to have allergy panels in our hospital between January and July 2022 were analyzed retrospectively. Analyzes were measured by the chemiluminescence method in a Siemens immulite 2000 XPI device.
RESULTS: It was observed that 33% of 6259 patients whose respiratory panel was studied were positive. When the positivity change according to the months was examined, 42%, 32%, 35%, 32%, 33%, 33% and 33% were found to be positive, respectively, from January to July.
It was observed that 28% of 6071 patients whose food panel was studied were positive. When the positivity change according to the months was examined, 29%, 26%, 24%, 24%, 34%, 31% and 34% were found to be positive, respectively, from January to July. It was determined that there was no difference in the distribution according to the months in these two panels.
CONCLUSION: We found that positivity rates did not change even in the spring months (April, May), when respiratory allergens are expected to be more positive. Both respiratory and food panel positivity were as low as 30% suggested that while allergy tests were requested, anamnesis and allergen inquiries were not made in detail. In order to avoid unnecessary test requests, it is necessary to detail the anamnesis and to request the allergen whose contact is considered.

Keywords: allergy tests, productivity, distribution

S051
AN INNOVATIVE APPLICATION FOR REDUCING THE AMOUNT OF HISTAMIN IN FOOD: ENRICHMENT WITH DIAMINE OXIDASE

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BACKGROUND AND AIM: Histamine-intolerance is seen in approximately 1-3% of the population. Diamine oxidase is an enzyme that oxidizes-diamines such as Histamine and primary monoamines. Since bacterial-enzymes increase histamine formation, foods treated with microbial production or fermentation, and foods with plenty of protein include a high amount of histamine. Persons who have low DAO activity might show cause intolerance reactions after consuming foods containing high amounts of Histamine.
Our aim is to enrich with DAO obtained from natural foods in order to reduce the amount of Histamine found in milk and dairy products.
MATERIALS and METHODS: Wheatgrass was obtained from Aegean Agricultural Research Directorate. DAO-enzyme that was purified by Ammonium-sulfate protein precipitation, dialysis, and column-chromatography steps, were added at the beginning of the fermentation step of yogurt. Samples without DAO were used as controls. After 24 hour incubation period, Histamine levels of samples were determined by LCMS/MS.

RESULTS: While enzyme activity of wheatgrass homogenate was 0.0075U/mg, it increased up to 1046.25U/mg after column-chromatography which is the last of the extraction steps. Histamine content decreased by 42% (with 100U/ml) and 70% (with 200 U/mL) when compared to samples without DAO.
CONCLUSION: **This innovative method which was applied for the first time by our group (Patent application no: 2021/010839)** showed that the Histamine level of yogurt was significantly reduced with DAO-enzyme sourced herbal nature. By spreading this innovative method to other foods, it will be possible for people with histamine intolerance to safely consume foods that cause intolerance.
Keywords: Histamine, Diamine oxidase, Enrıchment of Food, Yogurt, Prufiication

S052
FREQUENCY OF ABERRAN CD7 ANTIGEN EXPRESSION IN PATIENTS WITH ACUTE MYELOİD LEUKEMİA

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BACKGROUND AND AIM: It was aimed to determine frequency of aberrant CD7 expression in patients with acute myeloid leukemia diagnosed by flow cytometry in our hospital.
MATERIALS and METHODS: The data of AML patients who had flow cytometry examination between 2018 and 2021 were evaluated retrospectively in Istanbul Training and Research Hospital. The findings were recorded using the Microsoft Excel program. AML patients with blast cells showing more than 20% CD7 antigen expression were considered positive for CD7 antigen. Descriptive features of the data were found using SPSS version 26 software. (IBM Corp., Armonk, NY)
RESULTS: Age data of 75 patients evaluated do not fit the normal distribution. The median for age was 59 (48-70). 53.3% of the patients were male and 46.7% were female. Of the patient samples, 34.7% consists of peripheral blood and 65.3% bone marrow. Aberrant CD7 antigen expression was observed in 26.7% of patients .According to Fab AML classification, CD7 expression percentages were found as AML0 25%, AML1 25%, AML2 30%, AML3 10%, AML4 5%, AML5 5%. Looking at data of 28 patients sent for pathological examination retrospectively, CD7 expression was found to be positive in 42.9%. Statistically, kappa value is 0.615 when the compatibility of flow cytometry and pathological examination for aberrant CD7 antigen expression is considered.
CONCLUSION: Further studies should be performed in this regard to determine the frequency of aberrant antigen expression, including that of CD7, and to establish the impact of CD7 expression on treatment response, recurrence, and overall survival
Keywords: acute myeloid leukemia, aberrant antigen, cd7

S053
THE EFFECT OF ASPERGLAUCIDE ON ENDOTHELIUM FUNCTION IN HYPERTENSIVE RATS

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BACKGROUND AND AIM: Asperglaucide (ASP) is an amide isolated from P. aurantiacum having antiinflammatory and antioxidant properties. This study aimed to investigate effects of ASP on endothelial nitric oxide synthase (eNOS) expression, vascular fluidity, and vascular endothelial function in the twokidney oneclip (2K1C) model of renovascular arterial hypertension.
MATERIALS and METHODS: Forty male wistar rats, aged 2 months were randomized to the following groups: control (C), shamoperated (SO), ASP treated, hypertensive (H) and H + ASP treated. Hypertension was induced by surgery and mean arterial pressure (MAP) was monitored by tailcuff method during 4 weeks of ASP treatment. At the end of the experimental period, blood samples and thoracic aorta were obtained. Vascular dilator and constrictor responses were measured in organ baths while red blood cell deformability was determined by rotational ektacytometry. Protein and gene expression of eNOS were evaluated in thoracic aorta by immunohistochemistry and quantitative PCR analysis, respectively.
RESULTS: Asperglaucide treatment decreased MAP in hypertensive rats and caused improvement in endothelium dependent vascular dilator and constrictor responses. Red blood cell deformability was increased in hypertensive rats treated with ASP as compared to hypertensive rats alone. Asperglaucide application led to increase eNOS protein and gene expression in both normotensive and hypertensive rats. Asperglaucide was found to significantly lower blood pressure in hypertensive rats 1 week after treatment by increasing endotheliummediated relaxation response.
CONCLUSION: Asperglaucide treatment resulted in improvement of phenylephrinemediated contractile responses, which were impaired in the hypertension group. Asperglaucide increased blood flow and eNOS gene expression in hypertensive rats. Supported by a grant from TUBİTAK #219S713.
Keywords: Asperglaucide, Hypertension, Endothelial nitric oxide synthase

S054
INCREASED ENOS LEVELS IN HUMAN ENDOTHELIAL CELLS BY ASPERGLAUCIDE

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BACKGROUND AND AIM: Asperglaucide (ASP) is an amide isolated from P. aurantiacum and has a variety of biological activities, including anti-inflammatory, antibacterial, antioxidant and anticancer properties. This study aimed to investigate the effect of ASP on endothelial nitric oxide synthase (eNOS) protein and gene expression in human umbilical vein endothelial cells (HUVEC).
MATERIALS and METHODS: Cell viability was measured using 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide (MTT) assay. Protein and gene expression of eNOS were evaluated in HUVEC by immunocytochemical and quantitative PCR analysis, respectively.
RESULTS: Dose-dependent 48-hour time-course viability analysis of HUVEC showed that 12.5-25 µM ASP were significantly cytotoxic while 3 - 6.25 µM doses did not notably alter cell viabi-

lity. Treatment of HUVEC with 3 µM ASP significantly increased eNOS mRNA and protein levels.
CONCLUSION: Asperglaucide treatment at noncytotoxic 3 µM dose was found to significantly increase eNOS gene expression and protein levels in human endothelial cells. Acknowledgements: This study was supported by a grant from TUBİTAK (219S713).
Keywords: HUVEC, Asperglaucide, eNOS

S055
A NOVEL HSP47 BIOSENSOR: FIBROBLAST CELL CHARACTERIZATION SYSTEM

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BACKGROUND AND AIM: Aim of this study is to develop an innovative biosensor system to characterize fibroblasts obtained by primary culture technique more rapidly and without use of a large number of cells.
MATERIALS and METHODS: Excess skin tissue to be destroyed after routine surgery was collected and primary cell cultures were established. Heat shock protein 47 (HSP-47), a fibroblast biomarker used to characterize fibroblasts grown in these cell cultures, was determined using conventional methods such as immunohistochemistry and ELISA. Screen-printed gold nanoparticle electrodes (GNPE) were used for innovative biosensor system that enables the measurement of HSP-47. After electrode was modified with amino-linked graphene oxide layers, anti-HSP-47 was immobilized on the formed layer. This affinity-based biosensor was characterized by cyclic voltammetry (CV) and electrochemical impedance spectroscopy (EIS). Analytical performance of developed biosensor was tested using HSP-47 protein standards and cell lysates as real samples, and detection time was determined by a new chronoimpedance optimization method.
RESULTS: Limit of detection (LOD) and linear detection limit (LOQ) of developed biosensor were calculated to be 9.47 pg/mL and 3.23 pg/mL, respectively. Linear detection range was determined to be between 10 - 160 pg/mL. Regression coefficient obtained from regression analysis between results of real sample tests and those of ELISA was 0.96. Positive results were also obtained in tests of repeatability, stability, and storage stability.
CONCLUSION: The developed impedimetric biosensor system, with its analytical performance, can be used as an alternative to the ELISA method in the characterization of fibroblast cells formed in primary cell cultures.
Keywords: biosensor, HSP-47, primary cell culture, fibroblast

S056
THE RELATIONSHIP BETWEEN NUTRITIONAL CHOLINE INTAKE SERUM CHOLINE AND PAIN SCORES IN PATIENTS WITH FIBROMYALGIA SYNDROME

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BACKGROUND AND AIM: Fibromyalgia Syndrome (FMS) is a musculoskeletal disease characterized by chronic widespread pain. Choline is an essential nutrient that produces analgesic effects. This study aims to compare nutritional choline intake, serum choline, and pain scores in patients with FMS and healthy controls.
MATERIALS and METHODS: In this case control study, volunteers applied to Physical Therapy and Rehabilitation Polyclinic and diagnosed with FMS constitute cases and healthy volunteers constitute controls. The pain intensity of the volunteers determined with numerical assessment scale. Nutritional questionnaire used to calculate the choline intake. Choline levels were measured by spectrophotometric method with a commercial kit in serum from fasting blood samples. Student's t-test was used to evaluate the difference between the groups, and Spearman's correlation analysis was used to evaluate the relationship between serum choline and pain.$p<0.05$ was considered significant.
RESULTS: Volunteers participating in the study were female and the mean age was 49.5 ± 2.2 in the FMS (n=38) and 43.6 ± 2.0 in the control groups (n=38). Nutritional choline intake and serum choline were lower in the FMS group compared to controls (263.3±18.1-310.4±19.8 mg,p=0.83; 586.7±100.8-1779±296.6µmol/mL,p=0.003). Weak negative correlation was determined between serum choline levels and pain scores in FMS group (R_s=-0.047,p>0.05). A weak-moderate positive correlation determined between serum choline levels and choline intake in control (R_s=0.124) and FMS groups (R_s=0,201,p>0.05).
CONCLUSION: Nutritional intake and serum levels of choline were lower in patients with FMS suggestting that choline might have a role in chronic pain in patients with FMS.
Keywords: Fibromyalgia Syndrom, Choline, Nutritional choline intake, Pain

S057
EVALUATION OF MITOCHONDRIA OUTER MEMBRANE FIBER PROTEIN-1 AND 4 LEVELS IN OLIGOZOOSPERMIC AND NORMOZOOSPERMIC MALES

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BACKGROUND AND AIM: Infertility is seen in 10-15% of couples in their fertile period. Proteomic analysis of seminal plasma or spermatozoa can provide information about the proteins and post-translational modifications. The absence of ODF (mitochondria outer membrane fiber protein) in sperm with tail anomalies is associated with infertility. The aim of our study is to evaluate the relationship between seminal levels of ODF-1 and ODF-4 and spermyogram analysis that they have important roles in spermatogenesis and fertilization in normozoospermic and oligozoospermic.
MATERIALS and METHODS: ODF-1 and ODF-4 levels were analyzed in semen samples taken from volunteers who came to Andrology Laboratory of Selcuk University, Medicine Faculty. Two groups were performed: Group I (n=30) Normozoospermic (sperm concentration≥15 million/mL), Group II (n=30) Oligozoospermic (sperm concentration <15 million/mL). Oligozoospermic group is subdivided; Oligozoospermic, severe-oligozoospermic, very severe-oligozoospermic. Spermyogram analyzes were evaluated according to WHO 2010 Kruger morphological criteria.
RESULTS: There was no significant difference in ODF-1 between Normozoospermics (1.62±0.54ng/mL) and Oligozoospermics (1.61±0.46 ng/mL). A significancy was found between normozoospermic (144±70.50.41 pg/mL) and oligozoospermic (55.9±44.70 pg/mL) in ODF-4. ODF-4 levels were 133.63± 22.62 pg/mL in oligozoospermic and 39.25±22.77 pg/mL in severe-oligozoospermic group (p=0.00). According to ROC analysis, AUC values for ODF-4 was found to be 0.894 (p=0.00). ODF-4 levels statistically correlated with sperm concentration, immobility, progressive mobility, and ODF-1 levels correlated with sperm tail anomaly and head anomaly.
CONCLUSION: ODF-4 plays an important role in the maturation phase of spermiogenesis and analysis of ODF-4 levels can be a biomarker for the evaluation of infertility status in male.
Keywords: ınfertıcle male, semen, spermyogram, ODF

S058
ATYPICAL PATTERNS OF SERUM PROTEIN ELECTROPHORESIS: IMPORTANCE OF THE REFLECTIVE TEST IFE

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BACKGROUND AND AIM: Serum Protein Electrophoresis (SPE) is important for the detection and follow-up of monoclonal proteins. In our study, we aimed to evaluate the concordance of serum immunofixation electrophoresis (SIFE) results requested as a reflective test according to SPE results with an atypical pattern in capillary zone electrophoresis (CZE) and present these results as an educational case.
MATERIALS and METHODS: SIFE results, which were requested as reflective tests according to SPE results with atypical pattern studied between April 2022 and July 2022, were included. SPE was studied with a capillary electrophoresis (Minicap Sebia, France) and SIFE with Hydrasis 2 (Sebia, France). According to the quantitative and qualitative (graphic, pattern) evaluation of the SPE results, the patterns for which SIFE was requested as a reflective test were included among the patients who did not have a visible M peak in the gamma region and no previous diagnosis of gammopathy. The results with no visible M peak in the gamma zone were evaluated by two different specialists in the SPE patterns.
RESULTS: A total of 440 SPE results were included in the study, SIFE was requested by the clinician for 8 of 40 (9%) test that were recommended as reflective SIFE tests. Positive paraprotein band was detected in 6 (75%) of these patients.
CONCLUSION: Our study shows the significance of IFE as a reflective test and the interpretation of SPE results with atypical patterns obtained from patients. Although there is no obvious M peak in the gamma region of the SPEP pattern, it is crucial to evaluate it carefully.
Keywords: serum protein electrophoresis, ımmunofixation electrophoresis, reflective test

S059
ANALYSIS AND STABILITY OF BIOCHEMICAL PARAMETERS IN FAST SERUM TUBES

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BACKGROUND AND AIM: It is stated that the time to result will be shortened in rapid serum tubes containing thrombin as a procoagulant, due to the reduction of coagulation and centrifugation time. Our aim is to compare the biochemical parameters analyzed with rapid serum tubes with standard serum tubes and to evaluate their stability.
MATERIALS and METHODS: On the same day, from 40 volunteers to one standard serum tube(Vacuette®CAT Serum Separator) and two fast serum tubes(Vacuette®CAT Serum fast Separator) blood was drawn. Standard serum tubes were kept for 30 minutes to coagulate and then centrifuged at 1800gx10min. The fast serum tubes were kept for 5 minutes, one of the tubes was centrifuged at 1800gx10min and the other at 3000gx5min. With the obtained serum samples, 23 biochemical parameters were analyzed on the Roche Cobas C8000 device at 0 and 48 hours. The 0^{th} and 48^{th} hour %bias values were evaluated according to the targeted %bias based on biological variation.
RESULTS: The 0^{th}-hour values of the three tubes were similar in 23 biochemistry parameters, and the %bias values were at an acceptable level. For analytical stability, the calculated 48^{th}-hour %bias values of all three tubes were within the targeted limits for other biochemical parameters except for albumin, calcium, chlorine, creatinine, potassium, and LDH tests.
CONCLUSION: We think that high-quality serum samples can be obtained in a short time with fast serum tubes, providing comparable performance with standard serum tubes and it will give an advantage in cases where fast diagnosis and treatment are required.
Keywords: thrombin, preanalytical, serum

S060
INVESTIGATION OF THE POSSIBLE ROLE OF BRAIN NATRIURETIC PEPTIDE GENE POLYMORPHISM IN SARCOIDOSIS

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BACKGROUND AND AIM: Sarcoidosis is a multisystemic disease, the etiology of which is not fully elucidated, characterized by non-caseating inflammation in the involved areas, and most commonly affecting the lungs. Plasma BNP and NT-proBNP levels are increasingly used to describe cardiac involvement and predict prognosis in adult patients with congestive heart failure (CHF). Since plasma brain natriuretic peptide (BNP) levels have been reported to be a useful non-invasive biomarker in determining possible cardiac involvement in patients with sarcoidosis, this study aimed to investigate the possible role of Brain natriuretic peptide gene polymorphism in Sarcoidosis disease.
MATERIALS and METHODS: Twenty-eight patients over the age of 18 who were diagnosed with Sarcoidosis and 28 healthy individuals without any systemic disease as a result of routine analysis and clinical examination were included in the study. DNA isolation was performed from the blood samples taken into EDTA tubes from the individuals participating in the study. BNP rs198389 polymorphism analysis was performed on RT-PCR (LC480, Roche).
RESULTS: In BNP gene polymorphism in sarcoidase disease; The frequency of GG, AG and AA genotypes in the patient group was 20.7%, 48.3% and 31.0%, respectively, and 24.4%, 35.6% and 40% in the control group. There was no significant relationship between genotype distributions in the disease and control groups (p=0.549).
CONCLUSION: We think that this polymorphism can illuminate sarcoidosis by conducting further studies in which the number of samples is increased and BNP levels are included.
Keywords: Sarcoidosis, BNP, Natriuretic peptides

S061
INVESTIGATION OF BECLIN-1 AND HYPOXIA-INDUCED FACTOR-1 LEVELS IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA SYNDROME

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BACKGROUND AND AIM: Our aim was to measure the levels of Beclin-1, Hypoxia-Induced Factor-1 (HIF-1α), inflammatory, and oxidative stress indicators in patients with Obstructive Sleep Apnea Syndrome (OSAS) and investigate how Continuous Positive Airway Pressure (CPAP) treatment affected these parameters.
MATERIALS and METHODS: The study comprised 97 patients, aged between 18 and 69, who applied to the Chest Diseases Outpatient Clinic, including 27 controls, 42 patients with mild-moderate OSAS, and 28 patients with severe OSAS. Beclin-1, HIF-1α, TNF-α, and IL-6 levels in serum samples were studied by ELISA method, and Total Antioxidant Status (TAS) and Total Oxidant Status (TOS) parameters were studied by colorimetric method. Oxidative Stress Index (OSI) was calculated as TOS/TAS*100.
RESULTS: TNF-α, IL-6, Beclin-1, HIF-1α, CRP, TOS, and OSI levels of the control group and the mild-moderate and severe OSAS groups were significantly different from one another. Individuals with mild-moderate OSAS and severe OSAS had significantly higher TNF-α, IL-6, Beclin-1-, HIF-1-, CRP-, TOS-, and OSI levels than did patients without OSAS. In severe OSAS patients, TNF-α, IL-6, HIF-1α, CRP, TOS, and OSI levels were found to be statistically significantly lower before treatment than three months after treatment. According to the logistic regression study, a one-unit increase in OSI and one-unit increase in HIF-1α both increase illness risk by 5.85 and 52.33 times, respectively.
CONCLUSION: It may be argued that autophagic pathways are impacted in individuals with OSAS, and that HIF-1 levels are linked to intermittent hypoxia, inflammation, and oxidative stress and contribute to the disease's pathogenesis.
Keywords: osas, ınflammation, beclin1

S062
INVESTIGATION Of Xmn1 (Rs7482144), BCL11A (Rs11886868) And HMIP (Rs9399137) SINGLE NUCLEOTIDE POLYMORPHYS AFFECTING GAMMA GLOBIN

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BACKGROUND AND AIM: To evaluate the effect of XmnI, BCL11A, and HMIP single nucleotide polymorphisms (SNPs) on Fetal Hemoglobin (HbF) levels, which are thought to improve the phenotype by increasing HbF synthesis in β-thalassemia major or sickle cell anemia.
MATERIALS and METHODS: Our study included 44 pediatric patients (<18 years old) who applied to Çukurova University Balcalı Hospital Pediatric Hematology Department with the complaint of β-thalassemia major or sickle cell anemia and received blood transfusion. SNPs of Xmn1, BCL11A were analyzed by ARMS method and SNP of HMIP by RT-PCR method.
RESULTS: According to the Xmn1 region (rs7482144) analysis result, 32 (72.8%) of the children carried the "C/C" and 12 (27.2%) the "C/T" allele. To the BCL11A region (rs11886868) test result, it was found that 23 (52.3%) of the children were "C/C", 16 (36.3%) "C/T" and 5 (11.3%) T/T" allele. As the HMIP region (rs9399137) test result, it was detected that 44 (100%) of the children were the "T/T" allele.
CONCLUSION: As a result, the "C" allele frequency was found to be high for rs7482144 and rs11886868 polymorphisms, and the "T" allele frequency high for rs9399137 polymorphism. Significant differences were found related to HbF levels at all three polymorphic points (p<0,01). This study was supported by Cukurova University Scientific Research Project Coordination Unite with the number of SBE 13341.
Keywords: snp analyse, polymorphism, haemoglobinopathy, arms, rtpcr

S063
EVALUATION OF HE-4 AND CALPROTECTIN WITH MIRNA-9 AND MIRNA-186 LEVELS IN ENDOMETRIUM CANCER CASES

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BACKGROUND AND AIM: Endometrial cancers (EC) are the eighth most common gynecological cancers and cause the most deaths worldwide. In high-risk cases, endometrial sampling with biopsy or dilatation-curettage, which is the gold standard, are invasive methods. Therefore, we aimed to determine non-invasive reliable methods in our study.
MATERIALS and METHODS: The study was designed prospectively and consisted of 20 cases diagnosed with endometrial cancer and undergoing hysterectomy, and 22 controls diagnosed with benign disease and undergoing hysterectomy. miRNA-9 and miRNA-186 were isolated from tissue and serum and analyzed by qRT-PCR method. Calprotectin, HE-4, SOD, MDA, GSH serum levels were analyzed colorimetrically using the ELISA method.
RESULTS: Serum and tissue miRNA-9 levels were significantly higher in the case group compared to the controls. miRNA-186 levels were significantly higher only in the tissue case group. There was a significant difference in serum HE-4 and SOD levels in the case group compared to the control group. There was no significant difference in serum calprotectin, GSH, MDA levels in the case group compared to the control group. It was observed that the ROC analysis results increased the diagnostic power. There was a significant and strong correlation between tissue and serum miRNA-9 and miRNA-186 levels.
CONCLUSION: The fact that serum and tissue miRNA-9 and miRNA-186 levels are high in cases with EC, and ROC analyzes suggest that serum miRNA-9, miRNA-186, HE-4 and SOD levels may be useful in distinguishing cases with high risk for EC.
Keywords: miRNA-9, miRNA-186, Endometrium cancer, Calprotectin, HE-4

S064
EFFECTS OF ACRYLAMIDE AND GLYCIDAMIDE ON PALMITATE-INDUCED LIPOTOXICITY

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BACKGROUND AND AIM: Non-alcoholic fatty liver disease is a global health problem. Acrylamide exposure is also a global health problem because acrylamide can be produced during cooking and can be taken into the body with food. The effect of acrylamide and its metabolite glycidamide on lipotoxicity in the liver is unknown. In this study, we aimed to investigate the effects of serum acrylamide and glycidamide concentrations measured in human and experimental animal studies in the literature on palmitate-induced lipotoxicity in HepG2 cells.
MATERIALS and METHODS: HepG2 cells were incubated for 24 hours with 3.5, 111, and 450 µM acrylamide and 1, 37.5, and 190 µM glycidamide alone or with 0.5 mM palmitate conjugated with 0.7 mM fatty acid-free albumin. Cell viability was measured by the 3-(4,5-Dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium bromide assay.
RESULTS: 111 and 450 µM acrylamide and 37.5 and 190 µM glycidamide caused a significant decrease in cell viability in HepG2 cells ($p<0.05$ for all). 0.5 mM palmitate significantly decreased cell viability in HepG2 cells ($p<0.05$). 450 µM acrylamide and 37.5 and 190 µM glycidamide caused a significant decrease in cell viability in cells incubated with 0.5 mM palmitate ($p<0.05$ for all).
CONCLUSION: Our study showed that acrylamide and glycidamide increased palmitate-induced lipotoxicity in HepG2 cells. Information: This study was supported by Trakya University Scientific Research Projects Coordination Unit. Project Number: TÜBAP 2022/18.
Keywords: Acrylamide, Glycidamide, Non-alcoholic fatty liver disease, Palmitate, Lipotoxicity

S065
EFFECT OF CAFFEINE ON PROTEIN OXIDATION AND ENDOPLASMIC RETICULUM STRESS IN ACRYLAMIDE-TREATED HUMAN-DERIVED HEPATOMA CELLS

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BACKGROUND AND AIM: In this study, we aimed to investigate the effect of caffeine on protein oxidation and endoplasmic reticulum stress in acrylamide-treated human-derived hepatoma cells.
MATERIALS and METHODS: The effect of acrylamide and caffeine administered with acrylamide on cell viability was measured by 3-(4,5-dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium bromide assay; protein carbonyl, glucose regulated protein 78, activating transcription factor 4 and C/EBP-homologous protein levels were measured by western blot method.
RESULTS: Acrylamide at concentrations of 1000 and 10000 µM applied to HepG2 cells for 24 hours significantly reduced cell viability ($p<0.05$ for both). 10000 µM acrylamide significantly increased the levels of glucose-related protein 78, transcription activating factor 4, and C/EBP-homologous protein which are the markers of endoplasmic reticulum stress ($p<0.05$ for all). Caffeine administration did not significantly alter glucose-related protein 78, transcription activating factor 4, C/EBP-homologous protein levels in acrylamide-treated cells ($p>0.05$ for all). Protein carbonyl levels were significantly higher in cells treated with 10000 µM acrylamide for 24 hours compared to control. 50 and 200 µM caffeine significantly decreased protein carbonyl levels in cells treated with 10000 µM acrylamide ($p<0.05$ for both).
CONCLUSION: Our study showed that 10000 µM acrylamide decreases cell viability and increases protein oxidation and endoplasmic reticulum stress, and caffeine at 50 and 200 µM concentrations prevent protein oxidation but did not change endoplasmic reticulum stress. This study was supported by Trakya University Scientific Research Projects Coordination Unit. Project Number: TÜBAP 2018/266.
Keywords: acrylamide, caffeine, protein carbonyl, endoplasmic reticulum stress, hepg2

S066
EFFECTS OF BORON AND ROYAL JELLY ON OXIDATIVE STRESS AND ANTIOXIDANT STATUS IN WISTAR ALBINO RATS

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BACKGROUND AND AIM: Recently, interest in natural ingredients and minerals with antioxidant properties has increased. Bo-

ron (B) is an element that draws attention in health sciences with its antioxidant properties. In addition, royal jelly, which is a substance with a rich biological content, has been the subject of many researches related to health. In this study, it was aimed to investigate the antioxidant effects of both royal jelly and boron on oxidative stress in rats treated with Streptozotocin (STZ).
MATERIALS and METHODS: In the study, 5 groups were formed using 30 wistar albino female rats. Working groups were determined as Control Group (K), STZ Group (D), Royal Jelly Group (A), Boron Group (B), Royal Jelly and Boron Group (A+B). In the study, Total Antioxidant Status (TAS) and Total Oxidant Status (TOS) were measured by colorimetric method using commercial kits.
RESULTS: In the study, while TOS values increased in group D, TAS values decreased. TAS values increased in groups A, B and A+B.
CONCLUSION: According to the results of the study, it was seen that B and Royal Jelly increased the Antioxidant status against the oxidative stress caused by STZ. The highest increase was detected in group B. According to these results, positive effects on antioxidant status were observed with the use of selected doses of B and Royal Jelly.
Keywords: Royal jelly, Boron, Antioxidant, Oxidative stress

S067
INVESTIGATION OF OXIDATIVE STRESS PARAMETERS IN THE PATHOPHYSIOLOGY OF OCULAR ROSACEA

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BACKGROUND AND AIM: Rosacea is a common, chronic inflammatory disease characterized by erythema, papules, pustules, telangiectasia, and ocular manifestations. Although the etiology of rosacea is not fully known, inflammation, ultraviolet rays and oxidative stress are thought to play a role in the pathophysiology of rosacea. There are studies in the literature investigating oxidative stress from serum samples in cutaneous rosacea patients, but no study investigating oxidative stress from tear samples in ocular rosacea patients has yet been conducted. In this study, it was aimed to evaluate the total antioxidant status (TAS), total oxidant status (TOS), oxidative stress index (OSI) and arylesterase (ARE) levels from tear and serum samples of rosacea patients and healthy controls.
MATERIALS and METHODS: This study included 90 rosacea patients with ocular involvement and 30 healthy volunteers. From tear and serum samples, TAS, TOS and ARE levels were measured and OSI was calculated.
RESULTS: Tear and serum TAS, TOS and OSI values of patients were significantly higher ($p<0.05$), ARE values were significantly lower ($p<0.01$) compared to controls. A positive correlation was found between tear and serum values ($p<0.05$). When patients were investigated according to skin types (phymatous:14, erythematotelangiectatic:46, papulopustular:30), no difference was found between the types in terms of TAS, TOS, ARE and OSI.
CONCLUSION: In our study, TAS, TOS, ARE and OSI values from tear samples of rosacea patients were examined for the first time in the literature and it was shown that the results were in the direction of high oxidative stress in correlation with serum samples.
Keywords: rosacea, ocular rosacea, oxidative stress

S068
IN VITRO EFFECTS OF NEUROMELANIN ON DOPAMINERGIC CELLS

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Neuromelanin (NM) is an iron containing pigment that accumulates with age in the brain. It may exert protective or deleterious effects depending on its amount inside the cells. We aimed is to investigate the possible oxidative effect of NM in dopaminergic cells. Iron containing (Fe^{+3}NM) and iron-free (ifNM) synthetic NM were produced and tested on human neuroblastoma cell line (SH-SY5Y). In order to determine the IC_{50} values, cells were incubated with NMs (0.1-100 µg/mL) for 24 and 48 hours. Next, cells were pretreated with antioxidants, NAC (1mM) and Trolox (100µM), for 1 hour before a 24 h incubation with NMs. Cell viability analyses were performed by MTS assay. The IC50 values were found to be 47.84 µg/mL for ifNM and 67.69 µg/mL for Fe^{+3}NM at 24h. NAC pretreatment significantly decreased ifNM-induced cellular death. However, Trolox was found protective in Fe^{+3}NM-treated cells ($p<0.05$).
In conclusion, we determined that synthesized NMs induce cell death via triggering oxidative stress in SH-SY5Y cells. Elevated cellular death in the presence of antioxidants support these hypothesis. Studies are still in progress to elucidate the molecular mechanisms of cellular damage caused by NMs.
This study was supported by Ege University Scientific Research Projects Coordination Unit. (Project Number: TGA-2021-22303). In addition, support is received from TÜBİTAK 2211/C Domestic Priority Fields Doctoral Scholarship Program.
Keywords: neuromelanin, oxidative stress, dopaminergic cells

S069
EFFECT OF INTERMITTENT FASTING DIET MODEL ON NEUROINFLAMMATION AND THIOL-DISULFIDE HOMEOSTASIS

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BACKGROUND AND AIM: Neurodegenerative disorders are diseases characterized by progressive loss of neurons. Neuroinflammation, oxidative stress and mitochondrial dysfunction play a role in the progression of these diseases. S100 proteins are small calcium-binding proteins. Increases in S100B concentrations are considered to be a component of the neuroinflammatory response. Studies have shown that intermittent fasting triggers responses that suppress neuroinflammation and protect cognitive function. For this purpose, in our study; We aimed to examine the possible effect of Ramadan fasting, which is an intermittent fasting model, on serum S100B and thiol-disulfide homeostasis, and its possible effect on the neurodegenerative process.

MATERIALS and METHODS: 15 healthy volunteers who plan to fast for at least 20 days during the month of Ramadan were included in this study. Serum S100B and thiol-disulfide homeostasis parameters were studied from serum samples obtained from the volunteers in the study on the first and last day of the study.
RESULTS: 15 volunteers (3 Female, 12 Male) participated in the study. There was a statistically significant decrease in the weight, body mass index and serum S100B values of the volunteers after the study compared to the pre-study (P<0.05). There was a statistically significant increase in the values of native thiol, total thiol and disulfide after the study compared to the pre-study(P<0.05).
CONCLUSION: Our results suggest that Ramadan fasting may prevent neurodegenerative disorders by reducing the neuroinflammatory response. We think that there is a need for more comprehensive experimental animal studies including biochemical markers, histopathological examinations and cognitive tests in this area.
Keywords: neurodegenerative diseases, neuroinflammation, oxidative stress, ramadan fasting, ıntermittent fasting

S070
CALCULATION OF MEASUREMENT UNCERTAINTY FOR HOMA-IR, A CALCULATED PARAMETER

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BACKGROUND AND AIM: In this study,we aimed to calculate the measurement uncertainty of HOMA-IR calculated from insulin and glucose parameters.MATERIALS AND METHODS:Insulin used in the calculation of HOMA-IR was measured in Roche Cobas 801,glucose was measured in Roche Cobas 601 autoanalyzer. Homa-IR=glucose(mg/dl)Xinsulin(mU/L)/405 formula was used. The top-down approach specified in the ISO/TS 20914 guideline was used.Uncertainty was obtained from the combined relative uncertainty values of glucose and insulin,since two parameters were included as multipliers in HOMA-IR calculation.CV values of pathological and normal controls calculated from the weighted SD and mean values of 6-month internal quality control data were accepted as $\%u_{rw}$ values.Uncertainty was calculated in two ways,with and without using uncertainty component for bias(u_{bias}).NORDTEST guide formula was used for u_{bias} calculation.$u_{bias}=\sqrt{(RMS^2_{Bias}+\%u^2_{ref_i})}$.$RMS^2Bias$ values were obtained by dividing the sum of the squares of the 6-month % bias values obtained from the external quality report by the number of periods attended.
$\%u_{ref}$ was calculated with the formula $\%u_{ref}=(U/2/\text{peer group mean})$ X100 from the expanded U values for k=2 specified in the external quality reports.The $\%u_{ref\,I}$ was mean of the $\%u_{ref}$ values.
RESULTS: Expanded measurement uncertainty was calculated using a coverage factor of 2.When u_{bias} is excluded and when u_{bias} is included,expanded relative uncertainties of HOMA-IR calculated as 13.60% and 16.04% for glucose and insulin 1st level,11.44% and 14.26% for glucose 1st level insulin 2nd level,13,58% and 16.03% for glucose 2nd level insulin 1st level,11,42% and 14.24% for glucose and insulin 2nd level,respectively.CONCLUSION:The 1st and 2nd level uncertainty values of glucose were close to each other,so HOMA-IR uncertainty was affected from insulin uncertainty values more.
Keywords: measurement uncertainty, homa ır

S071
EVALUATION OF BIOLOGICAL VARIATION OF SALIVARY CORTISOL

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BACKGROUND AND AIM**:** Measurement of salivary cortisol has been recommended as one of the first-line tests in the Clinical Practice Guideline of the American Endocrine Society since 2008,for the evaluation of cases with suspected Cushing's syndrome.For the ECLIA method we routinely used in our study,we aimed to evaluate the intra and inter individual variability of salivary cortisol, analytical performance specifications,individuality index(II),and reference change value(RCV) using the BV study guide recommended by the EFLM Biological Variation Working Group.
MATERIALS and METHODS: Saliva samples were collected in a standardized way from 41 healthy volunteers (21women-20men) who did not smoke and regularly use drugs, once a week between 08.00 and 10.00 on a certain day for 10 weeks.After the samples were centrifuged, the supernatant obtained was stored at -80°C until the working day.All samples were studied twice in a single run with the ECLIA method.Analytical(CVA), intra-individual(CVI) and inter-individual(CVG) coefficients of variation were determined using the nested-ANOVA method by using the BioVar package program after outlier, normal distribution, steady-state, homogeneity and subgroup analyzes were performed on the results obtained.
RESULTS: For morning salivary cortisol CVI:28%(25.7%-30.8%,95%CI), CVG:31.3%(24.5%42.6%;95%-CI), and CVA:12.04%(11.2%-13%;95%CI) was calculated.The mean salivary cortisol value was 5.95(5.93-5.97; 95% CI) nmol/L. Upward RCV was 101.7% and downward RCV was 50.4%.The individuality index was 0,89.Desirable analytical quality specifications for salivary cortisol according to the BV data obtained; impression:<14%, bias:<10.5%, allowable measurement uncertainty:<28% and allowable total error:<36%.
CONCLUSION: For the method we used, salivary cortisol showed moderate individuality.Both conventional reference range and reference change values can be used in clinical evaluation.
Keywords: salivary cortisol, biological variation, analytical performance specifications, cushing syndrome, reference change value

S072
SIX SIGMA EVALUATION IN THE LIGHT OF QUALITY STANDARDS

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BACKGROUND AND AIM: It was aimed to improve the sigma values in our laboratory as a result of transferring the internal quality control values to the laboratory information system and processing the internal quality control evaluation forms (health quality standard) on a regular basis.
MATERIALS and METHODS: The total CV%, TAE (Total analytical error), and sigma values of 26 routine biochemistry tests were calculated monthly between February and April 2019 in the Ankara Keçiören Training and Research Hospital biochemistry laboratory. The tests were performed on the Beckman Coulter device. In Feb-

ruary and March, the company's data were used in both levels of internal quality control value ranges. Equipment maintenance was carried out at the beginning of April. In addition, internal quality control values at both levels were determined for each test.
RESULTS: Although the internal quality control data were evaluated and conformed to the Westgard rules, only 9 tests (Alanine amino transferase-ALT, Aspartate amino transferase-AST, Alkaline phosphatase-ALP, Amylase, Total Bilirubin, Direct Bilirubin, Gamma glutamyl transferase- GGT, Creatine kinase-CK, Triglyceride) sigma values (>3) were determined at a good level in February. No biochemistry test with a sigma value of 6 and above was detected. In April, only 3 tests (Albumin, Direct Bilirubin, and Iron) had a bad (<3) sigma value. In addition, in April, it was observed that the sigma value of three tests (ALP, Phosphorus, Total Protein) was 6 and above.
CONCLUSION: Regular maintenance of the equipment and figuring out the laboratory's internal quality control value ranges help improve the analytical performance of the test.
Keywords: analytical performance, sigma, total analytical error

S073
EVALUATION OF THE ANALYTICAL PERFORMANCE OF COMPLETE BLOOD COUNT PARAMETERS ACCORDING TO THE VARIOUS ALLOWABLE TOTAL ERROR LIMITS

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BACKGROUND AND AIM: In our study, it was aimed to evaluate the analytical performance of the Mindray BC 6800 (Mindray Bio-Medical Electronics, Shenzhen, China) complete blood count analyzer used in our laboratory by calculating total error (TE) levels and Sigma values calculated according to various allowable total error (TEa) limits.
MATERIALS and METHODS: TE and sigma values were calculated for the measured parameters of leukocyte (WBC), erythrocyte (RBC), hemoglobin (Hb), mean erythrocyte volume (MCV) and platelet (PLT). Between April and May 2022, CV% was obtained using three levels of internal quality control data as low, medium and high, and % bias was obtained using external quality control data. TE=%Bias+1,65*%CV and Sigma=(%TEa-%Bias)/%CV for all three levels were calculated. BV-EFLM, CLIA-2024, Standards of Spanish (minimum) and Rili-BAEK TEa limits were used for Sigma calculation.
RESULTS: The TE levels of all tests were found to be lower than all the stated TEa criteria. Sigma value was evaluated as acceptable performance at all levels according to all indicated criteria for Hb and RBC. Sigma values calculated according to the Standards of Spanish (minimum) were found to be >3 except Plt low level. In other parameters, different Sigma values were obtained according to the various criteria.
CONCLUSION: Various TEa standards can result in the calculation of different Sigma levels, resulting in different quality procedures. Clinical laboratories should establish a standard quality specification to select control rules that are feasible, practical, and at the same time most suitable for early detection of defects.
Keywords: six sigma, total quality management

S074
ASSESSMENT OF THE UNCERTAINTY OF RECOVERY IN CLINICAL BIOCHEMISTRY

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BACKGROUND AND AIM: In our study, we aimed to calculate the recovery uncertainty of glucose, albumin, potassium, sodium and chlorine parameters in the serum sample.
MATERIALS and METHODS: Glucose, albumin, sodium, potassium and chlorine parameters analyzed in the RocheCobas8000 device were discussed in this study. Serum pools were prepared at concentrations close to the clinical decision level for glucose(126mg/dl) and close to lower critical value(35g/L, 2,5mmol/L, 120mmol/L, 80mmol/L for albumin, potassium, sodium and chlorine, respectively) of each parameter for other analytes. They were measured 10 times. Mean values were calculated. In order to bring each parameter to upper critical level, solutions of certain concentrations were added to serum pools. They were studied 10 times.
RESULTS: Rm(Method Recovery) was calculated for each parameter. The uncertainty of recovery was calculated according to u(Rm) formulation reported in the Eurochem/CITAC guideline. Tcalc values were found according to t-formulation. For sodium and potassium values were found to be smaller than $t_{critical}$ value (t_{crit}=2.262) found according to 95% confidence interval and 'n-1'(n=10) degrees of freedom in
t table, u(Rm) wasn't different enough from 1 and it wasn't corrected for systematic error. u(Rm) was sufficiently different from 1 as the $t_{calculus}$ of glucose, albumin and chlorine were found to be greater than critical value and correction factor applied.(Correction factor= 1/Rm)
CONCLUSION: Recovery uncertainty is one of the components of measurement uncertainty and is included in the calculation as u(Rm)/Rm. In this study, it has been shown that only the potassium and sodium u(Rm) values aren't significantly different from 1.
Keywords: method validation, measurement uncertainty

S075
COMPARISON OF ANALYSIS RESULTS ON SNIBE MAGLUMI 4000 AND SIEMENS ADVIA CENTAUR XP DEVICES

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BACKGROUND AND AIM: Device and method changes are frequently encountered in clinical laboratories. This study was designed to compare the results of parameters measured on 2 different devices (Snibe Maglumi4000 and Siemens Advia CentaurXP).
MATERIALS and METHODS: Ferritin, Insulin (INS) and Vitamin B12 levels were studied in the sera of 30 patients sent for analysis. Measurements were made on both devices. Analyzes were performed in SPSS v25.0 and MedCalc statistical programs. The relationships between the measurements of both devices were examined by calculating the Pearson or Spearman correlation coefficients. The fit of the measurements was evaluated by Bland-Altman analysis and Passing&Bablok regression analysis. P values of

<0.05 were considered statistically significant.
RESULTS: There was significant correlation between measurements for all variables. The mean of the measurement differences between devices for Ferritin (p<0.001), INS (p<0.001) and Vitamin B12 (p=0.002) variables was found to be different from zero. This was evidence of systematic error. The slope of the regression line obtained from the mean and differences of the measurements was found to be significant for ferritin and INS (p<0.001). In other words, proportional measurement difference was detected. As a result of Passing&Bablok regression analysis, systemic error was detected for ferritin (0.931; 95%CI: 0.047-2.789), Vitamin B12 (81.384; 95%CI: 10.344-139.037). Proportional error was detected for INS (0.820; 95%CI: 0.698-0.902).
CONCLUSION: It was observed that Maglumi4000 for Ferritin, Vitamin B12 variables, Advia CentaurXP for INS variable had higher measurements. Laboratory specialists should be aware of these differences between devices and clinicians should be informed about possible changes.
Keywords: ferritin, insulin, vitamin B12, passing-bablok regression, bland-altman analysis

S076
ESTIMATION OF MEASUREMENT UNCERTAINTY IN HBA1C TEST AND INTERPRETATION OF RESULTS

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BACKGROUND AND AIM: Diabetes is a chronic degenerative disease with an increasing incidence.HbA1c test is widely used in diagnosis of diabetes. However,a single HbA1c measurement result is not an accurate and absolute result. Measurements in clinical laboratory carry a certain degree of 'uncertainty'.Measurement uncertainty is a quality indicator to show dispersion level of test result. In tests such as HbA1c, which are expressed by clinical decision level, measurement uncertainty is more important. We aimed to calculate measurement uncertainty of HbA1c test in our laboratory.
MATERIALS and METHODS: HbA1c test is performed in our hospital by HPLC method on the ADAMS™ HA8180v (Arkray Clinical Diagnostics, USA) analyzer. Measurement uncertainty was calculated in 6 stages according to Nordtest 537 guideline with internal and external quality control data. Intra-laboratory reproducibility bias (uRw), (RMS bias), uncertainty component related to reference material (uCref), standard uncertainty (ubias), combined standard uncertainty (uC), and expanded uncertainty (U) were calculated.
RESULTS: Internal quality control CV% was found 1.89% and 1.97% for level 1 and level 2, respectively. uRw value was calculated as 0.96 %, RMSbias 1.97%, uCref 0.29 %, ubias 1,99 %, uC 2.21%, U 4.42% (95% confidence interval, k=2). At clinical decision level, which was 6.5% for HbA1c, measurement uncertainty was 6.5% ± 0.29%.
CONCLUSION: Reporting HbA1c analysis result together with measurement uncertainty is important in showing limits of measurement and level of confidence.
Keywords: measurement uncertainty, nordtest 537, HbA1c

S077
PRODUCTION OF C-REACTIVE PROTEIN CERTIFIED REFERENCE MATERIAL

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BACKGROUND AND AIM: C-reactive protein (CRP) is a protein produced by the liver in response to inflammation. High levels of CRP in the blood are an indicator of inflammation. It can be caused by a wide variety of causes, from infection to cancer. With the "Regulation on Testing, Control and Calibration of Medical Devices" prepared by the Ministry of Health, Medical Drug and Device Agency, it is aimed to control the accuracy of the measurements of all devices in clinical laboratories. In addition, participation in proficiency tests and the use of certified reference material (CRM) are a must to ensure accuracy in accredited clinical laboratories. In order to respond to this need, the preparation of CRMs needed by the clinical laboratory in our country and the organization of proficiency tests appear as a necessity. In this project, certified reference material that can be used as a reference for clinical laboratories measuring CRP was produced.
MATERIALS and METHODS: Recombinant CRP solution was chosen as the candidate material of CRM due to its high purity. The homogeneity and stability of the existing CRM were examined by the gel filtration chromatography method. The protein concentration of CRP in the present CRM was determined by amino acid analysis coupled with isotope dilution mass spectrometry (ID-LC/MS-AAA).
RESULTS: Uncertainties arising from the homogeneity, long-term stability, and short-term stability data resulting from the value assignment method are taken into account in the evaluation of the uncertainty for the certified CRP value. The certified value and expanded uncertainty (k=2) of this CRM, UME CRM 1008, was determined as 43.2±2.2 µmol kg-1.
CONCLUSION: The CRP-certified reference material produced in this project will be used for validation of CRP measurement methods and for quality control purposes. It is aimed to present the reference material produced for this purpose to the use of both our country and the whole world.
Keywords: certified reference material crm, creactive protein, crp

S078
COMPARISON OF HBA1C MEASUREMENT WITH THREE DIFFERENT METHODS: LATEX-ENHANCED TURBIDIMETRIC IMMUNOASSAY, TURBIDIMETRIC INHIBITION IMMUNOASSAY AND HPLC

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BACKGROUND AND AIM: Different devices/methods are used in hospitals in the central and peripheral districts of the same province depending on changing needs. Method comparison studies are required for harmonization of inter-laboratory test results. The aim of this study is comparing the HPLC method with the latex-enhanced turbidimetric immunoassay (LETIA) studied in the central district and the turbidimetric inhibition immunoassay (TINIA) method studied in the peripheral district for HbA1c measurement.
MATERIALS and METHODS: 46 samples were included in this study. HbA1c measurements were performed with LETIA method (Archem Diagnostics) on Beckman Coulter AU5800 and HPLC method on the Tosoh HLC723-G8 autoanalyzers in Kastamonu Training and Research Hospital (central district). At Taşköprü Dist-

rict State Hospital (peripheral district), measurements were performed with the TINIA method (Beckman Coulter) on the Beckman Coulter Dxc 700 autoanalyzer. Samples were assayed twice in all three systems. Intra/interday repeatability studies were performed using two levels of HbA1c control material. The results were analyzed using MedCalc and SPSS 24.0.
RESULTS: Strong correlations were found between the LETIA and TINIA methods with HPLC method (r=0.990 p<0.001 and r=0.994 p<0.001, respectively). Deming regression analysis results of LETIA and TINIA methods and HPLC method were y=0.9902x-0.165 and y=1.0331x-0.119. Median HbA1c measurements were 6%, 6.2% and 6.1% for LETIA, TINIA and HPLC methods, respectively (p>0.05). The intra/interday precision values for all methods were below 2%.
CONCLUSION: LETIA and TINIA methods can be used as an alternative to the HPLC method, which is the gold standard for HbA1c measurement. HbA1c measurements in central and peripheral districts of Kastamonu are comparable and reliable.
Keywords: hba1c, hplc, immunoturbidimetry

S079
EVALUATION OF MEASUREMENT UNCERTAINTY IN BLOOD ETHANOL RESULTS

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BACKGROUND AND AIM: Measurement uncertainty gives information about the limits at which the measured value may vary as a result of random effects in a biochemical measurement. It is a quantitative indicator of the quality of the result obtained; it allows one to estimate the extent to which this result represents the actual value. Our aim; was to investigate its effect on the ethanol test results analyzed in our laboratory by calculating the measurement uncertainty of ethanol test.
MATERIALS and METHODS: For our study, ten months of internal quality control data and external quality control data obtained from the Randox International Quality Assessment Scheme quality control program of which we are a member, were used in our laboratory. The measured uncertainty value of the ethanol analysis was calculated using computational model in the Eurachem/CITAC Guide CG4.
RESULTS: The measurement uncertainty value of ethanol was calculated as ±5.6% at 95% confidence interval. According to this result, 6 of the ethanol results was close to the threshold value (47.2-52.8 mg/dl). Based on the obtained ethanol measurement uncertainty value, 4 results were thought to be affected when the wrong low measurement was assumed, and 2 results when the wrong high measurement was assumed.
CONCLUSION: It was determined that 99.8% of the total 3641 ethanol results were not affected by measurement uncertainty. For ethanol testing in our laboratory, although there is a low measurement uncertainty unlike most studies, it is aimed to further reduce the measurement uncertainty with stricter analytical performance conditions so that values close to legal limits are not affected.
Keywords: ethanol, uncertainty, quality control, standardization.

S080
TYPING OF ACUTE LEUKEMIA BY FLOW CYTOMETRIC METHOD AND EVALUATION OF COMPATIBILITY WITH PATHOLOGY

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BACKGROUND AND AIM: We aimed to examine demographic information of patients who applied to our hematology clinic between 2016-2022 and were diagnosed with leukemia, and to evaluate compatibility of pathology diagnoses and antibodies used with flow cytometry.
MATERIALS and METHODS: Flow cytometric data of patients diagnosed with acute leukemia using Beckman Coulter Navios between 2016-2018 and BD FACS Lyric devices between 2019-2022 in our hospital. Descriptive features and compatibility with pathological examination is evaluated.
RESULTS: In flow cytometry data analysis, there were 169 patients diagnosed with Acute Myeloid Leukemia (AML). The percentages of patients typing according to FAB classification were 13.6%, 23.7%, 18.3%, 20.7%, 8.9%, 14.8% for AMLM0, M1, M2, M3, M4, M5, respectively. There were 44 patients diagnosed with B Cell Acute Lymphoblastic Leukemia (B-ALL) and 11 patients with T-ALL. In terms of diagnosis of AML, kappa value of flow cytometry with pathology was found to be 0.849. Kappa values of AML antibodies were 0.407, 0.578, 0.49, 0.523, 0.336, 0.62 for CD33, CD34, CD56, CD117, MPO, HLADR, respectively. Kappa values of B-ALL antibodies were found to be 1 for CD79a, 0.779 for CD10, 0.724 for CD34 and 0.444 for CD19. Kappa values of T-ALL antibodies were found to be 1 for CD34, 0.714 for ctdt.
CONCLUSION: As a result of retrospective data analysis, flow cytometry and pathological examination showed excellent agreement in terms of diagnosis and typing of AML. In antibody evaluation, HLADR showed good agreement for AML, CD79a for B-ALL and CD34 for T-ALL showed excellent agreement.
Keywords: lipoprotein, sdldl, deep learning, multilayer neural networks

S081
MEASUREMENT UNCERTAINTY OF THYROID FUNCTION TESTS

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BACKGROUND AND AIM: Measurement uncertainty is a parameter associated with the result of a measurement, that characterizes the dispersion of the values that could reasonably be attributed to the measurand. According to ISO 15189, laboratories shall determine measurement uncertainty for each measurement procedure. Thyroid diseases are among the most common endocrine diseases. In this study, we aimed to calculate the measurement uncertainty for TSH, free T3(fT3) and free T4(fT4).
MATERIALS and METHODS: Internal and external quality control data of TSH, fT3 and fT4 tests in Ege University Medical Faculty Clinical Biochemistry Laboratory between January 2022 and

June 2022 were analyzed. Measurement uncertainty was calculated using the Nordtest guideline. The results obtained were compared with the total allowable error(TEa) limits.
RESULTS: At 95% confidence interval, uncertainty due to random error (uRw) for TSH, fT3 and fT4 was 1.59%, 1.69%, 1.73%, uncertainty due to systematic error (uBias) was 3.3%, 6.64%, 3.75% and expanded uncertainty values (U) were 7.34%, 13.7%, 8.27% ,respectively. TEa limits of TSH, fT3 and fT4 are 23.7, 11.3, 8 in Westgard Desirable BV, 24, 20, 20 in Rilibak and 20,20,12 in RCPA, respectively.
CONCLUSION: Measurement uncertainty for all three tests was lower than TEa determined by Rilibak and RCPA. According to Westgard Desirable BV, measurement uncertainty of TSH was lower than TEa, fT3 and fT4 were higher than TEa. Thyroid function tests are critical in the diagnosis and follow-up of thyroid diseases. Therefore, reporting of these tests with measurement uncertainty may guide clinicians by increasing the reliability of the test.
Keywords: measurement uncertainty, analytical performance, thyroid

S082
INVESTIGATION OF THE RELATIONSHIP OF BRAIN AREAS RELATED TO THE SENSE OF ODOR AND TASTE IN NEURODEGENERATIVE DISEASES AND BIOCHEMICAL PARAMETERS

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BACKGROUND AND AIM: To determine the volumetric volumes of the primary brain areas related to smell and taste with MR imaging in Alzheimer's and Parkinson's patients and healthy controls, and to examine the volume changes by comparing them with the smell/taste questionnaire and test results and the levels of biochemical parameters.
MATERIALS and METHODS: Our study included 15 Alzheimer's (AD), 15 Parkinson's patient (PD) and 15 healthy volunteers with mild and moderate cognitive impairment who applied to the Neurology Clinic of Mustafa Kemal University Faculty of Medicine. Smell & taste questionnaire was administered to the participants and taste identification function was investigated with Sniffin' Sticks' Odor Identification Test and Burghart Taste strips. Ferritin, FT3, FT4, TSH, B12, iron and zinc levels were analyzed in the blood sera taken from the participants.
RESULTS: Left bulbus olfactorius (p=0.004), left amygdala (p=0.004), left hippocampus (p=0.008), left anterior cingulate cortex (p=0.018) and right insula (p=0.000) volumes in Alzheimer's patients compared to healthy subjects was in low volumesThe zinc values observed in the individuals in the control group were found to be statistically significantly lower than the zinc values observed in Alzheimer's and Parkinson's patients (p<0.001).
CONCLUSION: It has been shown that there are volume changes in the olfactory-taste areas of the brain in Alzheimer's and Parkinson's patients. Our results show a strong negative correlation between serum zinc levels and AD. In addition, a strong negative correlation was found in the fusiform region of our FT4 results of our AH patients.
Keywords: sniffin sticks test, burghart taste test, neurodegenerative disease, biochemical parameters

S083
INVESTIGATION OF RDW VALUES OF PATIENTS WITH MICROCYTIC HYPOCHROMIC ANEMIA IN TERMS OF ALPHA AND BETA THALASSEMIA AND IRON DEFICIENCY

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BACKGROUND AND AIM: Thalassemia trait and iron deficiency anemia (IDA) are very common types of microcytic anemia. Therefore, there is a need for fast, reliable, easy-to-apply as well differential diagnostic parameters. Red cell distribution width (RDW) is an erythrocyte index that can be easily measured with complete blood count. Moreover, it is known to increase in microcytic anemia types such as IDA. In this study, the effect of RDW value on differential diagnosis was investigated in patients with microcytic hypochromic anemia who were admitted to Çukurova University Medical Biochemistry Department with the suspicion of hemoglobinopathy.
MATERIALS and METHODS: Hemogram (Sysmex KX-21N), mutation analyzes (ARMS,RFLP,Multiplex PCR,Sanger sequencing) and ferritin measurements were performed in the samples. 408 patients with microcytic hypochromic anemia (MCV<80 fL, MCH <27 pg) were evaluated. Statistical analyzes were performed with the SPSS Statistics 20 program.
RESULTS: Of the 408 patients evaluated, 56 were found to have IDA (ferritin <12 ng/mL), 171 were α-thalassemia carriers, and 181 were β-thalassemia carriers. According to the statistical analysis data, there were significant differences (p<0.05, 95%CI) between the RDW values of patients with IDA patients, while the difference was found to be insignificant (p>0.05) between β-thalassemia carriers and IDA patients
CONCLUSION: The data obtained show that α-thalassemia carrier and iron deficiency anemia can be differentiated by using the RDW value. However, RDW is not a useful variable in differentiating between individuals with suspected β-thalassemia carriers and IDA. Nevertheless, RDW is a value that can be used before expensive and time-consuming analyzes in hypochromic microcytic anemias.
Keywords: microcytic hypochromic anemia, thalassemia, iron deficiency anemia, RDW

S084
SERUM PHOENIXIN-14 AND PHOENIXIN-20 LEVELS IN WOMEN WITH POLYCYSTIC OVARY SYNDROME

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BACKGROUND AND AIM: Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorder of reproductive-aged women around the world. However, the underlying pathogenic mechanisms have not been completely understood. Phoenixin (PNX) is a newly discovered neuropeptide associated with reproductive functions and energy homeostasis. The objective of this study was to measure the serum levels of PNX-14 and PNX-20 in women with PCOS versus controls and explore relationship between PNX

and PCOS-related reproductive and metabolic disturbances.
MATERIALS and METHODS: This study was performed in 36 women with PCOS and 36 healthy women. The serum levels of PNX-14 and PNX-20 were measured by using ELISA method.
RESULTS: Serum PNX-14, PNX-20, LH, fasting insulin levels and HOMA-IR values were higher in women with PCOS compared with the control group ($p<0.05$). While the FSH ($p<0.01$) and vitamin B12 ($p<0.05$) levels of the PCOS group were significantly lower than those of the control group, cortizol and testosterone levels were significantly higher than those of controls ($p<0.005$). There was a significant positive correlation between serum PNX-14 and PNX-20 ($r= 0.510$; $p <0.001$), insulin ($r= 0.402$; $p<0.005$), HOMA-IR ($r= 0.406$; $p<0.005$) in PCOS groups. There was a significant negative correlation between serum PNX-14 and iron ($r=-0.391$; $p<0.05$), vitamin B12 ($r=-0.333$; $p<0.05$), BMI ($r=-0.414$; $p<0.05$) in PCOS groups. PNX-20 levels correlated negatively with BMI ($r=-0.416$;$p<0.05$) in PCOS groups.
CONCLUSION: Serum PNX-14 and PNX-20 levels are higher in women with PCOS compared with controls. Our findings indicated a significant relationship between PNX-14, PNX-20 and PCOS.
Keywords: phoenixin14, phoenixin20, polycystic ovary syndrome

S085
CHANGES IN VITAMIN D LEVELS IN KNEE OSTEOARTHRITIS PATIENTS ACCORDING TO SEASON

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BACKGROUND AND AIM: The relationship between vitamin D deficiency and knee osteoarthritis (OA) has not yet been fully elucidated. This study aimed to show the changes in serum vitamin D levels according to seasonal variations in knee osteoarthritis patients.
MATERIALS and METHODS: 3424 subjects (2901 women and 523 men) > 55 years old who had knee radiographs and 25(OH)D serum concentrations were selected and included in this retrospective study. 25(OH)D levels were measured by the chemiluminescence immunoassay method. The knee OA was assessed using Kellgren-Lawrence radiological scoring system on plain radiographs. Chi-squared and Mann-Whitney U test was used to compare data sets in independent groups.
RESULTS: A total of 1965 subjects (57,4%) had knee OA. In the knee OA group, 25(OH)D levels were significantly lower than in the control group ($p<0.001$). There was also a significant difference in the distribution of knee OA prevalence among seasons of blood sampling. In both groups, serum 25(OH)D levels peaked in Autumn and reached their lowest levels in Winter. 25(OH)D levels of the control group showed a relatively stronger peak in Autumn than in the knee OA group.
CONCLUSION: Our results showed that VDD prevalence is higher in knee OA patients and seasonal changes may interfere with knee OA prevalence.
Keywords: vitamin d, knee osteoarthritis, season

S086
INVESTIGATION OF THE RELATIONSHIP BETWEEN COMPLETE BLOOD COUNT PARAMETERS WITH GLUCOSE AND HBA1C IN PREDIABETIC AND DIABETIC PATIENTS

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BACKGROUND AND AIM: This study aimed to compare Erythrocyte Distribution Width (RDW) and other complete blood counts (CBC) parameters with glucose and Hba1c levels of prediabetic and diabetic patients.
MATERIALS and METHODS: This retrospective study has 3591 (1231 male, 2360 female) patients who applied to Niğde Training and Research Hospital between 2019-2021 and met the admission criteria were included. According to (American Diabetes Association) ADA criteria, patients were divided into two groups as non-diabetic (<5.7%) and prediabetes ((>=5.7%-6.4% (<6.5%))) HbA1c values. Glucose plasma value ≥ 126, serum ≥120 cut-off value was selected for the patient. Conditions affecting RDW, such as iron deficiency, thalassemia, etc., were determined by examining the records and these patients were excluded from study. Glucose and c-reactive protein levels, RWD, RBC, leukocytes (WBC), platelets and Hba1c values were scanned from blood samples.
RESULTS: RDW results of Group III were statistically significantly higher than the both groups I and groups II ($p<0.05$). In addition, significant correlation was found between glucose and HbA1c with RDW in Group III. ($r=0.134$, $p<0.01$, $r=0.131$, $p<0.01$, respectively). Furthermore, significant correlation was detected between glucose and hemoglobin, RBC, and mean corpuscular volume (MCV) values (respectively; $r= 0.15$, $p<0.01$, $r=0.118$, $p<0.01$, $r=-0.095$, $p< 0.01$).
CONCLUSION: As a result, elevated RDW values are associated with the glycemic status of diabetics. For this reason, we think that the use of RDW, which is a cost-effective and easily accessible test, may be useful in glycemic evaluation. However, the results need to be supported by prospective studies in different populations.
Keywords: diabetes, prediabetes, erythrocyte distribution width, glucose

S087

S088
DYSREGULATED LEUKOTRIENE METABOLISM IN COVID-19 PATIENTS

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BACKGROUND AND AIM: Understanding the pathogenesis is very important in the prevention of the deleterious health effects of COVID-19 but it is still not fully understood. In this study, we evaluated leukotriene metabolism in COVID-19 patients.
MATERIALS and METHODS: A total of 180 people were included in the study. Of these, 60 were healthy controls, 60 were patients who needed intensive care unit (ICU), and 60 were patients who did not need intensive care (non-ICU). The levels of cysteinyl leukotriene (CYSLT), 5-lipoxygenase (5-LO), and 5-LO activating protein (ALOX5AP) and the mRNA expressions of 5-LO, ALOX5AP, and cysteinyl leukotriene receptor 1 (CYSLTR1) mRNAs were evaluated. The study was supported by The Scientific and Technological Research Council of Turkey (TUBİTAK) with the grant number: 220S424 and Cumhuriyet University with the grant number: T-2021-914.
RESULTS: Decreased 5-LO level and mRNA expression were detected in non-ICU and ICU compared to the control group. Decreased 5-LO level and mRNA expression were detected in ICU compared to non-ICU. Increased CYSTR1 mRNA expression was detected in non-ICU and ICU compared to the control group. The control group had higher CYSLT levels compared to both non-ICU and ICU patients.
CONCLUSION: Dysregulation in leukotriene metabolism plays a role in the pathogenesis and severity of the disease. Due to the higher expressions of CYSTR1 in patients, selective leukotriene receptor blockers can be used as a treatment option.
Keywords: covıd19, sisteinil lökotrien, 5lipoksijenaz, sisteinil lökotrien reseptör1, 5lo aktive edici protein

S089
THE IMPORTANCE OF FERRITIN IN THE PREDICTION OF MORTALITY IN COVID-19 PATIENTS IN THE INTENSIVE CARE UNIT

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BACKGROUND AND AIM: COVID-19 has a broad clinical range, endangering world health. Studies have looked at a variety of predictive biochemical and hematological features. However, they are frequently vague and inadequate for decision-making. Serum ferritin, for example, a sign of hemophagocytic lymphohistiocytosis, a known result of viral infection, has been associated to poor recovery in COVID-19 patients.
MATERIALS and METHODS: Between April and June 2020, 71 unvaccinated RT-PCR confirmed COVID-19 ICU patients (47 men and 24 females, mean age 65, range 22-93) were enrolled. They were separated into two groups: those who survived (n=35, mean age=58) and died (n=36, mean age=75). Serum ferritin analyzes were performed on a Siemens Advia Centaur XPT immunoassay autoanalyzer (Siemens Healthineers AG, Erlangen, Germany) with a reference range of 10-322 ng/mL, 2.1-3.0 within run % CV, and 2.7-5.4 between run % CV. The ferritin level was defined as the initial value measured within the first 24 hours after ICU admission.
RESULTS: Patients who died were older than survivors and were more likely to have comorbidities (CAD and HT). In addition, ferritin levels were considerably greater ($p<0.001$) in ICU patients who died. A strong association between admission ferritin levels and mortality was discovered using ROC analysis (AOC: 0.768).
CONCLUSION: In conclusion, our retrospective analysis found a substantial link between admission ferritin levels and COVID-19 infection in ICU patients. Comorbidities increase mortality rates in COVID-19 ICU patients. Furthermore, regardless of COVID-19, ferritin is a useful factor in determining morbidity in individuals above the age of 70 years.
Keywords: Covid-19, Ferritin, Mortality, Survival, ICU

S090
CORRELATION OF NORMALIZED VIRAL NUCLEIC ACID AMOUNTS WITH LABORATORY TESTS: PRACTICAL USE OF SARS-COV-2 RT-PCR CYCLE THRESHOLD (CT) VALUES

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BACKGROUND AND AIM: RT-qPCR tests are the gold standard for the diagnosis of COVID-19, by calculating Ct (Cq) values. Ct values are affected by both the amount of nucleic acid per sample and the PCR efficiency. Ct values are used incorrectly in studies, questioning the relationship between biomarkers. We studied the relationship between normalized viral nucleic acid amount and biomarkers using reaction efficiency obtained from standard curves.
MATERIALS and METHODS: We calculated the reaction efficiency of the primers of a commercial SARS-CoV-2 RT-PCR kit according to the standard curve method. We calculated the normalized viral nucleic acid ratios of 135 patients using the Ct value of SARS-CoV-2 ORF1ab and N and the human RNase P Ct values. We found Spearman correlation coefficients between patient laboratory data and viral nucleic acid ratios.
RESULTS: We found the statistically significant correlation coefficients as follows. Spearman's rho values for ferritin, lymphocyte count, lymphocyte percent, monocyte count, monocyte percent, neutrophil percent, RDW-CV were -0.203 ($p = 0.022$), -0.369 ($p < .001$), -0.355 ($p < .001$), respectively. , we found 0.206 ($p = 0.016$), 0.289 ($p < .001$), 0.263 ($p = 0.002$) and 0.182 ($p = 0.035$).
CONCLUSION: It is figured out the relationship between biomarkers and blood cell count parameters with the amount of normalized SARS-CoV-2 nucleic acid. The relationship between the normalized amount of viral nucleic acid and biomarkers has not been shown yet. The corrected use of Ct values will provide a better understanding of COVID-19 disease.
Keywords: Covid-19, Rt-Pcr, Cycle Threshold Value

S091
INFLAMMATORY PARAMETERS IN HASHIMOTO TIROIDITIS

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BACKGROUND AND AIM: Hashimoto's thyroiditis (HT), is a common autoimmune disorder and is among the most common causes of hypothyroidism. Neutrophil-lymphocyte ratio (NLR), pla-

telet-lymphocyte ratio (PLR) and lymphocyte CRP ratio (LCR) are used as inflammatory markers in the evaluation of inflammation in many diseases. The aim of this study is to evaluate the relationship between the levels of NLR, PLR and LCR, which are systemic inflammation markers, and thyroid autoimmunity in HT patients.
MATERIALS and METHODS: 98 patients with HT with 97 age and gender compatible healthy controls who were admitted to Çam and Sakura City Hospital were included in the study. The data of the patients were collected retrospectively from the hospital information management system and NLR, PLR and LCR were calculated. Inflammatory markers of HT patients and healthy controls were compared and their correlations were analyzed.
RESULTS: Thyroid stimulating hormone (TSH), Anti Thyroglobulin, Anti Thyroid peroxidase, C reactive protein (CRP), NLR, PLR were higher and free thyroxine (fT4), LCR were lower in patients diagnosed with HT compared to the control group. There was no significant difference between the groups in terms of leukocyte, neutrophil, and lymphocyte counts ($p > 0.05$ for each). We determined that CRP, NLR, and PLR were correlated with TSH.

CONCLUSION: We found that NLR, PLR and CRP were higher in Hashimoto patients compared to the healthy control group. Inexpensive, simple and easily accessible NLR, PLR and LCR can be used as practical and useful inflammatory markers in the clinical course of the disease in HT patients.
Keywords: nlr, plr, hashimoto thyroiditis

S092
THE ROLE OF MiRNAs IN THE DIAGNOSIS OF OSTEOPOROSIS

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BACKGROUND AND AIM: Osteoporosis is a disease characterized by low bone mass and deterioration of bone architecture, resulting in decreased bone strength and increased risk of fracture. Osteoporosis and osteoporosis-related fractures are among the common causes of morbidity and mortality in older adults. Although the role of miRNAs in skeletal diseases is not fully known, deregulation of the functions of some miRNAs or the mechanisms they mediate is thought to be an important pathological factor in bone degeneration. Therefore, in this study the role of miR-21-5p, miR-34a-5p, miR-210, miR-122-5p, miR-125b-5p, miR-133a, miR-143-3p, miR-146a, miR-155-5p and miR-223, which were thought to be involved in bone metabolism, in the diagnosis of osteoporosis will be determined.
MATERIALS and METHODS: 60 individuals (25 patients and 35 healthy people) who were diagnosed with osteoporosis according to bone mineral density evaluation by qCT, were included in the study. The blood samples collected in 5 ml EDTA tubes were centrifuged at 2000 g for 10 minutes and their plasmas were separated. MiRNAs obtained from plasma samples were isolated with miRNA isolation kit and converted to cDNA. Expression analysis of 10 target miRNAs was performed on the RT-PCR device
RESULTS: When analysis results were examined, it was observed that in the patient group, miR-21-5p(FC=2.24;p=0.007), miR-210(FC=7.97;p=0.003) and miR-223(FC=1.71;p=0.070) was upregulated; miR-34a-5p(FC=-5.54;p=0.013), miR-125b-5p(FC=-1.86;p=0.035) and miR-146a(FC=-6.24;p=0.004) was downregulated compared to the control group.
CONCLUSION: In line with these data, we think that miRNAs may have an important role in the diagnosis and follow-up of osteoporosis when supported by further studies.
Keywords: Osteoporosis, miRNA, Bone metabolism, RT-PCR

S093
NEPHROGENIC AND NEUROPROTECTIVE EFFECT OF POTENT PROBIOTICS ON RAT NEUROINFLAMMATION MODEL AND NCM460 CELL INJURY: GUT-BRAIN-MICROBIOTA AXIS

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BACKGROUND AND AIM: The microbiota-gut-brain axis has been the focus of attention of the scientific community in recent years. In case of impaired bacterial intestinal permeability, bacterial lipopolysaccharides (LPS) enter the systemic blood circulation, causing an increase in the production of inflammatory cytokines. It was aimed to investigate the nephrogenic and neuroprotective effects of active bacteria in the microbiota in a model of LPS-induced neuroinflammation and intestinal barrier damage.
MATERIALS and METHODS: NCM460 colonic epithelial cells were used. Cells were stimulated with lipopolysaccharide (LPS) (1 µg/ml) and then co-cultured with Bifidobacterium bifidum (BIF) and Lactobacillus salivarius (LAC) ($1x10^9$ CFU/ml in 30 µl) for 24 hours. Added 1 mL of probiotics per day to the drinking water of rats for 21 days. Rats were administered LPS intraperitoneally on day 17. Biochemical parameters were investigated in cell lysates and brain tissues.
RESULTS: MTT viability test was performed for the efficacy of probiotics in LPS-induced colon cell damage. Aβ1-42 levels were found to be increased in rat brain tissues against inflammation damage. Long-term administration of the potent synthetic probiotic formulation showed nephrotic effects in preventing intestinal colon cell damage and not only prevented LPS-induced increase of Aβ accumulation, oxidative stress, ferroptosis and proinflammatory cytokines in certain regions of the brain (hippocampus and cortex), but also showed a potent protective effect.
CONCLUSION: Our hypothesis is that pretreatment with the potent probiotic formulation helps to establish a systemic protection of the gut-brain-microbiota axis, which can counteract the effects of acute proinflammatory responses due to LPS.
Keywords: Microbiota, Intestine, Neuroinflammation, LPS, Probiotic

S094
THE RELATIONSHIP OF TREATMENT OF CHRONIC MECHANICAL LOW BACK PAIN WITH PRO-INFLAMMATORY AND ANTI-INFLAMMATORY BIOMARKERS

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BACKGROUND AND AIM: Low back pain is a frequent and recurrent condition, often with a non-specific cause.. Conventional treatment methods are generally insufficient in the treatment of chronic low back pain. In the light of this information, we aim to

explain the relationships of IFN, IL-1, IL-6 (proinflammatory), IL-10, IL-4 (anti-inflammatory) and VEGF proteins on angiogenesis and the release of cytokines in patients with chronic mechanical low back pain.
MATERIALS and METHODS: The study was carried out on 40 patients. Between 20-60 years old, diagnosed with chronic low back pain for at least 4 months, primary complaint of lumbosacral low back pain, pain intensity VAS (visual analogue scale) score of 5 and above, not responding well to conservative treatment (analgesic drugs, physiotherapy, etc.) patients were included in the study. Blood samples were taken from all cases 1 day before the intervention, 1 day after the interventional treatment and 15 days later. The collected blood was separated into serum and stored in the deep freeze at -80 degrees in the Department of Medical Biochemistry. Then, ELISA test was analyzed for IFN, IL-1, IL-6, IL-10, IL-4 and VEGF levels with the same analysis method on all of these collected blood.
RESULTS: The mean age of our patients was 53.2±16.3 years, the mean height was 163.9±11.8 cm, and the weight was 69.1±13.0 kg. IL-4 was statistically increased compared to group 0 and compared to 1 and 2 groups. VEGF decreased statistically in 2 groups compared to 0 groups. IL-1 level is statistically decreased compared to 1 and 2 groups.
CONCLUSION: As a result, we think that the increase in serum levels of proinflammatory cytokines may be correlated with the severity of pain and that the increase in the level of anti-inflammatory cytokines reduces pain by reducing inflammation. We believe that studies with larger samples conducted in specific patient groups and specific pain treatments will reveal which cytokines can be included in our clinical practice as biomarkers.
Keywords: Chronic Low Back Pain, RF, Cytokines

S095
COMPARISON OF SERUM TRIMETHYLAMINE-N-OXIDE LEVELS IN PREGNANT AND NON-PREGNANT WOMEN: A PRELIMINARY STUDY

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BACKGROUND AND AIM: Trimethylamine-N-Oxide (TMAO) is a metabolite obtained by the liver oxidation of Trimethylamine (TMA),which is metabolized from choline in the gut.Its excess associated with diabetes,insulin resistance and metabolic syndrome. In this study, our objective was to compare serum TMAO levels of women in first trimester of pregnancy and non-pregnant women.
MATERIALS and METHODS: The study was carried out on 80 healthy 6-12 weeks pregnant and 85 healthy non-pregnant women under age 45 who applied to Selcuk University Medical Faculty Hospital.Women divided into 2 groups according to age, as under 30 years old and over 30 years old.TMAO levels from serum samples were examined by LC-MS/MS following pre-study procedures. In addition,pregnant women were compared among themselves in terms of serum TSH,TMAO and glucose.
RESULTS: Serum TMAO levels were found higher in non-pregnant women(208.69±127.90ng/ml) compared to pregnant women(164.93±133.65ng/ml)($p<0.05$).There was no difference between age groups in terms of TMAO,glucose and TSH levels in the analyzes performed among pregnant women.
CONCLUSION: It's reported in studies fetus increases choline metabolism in pregnant women.Pregnant women show lower TMAO levels than non-pregnant women in our study,which is consistent with the literature,and this may be an indicator of decrease in maternal TMA/TMAO cycle and microbiota change during pregnancy due to the transfer of choline to the fetus.Increased TMAO levels in 2nd and 3rd trimesters have been reported in many pregnancy-related diseases.This is a preliminary study for our study that will compare the TMAO levels in 3rd trimester of these pregnant women has lower TMAO levels,and their development of various diseases according to TMAO levels will be reported later.
Keywords: tmao, tma, pregnancy

S096
COULD SYSTEMIC IMMUNE INFLAMMATION INDEX BE A MARKER IN COVID-19 INFECTION DURING PREGNANCY?

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BACKGROUND AND AIM: Caused by the pathogen SARS-CoV-2, a novel coronavirus, the disease, COVID-19, is characterized by generalized inflammatory response and pneumonia. Pregnant women are a particularly vulnerable group for COVID-19 complications due to hemodynamic changes already occurring during pregnancy. It has been shown that the systemic immune inflammatory index (Platelet count x Neutrophil count/Lymphocyte count) changes in various diseases. The aim of this study was to evaluate systemic immune inflammation index as a potential marker for COVID-19 during pregnancy.
MATERIALS and METHODS: This is a retrospective study involving 47 pregnant patients aged 18-44 years who applied for COVID-19. The control group consisted of 44 women who had no history of COVID-19 during their pregnancy. Laboratory findings were recorded and used for statistical analysis. Student-t test and Mann-Whitney U test were used for comparison of the two groups.
RESULTS: Hb, WBC, D-dimer and fibrinogen showed no statistically significant difference between the groups ($p>0,05$). CRP, ferritin, AST, ALT and LDH were found significantly higher in COVID-19 positive group ($p<0.05$). IL-6, PLT, SII and NLR showed no significant difference between the groups. Neutrophile and lymphocyte counts were significantly lower in COVID-19 positive group ($p<0.01$).
CONCLUSION: When the two pregnant groups were compared, lymphopenia was present in the patient group. The systemic inflammatory index was similar between the two groups. In conclusion, no SII difference was observed between COVID-19 positive and healthy pregnant women. Further studies with larger participant groups could reveal further difference regarding complete blood count parameter changes in COVID-19 during pregnancy.
Keywords: systemic immune inflammatory index, covıd19, preg-

nancy

S097
TRANSCRIPTOMIC ANALYSIS OF TURKISH PATIENTS WITH SARS-COV-2 INFECTION

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BACKGROUND AND AIM: COVID-19 can cause mild infection (MI), acute respiratory distress syndrome (ARDS) or death in infected people. The cause of these differencies has not been fully determined. In this study, we aimed to identify genes with different expression profiles to reveal molecular causes of different responses.
MATERIALS and METHODS: The study included two healthy, COVID-19-negative control individuals (NCI), two COVID-19-positive patients with MI, and two patients with critical infection (CI). Total RNA was extracted from blood samples and sequenced. Raw RNA-Seq data were analyzed on the Galaxy platform to identify differentially expressed genes and their pathway involvements.
RESULTS: In comparison to NCI and MI patients, we found that 199 and 521 genes were downregulated in CI patients, respectively. We identified 21 gene ontology pathways that were commonly downregulated in CI patients compared to both NCI and MI patients, most of which were associated with innate and adaptive immune responses. In addition, we found that 354 and 600 genes were found to be upregulated compared to NCI and MI, respectively. Six pathways were upregulated, including genes involved in inflammatory response and cytokine release.
CONCLUSION: In terms of the number of differentially expressed genes, the transcriptional profile of CI patients differs significantly from that of MI patients, implying that genotypic differences may account for the severity of COVID-19 infection and inflammatory responses via differential gene expression regulation. As a result, additional research involving whole genome analysis in conjunction with differential expression analysis is required to determine the dynamics of genotype-gene expression profile associations.
Keywords: covıd19, transcriptomics

S098
STUDY OF THE CALCEMIA IN THE SEVERE FORMS OF COVID-19.

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BACKGROUND AND AIM: The objective of our work is the study of the calcemia in patients with severe forms of Covid-19, hospitalized at the Mohammed VI University Hospital of Oujda.
MATERIALS and METHODS: This is a retrospective study including 309 patients with severe forms of Covid-19, who were hospitalized at the CHU Mohammed VI of Oujda. In this study we analyzed the values of the blood calcium level of these patients, and we compared these values between the group of deceased subjects and the group of cured subjects by carrying out the Student's t test.
RESULTS: The study population included 309 patients, 138 women and 171 men, the mean age was 63.42 years [03 months - 101 years], 108 subjects of our study population were deceased (35%). The mean value of blood calcium in the study population was 85.39 mg/l, 87.3 mg/l in cured patients and 81.61 mg/l in deceased patients. The Student's t test found that the mean of the cured group was significantly higher than the mean of the deceased group ($p<0.05$). The results of our study found that hypocalcemia in patients with severe forms of Covid19, so this hypocalcemia was more severe in deceased patients compared to cured subjects.
CONCLUSION: Hypocalcemia is a predictive factor of poor prognosis during Covid-19 infections. Hence the interest of research and correction of these hypocalcemia, including regulatory factors such as vitamin D. This highlights the importance of detecting, preventing and treating vitamin D deficiency which can aggravate hypocalcaemia.
Keywords: Covid-19, hypocalcemiae

S099
MALDI IMAGING MASS SPECTROMETRY METHOD OPTIMIZATION OF BREAST CANCER TISSUES EVALUATED IN DIFFERENT RISK GROUPS ACCORDING TO THE PAM50 TEST RESULTS

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BACKGROUND AND AIM: Formalin-fixed and paraffin-embedded(FFPE) tissues are valuable for mass spectrometry-based proteomic studies as they correlate with clinical data. Matrix-assisted laser desorption/ionization(MALDI)-Imaging mass spectrometry combines histological information with high resolution and accuracy and determines the spatial distributions of analytes on tissue. In this study, it was aimed to perform an optimization study for sample preparation for the analysis of peptide profiles by MALDI-Ima-

ging mass spectrometry of FFPE tissues from different subgroups of breast cancer.
MATERIALS and METHODS: Sections of 3 and 5µm from FFPE breast tissues were taken on indium tin oxide coated slides in the microtome. Washing with xylene and decreasing alcohol concentrations followed by two different antigen retrieval procedures with 10mM Tris-HCl and 10mM Citrate buffer solutions were applied. Trypsin enzyme was prepared different concentrations, 25ng/µl, 50ng/µl, 75ng/µl, and 100ng/µl, for the digestion of proteins into peptides. For matrix coating of tissues, 5mg/ml, 7mg/ml and 10mg/ml α-CHCA matrix was prepared in 50% and 70% acetonitrile(ACN) and different concentrations of trifluoroacetic acid(TFA). Analyzes were performed on the RapifleX-MALDI-Tissue-Typer-mass-spectrometer and positive ion reflectron mode range of 900-3500.
RESULTS: In spectrum, more monoisotopic peptides were detected in 3µm. 10mM Tris-HCl buffer gave better results in terms of peptide count. The highest number of peptides was detected from tissues sprayed with 100ng/µl trypsin. Peptides of high signal intensity were obtained from tissues coated with matrix concentration of 70%ACN and 1%TFA α-CHCA in 5 mg/ml.
CONCLUSION: Successful results of analysis of FFPE tissues depend on optimization studies. Result of the study, appropriate parameters for breast tissues were optimized.
Keywords: ffpe, peptide, sample preparation, optimization, maldi imaging mass spectrometry

S100
EFFECTS OF VANADIUM ON OXIDATIVE STRESS AND TISSUE FACTOR ACTIVITY IN ZEBRAFISH EMBRYOS

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BACKGROUND AND AIM: Vanadium has cardioprotective, neuroprotective, anti obesity, contraceptive or insulin mimetic properties. However, the mechanisms underlying hematomas and bleeding in the treatment of vanadium remain unclear. Studies have shown that gestational diabetes and maternal Vanadium concentrations are inversely proportional and vanadium can be found in placenta samples. Data are limited on effects of vanadium on coagulation. Tissue factor (Thromboplastin) is primary initiator of coagulation in both physiological and pathological conditions. Tissue factor is required for neovascularization. The aim of our study is to examine the effects of vanadium on tissue factor, and on oxidative stress in the embryonal period.
MATERIALS and METHODS: Fertilized zebrafish embryos were collected and randomly divided into three groups; 1) control group (n=40), 2) 10 ppm vanadium trichloride group (n=40), 3) 50 ppm vanadium trichloride group (n=40). In order to eliminate errors caused by time-dependent changes in the oxidation state of vanadium, the solutions were prepared fresh daily and their absorbance was confirmed by spectrophotometer. Developmental parameters were recorded daily during embryonic development. Tissue factor activity, Total Antioxidant Capacity and Total Oxidative Status were determined by biochemical method at end of the 72nd hour.
RESULTS: In our study, while Total Oxidant Capacity significantly increased in the vanadium trichloride exposure groups compared to control group, decreased in tissue factor activity.
CONCLUSION: Vanadium may have a dose-dependent anticoagulant effect and increase oxidative stress. Further studies are needed to evaluate the action of vanadium on tissue factor activity in embryos.
Keywords: zebrafish, coagulation, tissue factor, vanadium, oxidative stress

S101
THE RENOPROTECTIVE EFFECTS OF TAURINE AGAINST DIABETIC NEPHROPATHY VIA P38 MAPK And TGFβ/SMAD2/3 SIGNALING PATHWAYS

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In our study, we aimed to investigate the renoprotective effects of taurine in a diabetic nephropathy model in rats via p38 MAPK and TGF-/smad2/3 signaling pathways. 29 Wistar albino rats were separated into 4 groups: control, taurine (1% drinking water), diabetes (45 mg/kg Streptozotocin), and diabetes+taurine. Biochemical and histological analyses were performed after 12 weeks. Histological analysis of diabetic kidney tissue showed significant changes in tubule dilatation and brush border loss. Taurine reduced these changes significantly. The diabetes group's serum creatinine and BUN levels didn't reduce significantly. Taurine decreased protein expression of NADPH oxidase (NOX4), the main enzymatic cause of renal oxidative stress, significantly. In addition, while there was a significant decrease in total oxidative stress levels and malondialdehyde (MDA) levels with taurine, the decreased superoxide dismutase (SOD) activity level in the diabetic group increased significantly with taurine. On the other hand, taurine caused significant decreases in both mRNA and protein expression of fibronectin, an important extracellular matrix protein related to the fibrosis process. The matrix metalloproteinases (MMP)-2 and MMP-9, which play a role in extracellular matrix regulation, mRNA expression levels, and their activities increased significantly in diabetes compared to the control, and these increases were significantly reached higher levels with taurine. Also, the decreased mRNA expression of extracellular matrix metalloproteinase inducer (EMMPRIN) increased with taurine. Moreover, it was found that taurine suppressed the p38 MAPK and TGF-β/smad2/3 signaling pathways. These findings indicate that taurine may be an effective practical strategy to prevent renal diabetic injury.
Keywords: Biochemistry, Diabetes, NOX4, p38 MAPK, TGF-□S-mad23

S102
THE CONTRIBUTION OF THE LABORATORY TO THE DIAGNOSTIC PROCESS THROUGH REFLECTIVE TESTS: CASE REPORT

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BACKGROUND AND AIM: This study investigates error sources in a patient with total bilirubin negativity through reflective tests and contributes to early diagnosis by studying additional tests from the existing sample in the laboratory without requesting a new sample.
MATERIALS and METHODS: Although the total bilirubin measurement of a 59-year-old male patient with complaints of dyspepsia, flank pain, and fatigue were repeated and studied with serial dilution, it could not be reported due to the inconsistency in results. Hemolysis, lipemia, and icterus were not detected in the serum, but deep anemia and high erythrocyte sedimentation rate were observed in his other biochemistry results. Suspecting paraprotein interference, total protein was studied as a reflective test on the patient whose results were found to be high by serial dilution since the result was above the upper limit of the device to read. By consulting the clinician, serum protein electrophoresis, serum immunofixation electrophoresis, serum kappa, lambda light chain, quantitative IgG, IgA, and IgM were studied from his sample as reflective testing.
RESULTS: After observing an increase in monoclonal protein due to serum protein electrophoresis and high rates in the measurement results of IgG and free kappa light chain protein, the patient was contracted and referred to the hematology clinic.
CONCLUSION: The case in which we detected paraprotein interference was quickly diagnosed with Multiple Myeloma with reflective tests and early treatment was started. In this case, reflective testing plays an essential role in diagnosis processes as well as contributing to clinician and patient satisfaction.
Keywords: reflective test, paraproteinemia, total bilirubin, interference

S103
INFLAMMATORY SIGNAL TRANSDUCTION PATHWAYS INDUCED BY PRILOCAINE TOXICITY İN HUMAN RETİNAL PİGMENT EPİTHELİAL CELLS

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BACKGROUND AND AIM: Prilocaine (PRL) is a commonly used local anesthetic. Despite the successful use of regional anaesthesia for intraocular surgery, toxic effects of local anesthetics can occur on the retina in cases of accidental intravitreal injection. This study examined signal transduction pathways activated by PRL toxicity and determined the protective role of nitric oxide synthase-2 (NOS2) inhibition in human retinal pigment epithelial (ARPE-19) cells.
MATERIALS and METHODS: Toxicity analysis (MTT test) was performed to determine both the toxic dose of PRL and the protective efficacy of Asperglaucide (ASP), a NOS2 inhibitor. Nuclear factor kappa B p65 (NF–kB p65), phosphorylated NF-kB p65, phospho AKT, NOS2, nitrotyrosine, cleaved caspase-3 protein levels were evaluated by immunofluorescence staining and/or western blot analysis. Interleukin-6 (IL-6) and nitrated protein levels were quantified by immunoassay, while caspase -3 activity and nitrite/nitrate levels were measured via a fluorometric method.
RESULTS: It was observed that NF-kB p65, phosphorylated NF-kB p65 and phosphorylated AKT were significantly increased in PRL toxicity. Likewise, IL-6, NOS2, nitrite/nitrate and nitrotyrosine levels were significantly higher in PRL-treated cells compared to controls. Application of ASP to PRL treated cells significantly reduced NF-kB p65, phosphorylated NF-kB p65 and phosphorylated AKT to basal levels. IL-6, NOS2, nitrite/nitrate and nitrotyrosine levels were also considerably decreased following ASP treatment in PRL-induced toxicity. No activation was observed in the caspase-3-dependent apoptotic pathway.
CONCLUSION: NF-kB p65-mediated signal transduction pathway is activated due to PRL toxicity and can be down regulated by ASP. Supported by a grant from TUBİTAK #121S194 and BAP# TYL-2022-5989.
Keywords: Prilocaine, Nuclear factor kappa B P65, Nıtrıc oxide synthase-2

S104
REASONS AND DISTRIBUTION OF URINE TOXICOLOGY SCREENING TESTS IN ANTALYA

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BACKGROUND AND AIM: Drug and substance analysis in urine samples is used in medical diagnosis and treatment, legal screening, social screening. Urine integrity tests should be performed before the analysis of the substance in the urine. Urine integrity tests include creatinine, density, pH and nitrite parameters. If urine integrity is impaired, it is not accepted for substance analysis. In this study, we examined the reasons for rejection and distribution of samples rejected because they did not comply with urine integrity in urine toxicology screening tests at Antalya Training and Research Hospital.
MATERIALS and METHODS: We retrospectively evaluated the samples for which urine toxicology screening test was requested during the 7-month period between January and July 2022 in our hospital. Analyzes were measured by immunoassay method on the Biolis 50i device.
RESULTS: When the urine toxicology screening tests were examined, 12.2% of the samples accepted to the laboratory were rejected because they did not comply with the urine integrity tests. When the reasons in the rejected samples are evaluated; low creatinine results 52%, high creatinine results 3%, 31% not meeting density criteria, insufficient sample 3%, other causes 10%.
CONCLUSION: When the rejected samples are evaluated because of the urine integrity test, the majority of them are those with low creatinine results and those do not comply the density criteria. This brings us to mind the possibility of patients drinking a lot of water before giving the sample or mixing water in their urine during sample collection. However, this study demonstrates the importance of performing integrity test before urine substance analysis.
Keywords: Toxicology, Screening, Urine Integrity Tests

S105

S106
SERUM CINGULIN LEVELS IN AUTISM SPECTRUM DISORDER IN CHILDREN

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BACKGROUND AND AIM: Autism spectrum disorders (ASD) are a group of neurodevelopmental disorders that cause impaired communication and social interactions and narrow behavioral patterns. Although its etiology is based on very different causes, the deterioration of the integrity of the blood-brain barrier is the main factor. Tight junction proteins play a significant role in providing this strength. We aimed to determine whether cingulin levels, one of these proteins, can be a useful biomarker in ASD patients.
MATERIALS and METHODS: The study group consisted of 40 children aged between 36-59 months, diagnosed with ASD from the child psychiatry outpatient clinic of Uşak Training and Research Hospital, who had a disability report and received special education, and 40 children from the pediatric outpatient clinic of the control group. The Childhood Autism Rating Scale test was applied to the study group to measure the severity of the disease. As a biochemical analysis in both groups, serum Cingulin levels were measured with the Elabscience Instant ELISA kit, and the results were recorded as pg/mL. The data were evaluated in the statistical package program of IBM SPSS.
RESULTS: Both groups were similar in terms of age and gender distribution, and the serum Cingulin level measured in patients with ASD was found to be significantly higher than in healthy controls, but these levels did not show a correlation with disease severity.
CONCLUSION: This study showed the significance of serum cingulin levels in ASD patients, but could not determine its prognostic significance. More studies with more participants are needed.
Keywords: autism spectrum disorder, cingulin, blood brain barrier

S107
MACHINE LEARNING MODELS FOR GLOMERULAR FILTRATION RATE PREDICTION: CAN WE REACH THE PERFORMANCE OF THE 2021 CKD-EPI COMBINED FORMULA USING CREATININE?

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BACKGROUND AND AIM: Kidney disease is a major public health issue worldwide, and its global burden is growing. The main goal in this study is to achieve the performance of the 2021 CKD-EPI creatinine-cystatin C formula with machine learning models using only serum creatinine, age and gender data.
MATERIALS and METHODS: Data from 101 CKD patients and 29 healthy individuals who applied to the nephrology clinic was used to train and test machine learning models. Using age, gender, and serum creatinine data, our trained models tried to estimate the values that combined 2021 CKD-EPI creatinine-cystatin C formula produces. Multiple linear regression, polynomial regression, support vector regression, decision tree regression, random forest regression and artificial neural network regression algorithms were used for machine learning models.
RESULTS: When we inspected the performance metrics of all models, we found that CKD-EPI formulas were the best performers. The 2012 CKD-EPI cystatin C was the best performing model, with AUC value of 0.986. The best performing of machine learning models was random forest regression (AUC: 0.940). The R2 value, the mean squared error and the mean absolute error of the random forest regression model were 0.90, 91.38 and 7.09 respectively.
CONCLUSION: A different method for GFR prediction was proposed in this study. Researchers have developed various models of machine learning for medicine. Although the machine learning models we developed did not perform better than CKD-EPI formulas, we believe we can achieve better results with a larger data set.
Keywords: machine learning, gfr, ckdepı, cystatin c, creatinine

S108

S109
INCREASED KYNURENINE/TRYPTOPHAN RATIO IN THE PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

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BACKGROUND AND AIM: Systemic lupus erythematosus (SLE) is a systemic autoimmune disease. Increasing evidence indicates that patients with SLE have abnormal production of cytokines such as interferon-(IFN)-γ, tumor necrosis factor alpha (TNF-α). These proinflammatory cytokines affect the expression levels of the enzyme indolamine 2,3-dioxygenase (IDO-1), which catalyzes the first step in the metabolism of tryptophan to kynurenine. This study aimed to investigate of kynurenine (KYN) and TRP levels in patients with SLE.
MATERIALS and METHODS: 50 patients with SLE and 50 healthy volunteers were included in the study. After 12 hours of fasting, blood samples were taken from the participants and serum samples were separated. Concentrations of the analytes were measured with an ABSciex API 3200 tandem mass spectrometer. Briefly; 300 µL of serum, 100 µL of internal standard and 1000 µL acetonitrile were taken into eppendorf tubes. The mixture was centrifuged at 3500 rpm for 10 minutes. Supernatants were taken into reaction tubes and dried. The residues were dissolved with 200 µL of acetonitrile:water (25:75, v/v).
RESULTS: In patients with SLE, serum TRP [5090 (1190-37600) ng/ml vs 9270 (3000-54528) ng/ml, $p<0.001$] levels were statistically significantly lower compared to the control group, KYN levels [408.1 (87.6-2652.0) ng/ml vs 232.9 (65.1-962.2) ng/ml, $p=0.001$] and KYN/TRP [0.077 (0.01-1.66) vs 0.0284 (0.01-0.14), $p<0.001$] ratio was statistically significantly higher. The inter-assay CV% values were < 12% for all metabolites.
CONCLUSION: The increased KYN/TRP ratio in patients with SLE suggests that there may be a relationship between the pathogenesis of this disease and the kynurenine pathway.
Keywords: kynurenine pathway, systemic lupus, kynurenine, tryptophan

S110
A NEW MARKER IN THE DIAGNOSIS OF ACUTE CHOLECYSTITIS; IMMATURE GRANULOCYTE

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BACKGROUND AND AIM: Acute cholecystitis is the most com-

mon cause of emergency abdominal surgery indications. Immature granulocyte, an indicator of myeloid cell production increase, is a new marker that has been shown to increase in inflammatory conditions. In this study, it was aimed to investigate the effectiveness of inflammatory parameters such as immature granulocyte percentage (%IG) and immature granulocyte count (IGC) in the diagnosis of acute cholecystitis.
MATERIALS and METHODS: This retrospective study included 188 patients whoadmitted to the surgical service with the diagnosis of acute cholecystitis between August 2021 and July 2022 and 70 controls without any disease.
RESULTS: The %IG and IGC were found to be statistically significantly higher in the acute cholecystitis group compared to the control group (0.69±0.86, 0.35±0.30; 0.07±0.10, 0.02±0.02; p=0.03, p<0.0001, respectively). WBC and NLR were found to be statistically higher in the acute cholecystitis group compared to the control group (p <0.001, p <0.001, respectively. When the cut-off value of %IG was taken as ≥0.42 with ROC analysis for predicting acute cholecystitis, the sensitivity of the %IG was 62% and the specificity was 84% (AUC = 0.813, 95% CI = 0.752–0.875, p<0.0001). On the other hand, at a cut-off value of ≥0.03 for IGC, 63% sensitivity and 84% specificity were showed in predicting the diagnosis of acute cholecystitis (AUC=0.785, CI%= 0.727-0.843, p<0.0001).
CONCLUSION: It was thought that %IG and IGC could be used in the diagnosis of acute cholecystitis as a new, rapid, inexpensive and useful inflammatory marker.
Keywords: acute cholecystitis, ımmature granulocyte

S111
ALTERED ARGININE METABOLISM IN PATIENTS WITH GOUT

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BACKGROUND AND AIM: Gout is a chronic, inflammatory disease caused by the deposition of monosodium urate crystals in the joints and tissues. Hyperuricemia and gout are recognized as independent risk factors for cardiovascular events, heart failure and death. Studies have shown that serum levels of methylarginine derivatives such as ADMA, L-NMMA, and SDMA are significantly increased in chronic and inflammatory diseases, and high ADMA levels have been identified as an independent risk factor for cardiovascular diseases. Our aim in this study is to contribute to the elucidation of the biochemical mechanisms between gout and increased cardiovascular disease risk by measuring methylarginine (ADMA, SDMA, L-NMMA) levels.
MATERIALS and METHODS: Arginine and its metabolites were measured with an LC-MS/MS device after the pre-preparation procedures determined for the study were applied to the blood samples taken from 40 gout patients and 40 healthy volunteers who applied to the Rheumatology polyclinic of Selcuk University Medical Faculty Hospital.
RESULTS: In our study, Median(Min-Max) results for arginine, ADMA, SDMA and L-NMMA were 63.3(6.21-199.5); 0.433(0.139-0.914); 0.155(0.057-0.387); 0.027(0.005-0.064) µM in patient group and 96.5(20.6-192); 0.267(0.178-0.425); 0.108(0.048-0.212); 0.016(0.008-0.027) µM in control group, respectively. There was a significant difference in arginine, ADMA, SDMA and L-NMMA values between the patient and control groups (p<0.005).
CONCLUSION: As a result of our study, it was determined that serum methylarginine levels increased in gout patients. The limited number of patients and the lack of measurements of other metabolites related to arginine metabolism are main disadvantages of our study. Further studies in a larger population are needed.
Keywords: Gout, Methylarginine, ADMA, Cardiovascular disease, Inflammation

S112
REDUCED SERUM ARGININE/ ASYMMETRIC DIMETHYLARGININE RATIO IN PATIENTS WITH RHEUMATOİD ARTHRİTİS

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BACKGROUND AND AIM: Rheumatoid arthritis (RA) is a chronic systemic inflammatory disease characterized by high cardiovascular disease mortality and morbidity. It has been shown that the rate of ADMA synthesis increases in inflammation, the rate of destruction decreases, and therefore serum ADMA levels increase in parallel with inflammation. Our aim in this study is to measure the serum ADMA levels of newly diagnosed patients with RA who did not receive any treatment.
MATERIALS and METHODS**:** Briefly, 200 µL of sample, 100 µL of internal standard (D7-ADMA) 1000 µL of methanol were added to the ependorf vortexed. It was centrifuged at 12000 rpm for 10 minutes and the supernatant was taken into tubes and evaporated at 65°C with nitrogen gas. 200 µL of 5% acetylchloride containing butanol was added to the tubes and incubated at 65 °C for 25 minutes. After evaporation again, the residues in the tubes were dissolved in 200 µL of water-methanol (90:10) mixture containing 0.1% formic acid, and 40 µL was injected into the device
RESULTS: Serum ADMA [0.460 (0.120-0.840); 0.340 (0.160-0.840)µM, p<0.004] levels were statistically significantly higher in the patient group compared to the control group, while serum arginine levels were [64.20 (16.54-142)]; 85.00 (30-228)µM, p<0.015]; arginine/ADMA ratios [152.85 (30.50-508.46); 232.64(73.64-1041.25), p<0.001] was statistically significantly lower. Intra-assay and inter-assay CV% values for all metabolites are less than 8%. Recovery values are greater than 95%.
CONCLUSION: The decreased arginine/ADMA ratio in patients with RA suggests that there may be a relationship between the pathogenesis of this disease and arginine metabolites.
Keywords: adma, rheumatoid arthritis, inflammation

S113
EVALUATION OF TRIMETHYLAMINE N-OXIDE (TMAO) LEVELS IN PATIENTS WITH PSORIASIS VULGARIS

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BACKGROUND AND AIM: Psoriasis is a kind of skin disease with multifactorial etiology. It is known that trimethylamine N-oxide(TMAO),an intestinal microbial metabolite, is an important mediator in the prediction of intestinal dysbiosis and vascular pathologies.Many studies have reported that serum TMAO concentration is associated with cardiovascular diseases such as MI,chronic heart failure,atrial fibrillation and stroke.In recent studies,it has been reported that intestinal barrier integrity is impaired in patients with chronic plaque psoriasis, and as a result, bacterial metabolites may enter the systemic circulation.In our study,we aimed to evaluate the correlation of TMAO levels with Psoriasis Area and Severity Index (PASI) in patients with psoriasis.
MATERIALS and METHODS: 45 patients diagnosed with psoriasis vulgaris in the Ufuk University Dermatology clinic and 45 healthy volunteers of a similar age group without any dermatological disease were included in the study.Serum TMAO values of patients and healthy volunteers were measured and compared with the ELISA method, and the patients' PASI values and disease duration were evaluated and recorded.
RESULTS: When evaluated in terms of disease duration and PASI;We did not find any correlation between TMAO and PASI and disease duration($p>0.005$).When TMAO levels were evaluated,it was observed that TMAO levels were higher in the psoriasis group compared to the control group, and this level was statistically significant($p<0.005$).
CONCLUSION: In our study, a positive correlation was found between TMAO levels in psoriasis patients and the control group. It is observed that the intestinal barrier is impaired in patients with psoriasis, and larger studies with more patients are needed to evaluate this relationship.
Keywords: psoriasis, tmao, pasi

S114
EVALUATION OF NESFATIN-1, CORTISOL AND INSULIN RESISTANCE PARAMETERS IN COVID-19 INFECTION

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BACKGROUND AND AIM: COVID-19 is an infectious disease caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV 2) virus. The most common symptoms have been reported to include fever, fatigue, loss of taste and smell, chest pain, shortness of breath, vomiting, diarrhea and cough. Nesfatin-1 (Nesf-1) is a new anorexigenic peptide that plays a role in the maintenance of nutritional balance, energy metabolism and integration of glucose homeostasis. The antioxidant, anti-inflammatory and anti-apoptotic properties of Nes-1 have shown that it plays a role in the formation and progression of various diseases. In this study; we aimed to examine the changes in Nesf-1, cortisol and insulin resistance (HOMA-IR) levels in patients with COVID-19 infection.
MATERIALS and METHODS: A total of 50 patients (25 Female/25 Male) diagnosed with COVID-19 and in the similar age group a total of 30 controls (15 Female/15 Male) with negative PCR test, who applied to Lokman Hekim Akay Hospital between March 2020 and January 2022, were included in this study. Nesf-1, cortisol and HOMA-IR levels were measured in the serum samples of the groups. Nesf-1 levels were determined according to the ELISA method.
RESULTS: In our study, there was a statistically significant decrease in Nesf-1 and HOMA-IR levels of patients with COVID-19 infection compared to the control group, while no difference was observed in cortisol levels.
CONCLUSION: According to the results of this study, Nesf-1 plays a role in the pathophysiology of COVID-19. Nesf-1 can be an important marker in identifying cases of COVID-19.
Keywords: covid19, nesfatin1, cortisol, homair

S115
COULD THE SYSTEMIC IMMUNE-INFLAMMATION INDEX BE A NEW BIOMARKER OF INFLAMMATION İN CHILDREN WITH ASTHMA?

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BACKGROUND AND AIM: Asthma is a chronic inflammatory disease of multifactorial etiology that affects 300 million people worldwide and results in airway hyperresponsiveness and acute bronchoconstriction. More recently, the systemic immune-inflammation (SII) index, which includes peripheral lymphocytes, neutrophils, and platelets, has been described. In this retrospective study, it was aimed to evaluate SII as a biomarker of inflammation in pediatric asthma.
MATERIALS and METHODS: Sixty children admitted to the hospital with asthma exacerbation between March and October 2021 were included in our study. Complete blood count was performed both during the exacerbation and during an asymptomatic period spanning at least 3 months after the exacerbation. The C-Reactive Protein (CRP), SII, neutrophil lymphocyte ratio (NLR), platelet lymphocyte ratio (PLR), and eosinophil lymphocyte ratio (ELR) values of the study group in both exacerbation and asymptomatic periods were compared. Then the patient groups were compared with the control group (n=60).
RESULTS: CRP, SII, NLR and ELO levels of asthma patients during exacerbation period and control group (respectively $p< 0.001$; $p< 0.001$; $p< 0.001$) ; $p< 0.001$; $p=0.039$; $p< 0.001$). In the asymptomatic period, CRP, SII and NLR levels were statistically significantly higher than the control group ($p< 0.001$; $p=0.035$; $p<0.001$, respectively), but there was no significant difference in PLO and ELO levels.
CONCLUSION: Our study suggests that CRP, SII, and NLR may be effective and usable, measurable biomarkers in determining systemic inflammation in pediatric asthma patients during acute exacerbation. However, a broad analysis of dependent and independent variables is still needed in further prospective studies.
Keywords: asthma, systemic immuneinflammation index, neutrophil lymphocyte ratio, platelet lymphocyte ratio, eosinophil lymphocyte ratio

S116
COMPARISON OF DIFFERENT D-DIMER CUT OFF VALUES IN THE DIAGNOSIS OF PULMONARY EMBOLISM IN THE EMERGENCY DEPARTMENT

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BACKGROUND AND AIM: D-dimer plays an important role in the diagnosis of embolism.D-dimer increases with age and no cut-off value for age has been recommended for individuals over 50 years of age.We aimed to evaluate the performance of D-dimer cutoff values in patients with suspected pulmonary embolism(PE).
MATERIALS and METHODS: Patients aged >50 years applied to the Emergency Department with the suspicion of PE between 20.01.2021-31.07.2022 were retrospectively conducted.D-dimer was measured using the immunoturbidimetric method(Roche c6000, Germany).PE was confirmed by pulmonary CT-angiography.The patients were divided into two groups as PE(+)-PE(-).For D-dimer(µg/L FEU) cutoff values(DD); 500 µg/L FEU(DD1)the manufacturer's recommended values,age-related(DD2),1000 µg/L FEU(DD3) based on study data were used.DD2 was calculated as "agex10 µg/L".Statistical analysis was performed with nonparametric tests using SPSS IBM Ver.22.
RESULTS: A total of 187 [PE(+): 88, PE(-):99] patients were included in the study.The mean age was 70.9±9.8 years,39.6% were male and 60.4% were female.The D-dimer median(25-75%) was 5455(2632-9480)µg/L FEU in the PE(+) and 460(280-700)µg/L FEU in the PE(-).There was a weak correlation between D-dimer and age (r=0.179, p=0.01).PE was diagnosed in 47% of patients in CT-angiography, 70% in DD1, 57% in DD2,46% in DD3. PPV for DD1, DD2, and DD3 was 64%, 81%, and 90%, respectively.The specificity and sensitivity for DD1, DD2,DD3 were 55-100%, 80-98%,91-98%, respectively.D-dimer AUG was 0.981(95%CI:0.964-0.997).
CONCLUSION: Performance of D-dimer was evaluated according to cutoff values.Diagnostic efficiency of DD3 was higher in suspected PE.This research is a preliminary study.The accuracy of DD3 in PE should be confirmed by further prospective studies using clinical diagnostic scoring and D-dimer.
Keywords: ddimer, age adjusted ddimer, pulmonary embolism, sensitivity specificity

S117
COMPARATIVE ANALYSIS OF QUANTITATIVE REAL TIME PCR AND RECOMBINASE POLYMERASE AMPLIFICATION İN DETECTION OF OBESITY ASSOCIATED GENE POLYMORPHISM

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BACKGROUND AND AIM: Obesity is a disease that has become a public health problem in the world and is associated with numerous metabolic changes such as insulin resistance, glucose intolerance and dyslipidemia. In addition, obesity is characterized as multifactorial because it depends on environmental factors and genetic differences(approximately 20-80%). The aim of our study is to detect polymorphisms associated with obesity risk and to eliminate the cost disadvantage(devices) of Real-Time PCR (qPCR)-based methods with a Recombinase Polymerase Amplification (RPA)-based method, which gives sensitive results as DNA sequence analysis.
MATERIALS and METHODS: The study was conducted on 100 obese and 100 non-obese individuals. This study was designed to evaluate the risk of developing Obesity according to Body Mass Index (BMI) in terms of APOAII rs5082, PPAR-γ rs1801282, PPAR-α rs4253778, ANKK1 rs1800497 and APOE2 rs7412 polymorphisms in the Turkish population. Gene polymorphisms were determined using RPA, qPCR and DNA sequencing methods and the results were compared.
RESULTS: RPA analysis resulted in 25 minutes and qPCR 55 minutes, and we showed that the RPA method reduces the time required for qPCR by approximately 45%. Also, SNP genotyping and distribution of allelic variants were different in study groups (p<0.05).
CONCLUSION: Our study results suggest that SNPs individually are risk factors for the development of obesity. In addition, the results of the study were found to be compatible with the qPCR and DNA sequence analysis of the RPA studies (R2; 0.791, p<0.001).
Keywords: Obesity, Rpa, Qpcr, Dna Dizileme, Polymorphism

S118
ANALYZING SERUM TRIPTOPHAN METABOLITES IN PATIENTS WITH GESTATIONAL DIABETES

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BACKGROUND AND AIM: In this study, we aimed to investigate the change of tryptophan metabolites in gestational diabetes. (GDM)
MATERIALS and METHODS: The study was conducted on 65 patients and 68 control individuals. Tryptophan and trpytophan pathway metabolites kynurenine (KYN), kynurenic acid (KYNA), 3-hydroxy kynurenic acid (3-OH KYNA) and 3-hydroxy anthranilic acid (3-OH AA) were studied by LCMS-MS (Liquid Cromatography Mass Spectrometry) method. All Statistical analysis was performed with the help of SPSS program.
RESULTS: Tryptophan and KYNA values was found to be lower in the patient group diagnosed with GDM (median values was 7170 ng/ml (3360-18990) and 3.07 ng/ml (0.89-8.03), respectively) compared to the control group (median values was 10720 ng/ml (5175-20800, p<0.001) and 4.70 ng/ml (1.27-22.30, p<0.001), respectively).) Kynurenine, KTR, 3-OH KYNA and 3-OH-AA values was found to be higher (median values was 276 ng/ml (120-2460), 0,3766 (0,1914-0,12954), 2,43 ng/ml (0,6-8,05) and 7,86 ng/ml (3,08-28,4)) compared to the control group (median values was 228 ng/ml (56-790, p=0,006), 0,1878 (0,0049-0,0975, p<0,001), 1,9850 ng/mL (0,51-5,90, p=0,005) and 3,45 ng/ml (0,38-11,60, p<0,001), respectively))
CONCLUSION: Gestational Diabetes Mellitus (GDM) is associated with many side effects and diseases that can lead to miscarriage and fetal death. In literature, a shift in Tryptophan pathway towards to the kynurenine pathway has been reported in relation to inflammation. Decreased tryptophan and KYNA levels; and elevation in kynurenine and other tryptophan metabolites in GDM, which are related with inflammation, may have a link with pathogenesis of the disease.
Keywords: Gestational Diabetes Mellitus, Tryptophane-Kynurenine Pathway

S119
EFFECT OF EXERCISE ON PINK1 GENE EXPRESSION IN MICE FED A HIGH-FAT DIET

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BACKGROUND AND AIM: Abnormal weight gain and overfeed cause metabolic inflexibility by impairing energy homeostasis in obesity. Increased ROS and obesity-related low levels of chronic inflammation status can result in mitochondrial dysfunction in adipose tissue.Mitophagy is defined as a response that includes mitochondrial fusion and fission process and plays an essential role in the mitochondrial hemostasis process by regulating the mitochondrial quality and quantity. In the present study, we aimed that investigate the PTEN-induced kinase 1 (PINK1) gene expression which plays a critical role in the mitophagy process, in mice fed a high-fat diet and exercised.
MATERIALS and METHODS: The study consists of thirty female C57BL/6J mice that were collected at Institute of Experimental Medicine, Istanbul University aged about 5-6 weeks. We carried out three groups obese, control, and exercise. While the obese and exercise group were fed a 60% kcal high-fat diet, the control was fed 10% kcal fat diet. PINK1 gene expression levels were determined by using Real-Time PCR in liver, heart and adipose tissue.
RESULTS: We found that increased PINK1 gene expression levels in liver, heart, and adipose tissue in both exercise and obese groups compared to the control group. Fold change was calculated; heart→6.19,liver→6.21,adipose tissue→4.17 ($p<0.001;p<0.001;p=0.001$,respectively) in the exercise group. Fold change was found; heart→4.1,liver→3.02,adipose tissue→2.27 in the obese group ($p<0.002;p=0.006;p=0.003$,respectively).
CONCLUSION: We compared PINK1 gene expression levels with the control group and found that were upregulated in exercise and obese groups and were statistically significant. We could say that PINK1 expression is upregulated in response to increased energy demand as well as mitochondrial dysfunction.
Keywords: Obesity, Mithophagy, Pink1, Real-time PCR, Exercise

S120
FREQUENCY OF DRUG ABUSE İN PEOPLE OVER 60 YEARS OF AGE

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BACKGROUND AND AIM: The use of drugs and stimulants is increasing in numbers in the world and in our country. Although addiction is most common in young adults (20-48 years old), the age of onset is seen as eight.The purpose of this paper is to present our findings derived from our analysis data on the rates of substance use over the age of 60 and the most frequently used substances.
MATERIALS and METHODS: The results of 65535 samples, which were screened by immunochemical method in our laboratory between 2007-2021, were evaluated retrospectively. The analytes sought are amphetamine, ecstasy, opiates, cocaine, cannabis, benzodiazepines.
RESULTS: It was observed that 1758 (0.26%) of the samples belonged to people over 60 years of age.
They were classified as 65-74 years old, young old (88.3%), 75-84 years old, middle-aged (10.7%), over 85 years old, and advanced old (0.9%). 97.2% of the cases are male, the others are female. There are no female patients in the elderly group. Among 1584 samples aged 65-74, the most frequently used substance was cannabis (160 positive), the second most frequent was amphetamine (30 positive). Among the 75-84 years old, the most common substance after benzodiazepine is cannabis. In total, cannabis was observed in 181 samples, amphetamine in 33, ecstasy in 30, opiate in 9, cocaine in 2, benzdiazepine in 549 samples.
CONCLUSION: Cocaine use over the age of 60 is negligible. Marijuana is at the forefront as the most commonly used substance in addiction by 2020. After 2020, methamphetamine has replaced cannabis.
Keywords: substance abuse

S121
EVALUATION OF SERUM ZONULIN AND OCCLUDIN LEVELS IN BIPOLAR DISORDER

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BACKGROUND AND AIM: Zonulin is a biomarker for intestinal permeability. Occludin is an integral transmembrane tight junction protein.The current study aims to determine whether zonulin and occludin levels are altered in BD and whether they can serve as clinical biomarkers of disease.
MATERIALS and METHODS: Forty-four patients with BD and 44 healthy controls were included in this study. The Young Mania Rating Scale (YMRS) was used to determine the severity of manic symptoms, while the Hamilton Depression Rating Scale (HDRS) was used to determine the severity of depressive symptoms, and the Brief Functioning Rating Scale (FAST) to assess functionality. Venous blood samples were taken from all participants and serum zonulin and occludin levels were measured.
RESULTS: The mean serum zonulin and occludin levels of the patients were significantly higher compared to the healthy control group. There was no difference between manic, depressive, and euthymic patients in terms of zonulin and occludin levels. There was no correlation between the total number of attacks, duration of disease, YMRS, HDRS and FAST scores, and zonulin and occludin levels in the patient group. The groups were divided into three according to body mass index as normal, overweight, and obese. Zonulin and occludin levels increased as body mass index increased and were highest in the obese group.
CONCLUSION: The study shows that zonulin and occludin levels in BD increase independently of the disease stage. Consideration of the role of intestinal permeability in the pathogenesis of BD may be helpful in determining the appropriate treatment modality.

Keywords: Bipolar Disorder, Intestinal Permeability, Occludin, Zonulin

S122
APPROACH TO INFECTIONS BY ALGORITHM OF BIOCHEMISTRY TESTS

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BACKGROUND AND AIM: Infectious agents can cause local or systemic effects in the human body. Infection occurs with viral, bacterial, fungal and parasitic agents. Laboratory medicine is very important in the diagnosis, treatment, complications and follow-up of the infection. Infection can be managed by providing evidence for clinical diagnosis and treatment. Our aim is to guide the clinical approach until the infectious agent is determined with the algorithm we propose.
MATERIALS and METHODS: The results studied in Meram Medicine Hospital, Medical Biochemistry Laboratory during March 2022 were evaluated retrospectively. In the first stage, preliminary evaluation was made according to erythrocytes, thrombocyte and leukocytes. In the second stage, urea, creatinine, albumin, ALT, AST, CRP, procalcitonin, ESR and immature-granulocyte (ImmG) values were measured. In the third stage, blood gas parameters pH, pO2, pCO2, and lactate levels were examined. In the fourth step, troponin, ferritin, CPK, LDH, PT, aPTT, fibrinogen, IL-6, and D-Dimer results were evaluated. Four-stage values were combined with those infectious agent isolated through HBYS data.
RESULTS: NLR, PLR, CRP, ImmG, pO2, and procalcitonin levels changed in accordance with the infection.
CONCLUSION: Laboratory tests; should be selected based on clinical status, preliminary diagnosis and vital signs. Accurate diagnosis, treatment and prognosis management are provided by biochemical tests performed on blood tissue, urine and body fluids. CBC, emergency biochemistry tests, sedimentation, urinalysis, CSF examination, tissue-organ function tests, circulatory system and blood gas tests have value with evidence-based laboratory medicine. The most important problem is the management of time and quality.
Keywords: Infection, Algorithm, Procalcitonin, Cell Count Ratio

S123

S124
STUDY OF THE RATE OF EVOLUTION OF PROCALCITONIN IN SEVERE FORMS OF COVID-19.

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BACKGROUND AND AIM: The objective of our work is to study the evolution of procalcitonin levels in severe forms of Covid-19 in patients hospitalized at the Mohammed VI University Hospital of Oujda.
MATERIALS and METHODS: This is a retrospective study including 101 patients with severe forms of Covid-19. In this study we analyzed the values of the procalcitone examinations. We calculated the rate of evolution of procalcitonin from the values obtained from the first and the last examination requested during the hospitalization according to the following formula: rate of evolution = [(Final value - Initial value)/Initial value] * 100. This rate of rate was studied according to age and sex, so we compared this rate between the group of deceased subjects and the group of cured subjects by performing the Student's test.
RESULTS: The mean value of the rate of evolution of procalcitonin was 1559.83%, the study of rate of evolution according to gender finds a rate of 521.92% in women and 2443.97% in men. The rate of evolution in cured subjects was 591.68%, on the other hand the rate was 3577.86% in deceased subjects, the Student's t test found that the average of the deceased group was significantly higher than the average of the cured group.
CONCLUSION: Our study underlined the interest of calculating the rate of evolution of procalcitonin in severe forms of Covid-19, which may have a prognostic value. Further studies need to be performed in this setting to properly assess this parameter in the clinical setting.
Keywords: Covid-19, procalcitonin, rate of evolution

S125
DETERMINATION OF SHORT CHAIN FATTY ACIDS, THE FERMENTATION PRODUCT OF MICROBIOTA, BY GAS CHROMATOGRAPHY

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BACKGROUND AND AIM: Short-chain fatty acids (SCFAs) are organic acids produced in the intestinal lumen by bacterial fermentation of various substances such as undigested dietary carbohydrates. Short-chain fatty acids can be used as biomarkers of a healthy gut, as high levels indicate many beneficial health-related factors. The aim of this study is to develop a simple, fast, and accurate gas chromatography (GC) method for the quantification of fecal short-chain acids.
MATERIALS and METHODS: 1 g of human feces sample was vortexed with 2 mL of water for 10 minutes. The mixture was centrifuged at 10000 rpm/min at room temperature. After the supertants were taken into vials, the SCFA was analyzed with an Agilent 8860 series gas chromatograph equipped with a flame ionization detector (GC-FID). Hydrogen was used as the carrier gas at a flow rate of 1 ml/min. The identification and calibration of the SCFA peaks was achieved by comparing the retention times with the standards.
RESULTS: The developed method provided the quantification of feces acetic acid (C 2:0), propionic acid (C 3:0), isobutyric acid (C 4:0), butyric acid (C 4:0), isovaleric acid (C 5:0), valeric acid (C 5:0), isocaproic acid (C 5:0), hexanoic acid (C 6:0) and n-heptanoic acid (C 7:0) levels. Total analysis time was 15 minutes for one sample. Results are given in mmol/l.
CONCLUSION: As a result of our study, a method was developed that allows the analysis of fecal levels of short-chain fatty acids, which are involved in intestinal health and regulation of immune system responses.
Keywords: short chain fatty acids, gas chromatography, microbiota

S126
INTERFERANS,HBA1C,ANORMAL HEMOGLOBIN VARYANT

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BACKGROUND AND AIM: In our lab while high Glycosylated hemoglobin (HbA1c) values of 6.5% and above are very significant in the diagnosis of diabetes, its highness requires questioning in cases incompatible with the clinic.
MATERIALS and METHODS: The ADA Clinical Practice Recommendations now recommend using HbA1c to diagnose diabetes using a NGSP-certified method and a cutoff of HbA1c ≥6.5%. Used to measure A1C in the lab some of the methods may give false results when the patient has a hemoglobin variant such as sickle cell trait or has a high level of fetal hemoglobin (HbF).
RESULTS: A 48-year-old male patient admitted to our emergency department with a subacute cerebrovascular accident (CVO) and ataxia and speech disorder on the right, although the etiology is not clear, the brucella Capt test was positive.HbA1c level, which is one of the additional tests requested (Tosoh HLC-723 G7 device by CE-HPLC method) was determined as 57%. HbA1c elevation was investigated in our patient.HbA1c level was analyzed as 6.3% by enzymatic (Abbott Architect) method.
CONCLUSION: Hemoglobin variant chromatogram was performed by HPLC method in Biorad Variant II device. Hb F was detected as 34.6%, and in the P2 window, HbA1c was detected as 10.3%.An unknown peak intertwined with HbA1c was detected at the high Hb F base.High HbA1c results due to abnormal hemoglobins may cause negative results in the diagnosis and follow-up of patients. With the foresight of our laboratory, we directed our clinician towards a faster diagnosis and treatment with the request of genetic DNA analysis as an advanced examination.
Keywords: abnormal hemoglobin variant, interference, hba1c

S127
DEVELOPMENT OF A LC-MS/MS METHOD FOR DETERMINATION OF RAMIPRIL

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BACKGROUND AND AIM: Ramipril is an angiotensin-converting enzyme (ACE) inhibitor widely used in the treatment of essential hypertension [1]. Ramipril plays an important role in inhibiting the conversion of the inactive angiotensin I to the active angiotensin II [2]. However, it may cause side effects such as dry cough, postural hypotension, hyperkalemia, angioedema, renal impairment and anxiety-like symptoms [3]. Sensitive and accurate analytical method is required for the quantification of ramipril in biological matrix as ramipril has been reported to have high intra-subject variability. The aim of this study was to develop a sensitive and simple measurement method for the determination of ramipril.
MATERIALS and METHODS: Chromatographic separation was carried out on a Shimadzu Liquid Chromatograph (Shimadzu LC-20-AD, Kyoto, Japan) with a Luna C18 column (50 × 4.6 mm, 5 µm) (Phenomenex). The ionization and detection were performed on a triple quadruple mass spectrometer, ABSCIEX API 3200 (Toronto, Ontario, Canada), equipped with electrospray ionization operated in positive polarity using multiple reaction monitoring (MRM).
RESULTS: The linearity of the developed method was investigated in the range of 0.98-2000 ng/mL (r2=0.9996). Total run time was 5 minutes. Intra- and inter-assay CV% values ranged between 3.2 and 9.7%.
CONCLUSION: A specific, sensitive, and reproducible LC-MS/MS method was developed for determination of ramipril.
Keywords: ramipril, lcmsms, drug level monitoring, adverse effects

S128
DEVELOPMENT OF A MOLECULAR IMPRINTING BASED SENSOR SYSTEM FOR THE DETERMINATION OF TAU PROTEIN

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BACKGROUND AND AIM: The tau protein, contributes to stabilizing microtubules involved in cellular transmission. Its dysfunction has been reported to be mainly associated with neurodegenerative diseases such as Alzheimer's disease (AD). In this study, it is aimed to develop a sensor system based on electrochemical impedance spectroscopy (EIS) using molecular imprinted polymer technology for the sensitive, fast and economical determination of Tau protein.
MATERIALS and METHODS: For the determination of tau protein, an electrochemical sensor system was prepared using a screen printed electrode (SPE). For this, pyrrole was chosen as the monomer and a specific sensor for Tau protein was designed by using polyhydroxylated fullerene as nanomaterial by electropolymerization method. Template removal was carried out in 100mM HCl. After the optimization of the sensor, the selectivity studies were carried out with β-amyloid 42 protein. In addition, the operability of the system was demonstrated with a non-imprinted (NIP) sensor prepared without target molecule Tau. SEM and XPS devices were used for the characterization.
RESULTS: The response of the MIP sensor to Tau protein was monitored by the chronoimpedance and the response time was found to be 200 seconds. The non-imprinted sensor (NIP) was prepared without adding Tau to the polymerization solution. When the MIP and NIP sensor chronoimpedance results were compared, it was seen that the NIP sensor did not respond to Tau protein. The sensor is more selective for Tau protein than β-amyloid 42.
CONCLUSION: A selective, sensitive and short response time sensor system was prepared for the determination of tau protein.
Keywords: Tau protein, Molecularly imprinted polymer, Electrochemical impedance spectroscopy, Sensor

S129
GENERATION OF GENETICALLY MODIFIED MICE FOR MODELLING RARE GENETIC DISEASE

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BACKGROUND AND AIM: Genetically modified mouse models

constitute an important biological resource commonly used for in vivo modeling of rare genetic disease. To carry out an effective scientific study and subsequently publish the results in elite journals, often genetically modified mouse models need to be used. Development of CRISPR genome engineering tools enabled researchers to create genetically modified mice easier and faster.
MATERIALS and METHODS: In the protocols we use, sgRNAs in complex with Cas9 enzyme (RNP: ribonucleoprotein particles) and single strand donor DNA oligos (ssODN) are transferred to mouse embryos by pronuclear injection or zygote electroporation. Embryos are cultured until the blastocyst stage and transferred to host mice to generate transgenic lines.
RESULTS: In our completed work, we have successfully generated indel, deleltion, knockin and conditional knockout mutations in all genes we targeted. Amongst the embryos and mice we genotyped, indel and deletion mutations had a very high efficiency (30-100%). Knockin (20-40%) and conditional knockout (<10%) mutagenesis efficiencies were lower. Detailed inspection of the genotyping results point out that, majority of the knockin mutants carry indels in addition to the desired point mutations. Thus, RNP electroporation allows gene knockouts with high efficiency and ease. Addition of point mutations to the genomic loci by donor DNA templates is relatively less efficient, nevertheless doable.
CONCLUSION: We have generated several genetically engineered mouse lines in our laboratory (Izmir Biomedicine and Genome Center Transgenic Platform). Starting from project conception and design stage, it takes four-eight months to produce mice with heterozygous genotype.
Keywords: rare genetic disease, genetically modified mouse models, crispr

S130
DEVELOPMENT OF GEL-BASED ELECTROCHEMICAL IMMUNOSENSORS FOR CASPASE-3 ANALYSIS

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BACKGROUND AND AIM: Biosensors work with the principle of transmitting the signal formed as a result of the interaction of the substance to be analyzed with the biocomponent in the bioactive layer. Apoptosis is programmed cell death. Caspase-3 is an important biomarker for the prognosis of apoptosis-related diseases. The aim of this study is to develop an electrochemical immunosensor for caspase-3 analysis.
MATERIALS and METHODS: FTIR and SEM analysis of bio active layers formed by gelatin-alginate polymer, caspase-3 antibody and crosslinkers were examined and AFM analysis was performed. Optimization studies including electrochemical working range, electrode selection, pH, buffer concentration, gel-systems, crosslinker and antibody concentrations were performed.
RESULTS: EDC:NHS (0.3M:0.1M) and 1% Alginate-7.5% Gelatin provide optimum immobilization condition. In SEM analysis, homogeneous pits formed by the polymer turned into solid granular surface form after anticaspase-3 and EDC:NHS immobilization, and the 3D-conformational structure changed as a result of its interaction with caspase-3. Specific bands of 1620 and 1060cm^{-1} were obtained in the FTIR. Optimum conditions were determined as pH:6.5, 0.1M acetic acid/acetate buffer, Au electrode, 10ng/mL anticaspase-3. The linear detection range was determined as 1.5-100ng/mL and the R^2 was 0.9964. For 10ng/mL caspase-3, $\bar{x}$=10.02, S.D=0.16, CV=1.6 at n=15 repetitions of measurements. In five separate reproducibility studies, the smallest R^2 was 0.9979.
CONCLUSION: In the FTIR spectra (1.620cm^{-1}), the Amid I band is due to the amide C=O (1.060cm^{-1}) Amid II band of peptide bonds, N-H and C-N stretching vibrations. The obtained optimization-characterization findings prove that we have developed an effective electrochemical immunosensor for caspase-3 determination.
Keywords: caspase3, electrochemistry, immunosensor, apoptosis

S131
ACIDIC AND BASIC FIBROBLAST GROWTH FACTOR SECONDARY STRUCTURE ANALYSIS WITH CURVE-FITTING AND MODEL-BASED INSPECTION OF THE FTIR SPECTRAL DATA

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BACKGROUND AND AIM: Acidic and basic fibroblast growth factor (bFGF and FGFA) proteins involve in distinct biological processes in different cells and tissues. Therefore, inspecting their structure is of importance. Fourier Transform Infrared (FTIR) spectroscopy provides information on the secondary structure elements of proteins. Developing a method that provides a model to inspect the secondary structure of FGF proteins through the FTIR data would be benefited by the researchers.
MATERIALS and METHODS: FGFA protein with 50 folds more bovine serum albumin protein as carrier (1FGFA/50BSA) and bFGF were purchased. Then we obtained attenuated total reflectance (ATR) FTIR spectra of the proteins in dry form, within the mid-IR region. We used both curve-fit and model-based approaches for estimating the secondary structures and compared the results with the PDB-based data, through calculating their root mean square deviation (RMSD). During curve-fitting, parameters were optimized for the Amide I region of bFGF and optimized parameters were applied for curve-fitting of the 1FGFA/50BSA data, afterwards. Besides curve-fitting, we derived model-based secondary structure determination approaches from those established by Goormaghtigh et al. (2006, 2009) and applied to the same curve-fitted data.
RESULTS: Optimized parameters resulted in high RMSD in the 1FGFA/50BSA data while one model with the lowest average RMSD had 8.15 RMSD in the bFGF structure and 6.64 RMSD in the 1FGFA/50BSA.
CONCLUSION: Inspecting secondary structure through applying models were better than the followed curve-fit approach in our study utilizing mixed FGF proteins.
Keywords: protein secondary structure, secondary structure prediction, ATR FTIR

References
Goormaghtigh et al. (2006). Biophys. J. 90:2946–2957.
Goormaghtigh et al. (2009). Biochim. Biophys. Acta 1794:1332–1343.

S132
EVALUATION OF THE RELATIONSHIP BETWEEN PLATELET/HEMOGLOBIN RATIO IN VITAMIN B12 DEFICIENCY

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BACKGROUND AND AIM: Studies reporting vitaminB12 levels are associated with various pathological conditions are increasing in the literature. VitaminB12 deficiency causes serious health problems, especially anemia. Recently, the platelet/hemoglobin ratio has an increasing number of studies in the literature. It was aimed to investigate the platelet/hemoglobin levels in people with vitamin B12 deficiency.
MATERIALS and METHODS: This study was conducted by retrospectively scanning the patients who applied to Taksim training and research hospital between 01 January 2022 and 01 August 2022. All patients between the ages of 18-70 were included in the study. Platelet and hemoglobin values and platelet/hemoglobin ratios were determined from the hemogram results of these patients.
RESULTS: A total of 1424 patients were included in the study. 886 women (62.2%) and 538 men (37.8%). For male patients age 48(31-62), vitamin B12 167(144-183) ng/L, platelet 255(215-305) 10^9/L, hemoglobin 144(133-152) g/L and platelet/hemoglobin rate 1.79(1.49-2.13) was determined. For female, age 44(29-57), vitamin B12 170(151-184) ng/L, platelet 278(241-325) 10^9/L, hemoglobin 125 (117-133) g/L, and platelet/hemoglobin ratio 2.22(1.88-2.66) were found. According to the Mann-Whitney U test results, a statistically significant difference was found between male and female gender in terms of vitamin B12(p=0.012) and platelet/hemoglobin ratio(p<0.0001). However, no significant correlation was found between vitaminB12 levels and platelet/hemoglobin ratio.
CONCLUSION: In the patients with vitaminB12 deficiency, no significant relationship was found between the platelet/hemoglobin ratio and vitaminB12 levels. In the analyzes made by gender, it was determined that vitaminB12 and platelet/hemoglobin ratios were higher in women than in male patients.
Keywords: Vitamin B12, Platelet, Hemoglobin, platelethemoglobın ratio

S133
RELATIONSHIP OF B12 DEFICIENCY AND THE HEMATOLOGICAL PARAMETERS WITH TRACE ELEMENTS

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BACKGROUND AND AIM: VitaminB12, known as cobalamin,-contains cobalt(Co) in its structure and has an important role in human growth and development.Its deficiency is relatively common in society.Due to the cofactor role of vitaminB12 in many reactions,its deficiency results in hematological and neurological symptoms.In our study,it was aimed to evaluate relation of serum vitamin B12 levels with some trace elements,and complete blood count parameters.
MATERIALS and METHODS: : 88 individuals without chronic disease who applied to the Internal Medicine outpatient clinic Sakarya Training and Research Hospital were included.Two study groups were formed as individuals with vitaminB12 values>180pg/ml,with vitaminB12 values<180pg/ml.Selenium(Se), iron(Fe), cobalt(Co), zinc(Zn) levels in serum samples were studied by inductive coupled plasma optical emission spectrophotometer. Iron binding capacity, vitaminB12, folicacid, ferritin level, CBC parameters were studied and measured in automated laboratory systems.In addition, Fe/Se, Co/Se, Co/Zn, Fe/Zn ratios were calculated. The data obtained were evaluated in SPSS20.0 program. Student's t-test or Mann Whitney-U test was performed according to the evaluation of the data with the Kolmogorov-Smirnov test. $P<0.05$ was considered significant.
RESULTS: : 51% of the individuals had vitaminB12 level above 180(pg/ml),49% had vitaminB12 level below 180(pg/ml).When comparison between groups was made,PDW, Co/Zn, MPV levels were found higher in the vitaminB12 deficient group than control group($P=0.31$,$P=0.15$,$P=0.14$). Leukocyte,iron binding,Fe,Zn,Fe/Se ratio were found higher in control group($P=0.48$,$P=0.006$,$P=0.19$,$P=0.002$,$P=0.03$).There was no significant difference between other parameters($P>0.05$).
CONCLUSION: Our study shows vitaminB12 deficiency and hematological parameters, may be related to some trace elements and their ratios.Further studies are needed to evaluate relationship between underlying mechanisms of vitaminB12 deficiency, and trace elements.
Keywords: Zinc, İron, Selenium, Cobalt, VitaminB12

S134
INVESTIGATION OF VITAMIN D 25(OH)D LEVELS IN MERSIN REGION

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BACKGROUND AND AIM: Vitamin D is among the fat-soluble vitamins, and its deficiency and insufficiency have been found to be associated with many chronic diseases including cancers, cardiovascular diseases, metabolic syndrome, infectious and autoimmune diseases.The steroid derivatives, ergocalciferol (D2) and cholecalciferol (D3), are two important forms of vitamin D.In addition,it has an important effect on calcium and phosphorus metabolism as a hormone. It is accepted that 25-hydroxy vitamin D (25-OH D) is the most appropriate parameter to show vitamin D status.In this study,it was aimed to examine vitamin D levels.
MATERIALS and METHODS: A total of 148568 patient data studied in our Mersin University Medical Biochemistry Department between January and December 2018-2022 were evaluated.Vitamin D deficiency,insufficiency and toxicity(if vitamin D level is less than 21 ng/mL;vitamin D deficiency, between 21 and 30 ng/mL vitamin D insufficiency,if higher than 30 ng/mL, adequate level (preferred) range 40-60 ng/mL)if it is higher than 150 ng/mL, vitamin D intoxication)were divided into groups according to their status.
RESULTS: It was found that 80149 (53.9%)of the data included in the study belonged to women and 41764 (28.1%) to men.When all the data on 25(OH)D levels were analyzed, it was observed that 67766 (45.6%) were less than 21 ng/mL, 36894 (24.8%) were between 21 and 30 ng/mL,28239 (% 19) It was determined that the data of 79 (0.05%) individuals were higher than 30 ng/mL,and the intoxication value was higher than 150 ng/mL.
CONCLUSION: When the data of 25(OH)D levels in Mersin were examined,it was determined that approximately 70%of them were

lower than adequate level.
Keywords: Hormone, Vitamin D, 25-hidroxy vitamin D

S135
USING MEDIAN AND INDIRECT REFERENCE RANGE DETERMINATION METHODS TOGETHER TO IMPROVE INTERNAL QUALITY CONTROL ASSESSMENT

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BACKGROUND AND AIM: The cornerstone of laboratory medicine is statistical process control. It frequently employs fabricated control samples and has a limited ability to identify all analytical problems. By more precisely identifying changes in patient results, such as by keeping an eye on the mean or median values of patient results, we aimed to create a practical, simple, and adaptable approach for identifying analytical errors.
MATERIALS and METHODS: We obtained patient serum calcium and creatinine results from the laboratory information system. We determined the lower and upper limits for each of the two data sets using the mean, median, and indirect reference range determination method. We identified the values outside of the acceptable range by calculating the mean and median values for every 200 patient results.
RESULTS: For the calcium test, we determined the upper and lower control range limits as being 0.75 and 1 standard deviation from the mean value of the reference range, respectively. For the 0.75 SD limits, 4.59% of 327 results were out of range, while for 1 SD, 1.53% were out of range. We found that results exceeding 2 SDs in internal quality control (IQC) could be recognized at a rate of 50% in our 0.75 SD rule and 13% in our 1 SD rule in a comparative assessment using 20 IQC.
CONCLUSION: We believe that using the indirect technique to monitor patient result medians and establish control range limits may be a useful, statistically sound way of laboratory quality control.
Keywords: quality control, median, ındirect method

S136
APPLICATION OF LOCAL HARMONIZATION OF IFCC MODEL OF QUALITY INDICATORS TO ISTANBUL SUAM BIOCHEMISTRY LABORATORY

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BACKGROUND AND AIM: We conducted a local harmonization study to examine which and to what extent our laboratory complies with the criteria defined in the IFCC Model of Quality Indicators and the change in its performance over the years.
MATERIALS and METHODS: The quality indicator data of our laboratory between the years 2016-2020 were obtained retrospectively with automation systems. While 26 out of 27 quality indicators defined in the Model of Quality Indicators are Key Process Quality Indicators, 1 is Results Measurement Quality Indicator. Of the Key Process Quality Indicators, 14 belong to the preanalytical, 4 to the analytical, and 8 to the postanalytic phase. While 2 of them have a priority score of 2, the others have a priority score of 1. The 90th.percentile values and sigma values of the obtained data were calculated in Microsoft Excel.
RESULTS: The results of our laboratory were compared with the quality specifications of the IFCC Model of Quality Indicators. Looking at the five-year average results, the preanalytical quality indicators Pre-OffTDE,Pre-NotRec,Pre-OffQue " optimum", PreMisS,Pre-WroTy,Pre-WroCo,Pre-SaAnt,Pre-HemR,Pre-HemV "acceptable", Pre-InsV,Pre-DamS,Pre-ExcTime-1,Pre-ExcTime-2,Pre-Clot,Pre-InTime shows "minimum" while analytical quality indicators Intra-IQC,Intra-EQA ''optimum'', Intra-UnIQC,Intra-Unac showed ''acceptable'', Post-W-BCTAT,Post-InsCR,Post-OffCR ''optimum'', Post-OutTime-2,Post-OutTime-4,Post-PotTAT showed "acceptable", Post-OutTime-1,Post-OutTime-3,Post-INRTAT,Post-TnTAT showed "minimum". Performance couldn't be evaluated as there is no quality specification for the Post-TATPotH,Out-Inj.
CONCLUSION: Our laboratory performed better in the analytical phase. Training should be increased for personel in preanalytical procedures. In the postanalytic phase, "STAT priority" tests can be defined. LIMS compatible with the Model of Quality Indicators can be used. Model of Quality Indicators should be constantly updated.
Keywords: Total Test Process, Model of Quality Indicators, Quality Specification

S137
COMPARISON OF VES-MATIC AUTOANALYZER AND WESTERGREN METHOD IN SEDIMENTATION RATE MEASUREMENT

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BACKGROUND AND AIM: Erythrocyte sedimentation rate (ESR) is a non-specific test used in the diagnosis of various diseases such as malignancy and inflammatory disease. The gold standard method in ESR measurement is the Westergren method. In this study, we aimed to compare the Ves-matic Cube-80 device with the westergren method.
MATERIALS and METHODS: A total of 90 people, 47 men and 43 women, participated in the study. Blood was taken from each of them into tubes with K2EDTA and sodium citrate. The normality distribution of the data was determined by Kolmogrov Smirnov. Data with normal distribution were shown as mean ±SD, and data with non-normal distribution as median (25th percentile-75% percentile). The difference between the ESR values measured in both methods was determined using the Wilcoxon Signed Ranks test. Spearman test and Passing-Bablok regression analysis were performed to determine the relationship between ESR measured by both methods. In addition, the Bland-Altman plot was used to determine the mean difference.
RESULTS: The ESR value was 38 (15-55) in the westergren method and 37.5 (15-58) in the Ves-matic device measuring with K2EDTA. There was no statistically significant difference between both methods ($p=0.128$). In the analysis (Spearman), both methods were statistically significantly correlated with each other ($r=0.951$; $p<0.001$). In the Passing Bablok regression analysis, the intercept and 95% confidence interval were calculated as -3 (-4.6 - -1.8), slop 1.04 (0.98-1.11).
CONCLUSION: As a result, it was seen that the ESR results me-

asured with the ves-matic device were compatible with the gold standard method, westerngrain.
Keywords: sedimentation, westergren, autoanalyzer

S138
MEASUREMENT UNCERTAİNTY ESTIMATION FOR DIRECT AND CALCULATED LDL CHOLESTEROL TESTS

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BACKGROUND AND AIM: Serum LDL-Cholesterol (LDL-C) level is a marker used for determining the cardiovascular disease risk category and the primary goal of treatment. In the clinical laboratory, serum LDL- C concentration is obtained via direct measurement or calculation using an equation like the friedewald formula. Measurement uncertainty(MU) is among the standards as a criterion in quality assessment. In this study, we estimated MU of the calculated LDL-C(according to Friedewald formula) test and direct LDL-C test and compared with the permissible MU (pU%) based on biological variation
MATERIALS and METHODS: Measurement uncertainties of direct and calculated LDL-C were estimated using the ISO/TS 20914:2019 guideline. For direct LDL-C, uncertainty from the internal quality and calibrator (bias was negligible), for calculated LDL-C; Uncertainties from the internal quality controls and calibrators of total cholesterol, HDL, and triglyceride tests were used (the bias from external quality of all three variables was negligible).Serum lipid profile measurements were carried out by Roche Cobas 8000 autoanalyzer.
RESULTS: Expanded uncertainty values of direct and calculated LDL-C tests for level 1 and level 2 were 2.8%(3.8 mg/dL) and 2.2%(4.6 mg/dL); 4.2%(5.6 mg/dL) and 3.8%(7.8 mg/dL), respectively. The MU of the direct and calculated LDL-C were found below the target measurement uncertainty (8.3%).
CONCLUSION: It is recommended that the MU, which plays an important role in the total quality performance of laboratories should be followed by clinical laboratory specialists at certain time intervals. According to our evaluation both direct LDL-C and calculated LDL-C tests have acceptable MU comparing with the allowable limit.
Keywords: LDL-Cholesterol, Measurement uncertainty, Permissible measurement uncertainty, Quality

S139
USE OF CONTEMPORARY NANO-SIZE MATERIALS IN CANCER STEM CELL ISOLATION

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Unsufficient of cancer treatments has been associated with cancer stem cells (CSCs), which cause metastasis and have resistance to radio- and chemotherapy. The development of cancer stem cell targeted therapy methods is dependent on the identification of cancer stem cells and their isolation from cancer cell lines and tumor tissues. Existing stem cell isolation methods are costly and device dependent.
The aim of this study is to develop a high-efficient, low-cost, specific method for cancer stem cell isolation with magnetic functional nanoparticles. Unlike the traditional stem cell isolation techniques (Magnetic labeled separation MACS, flow cytometry FACS), it is aimed to isolate cancer stem cells (CD133+ cells) with affinity based nanoparticles. For this, magnetic polymeric nanoparticles were synthesized with 3 different strategies and modified with lectin affinity and metal affinity interactions. These polymeric magnetic nanoparticles were characterized, cytotoxicity tests were performed and used for CSC isolation from the human osteosarcoma cancer cell line (SaOs-2) with a CD133 surface marker. After the stem cell isolation, efficiency of the separation were evaluated by MACS and FACS methods.
As a result, when the mg-p(HEMA)-His nanoparticle was used at a concentration of 0.1 µg/mL for 106 and 108 cells, superior separation efficiency was obtained than commercial microbeads.
Keywords: cancer stem cell, magnetic nanoparticles, affinity interactions, stem cell isolation

S140
PROPOLIS ENHANCES 5-FLUOROURACIL MEDIATED ANTITUMOR EFFICACY AND REDUCES SIDE EFFECTS IN COLORECTAL CANCER; AN IN VITRO AND IN VIVO STUDY

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BACKGROUND AND AIM: Because of the insufficiency of conventional treatments used in colorectal cancer (CRC), the search for alternative or complementary treatments continues. Aims of this study is to show anti-tumor effects of combined treatment of 5-fluorouracil (5-FU) and Anatolian propolis extract (PE) on CRC with both *in vitro* and *in vivo* studies.
MATERIALS and METHODS: Luciferase transfected CRC cells (LoVo-Luc) and healthy colon cells (CCD-18Co) were exposed to 5-FU, different concentrations of (PE) and their combination. After incubation periods, cytotoxic, genotoxic, apoptotic effects and intracellular reactive oxygen species (iROS) levels were analyzed. In order to show anti-tumoral effects of this combined treatment in animal models, Lovo-Luc cells were implanted to nude mice. After tumor formation, effects of treatment on CRC cells were analyzed by live animal imaging system, histopathological and biochemical methods.
RESULTS: *In vitro* experiments showed that PE significantly enhanced the cytotoxic, genotoxic, apoptotic, and ROS-generating effects of 5-FU in LoVo-Luc cells. Cancer cells were found to be 5-fold more sensitive to this combination therapy than healthy colon cells. *In vivo* findings clearly showed that intraperitoneal (IP) PE increased the anti-tumor efficacy of 5-FU against colorectal cancer and decreased TNF-α, IL-1β, ALT, AST and oxidative stress levels in mouse models.
CONCLUSION: PE reduces side effects of 5-FU while increasing the effectiveness of it through iROS generating effect in tumor in a dose dependent manner. Therefore, it may be considered as an adjuvant therapy for CRC.

Keywords: propolis, colorectal cancer, canlı hayvan görüntüleme sistemi, zenograft models, 5-Fluorouracil

S141
THE EFFECT OF Viscum Album L. EXTRACT ON HUMAN LUNG CANCER CELL LINE (A549) ON PROLIFERATION AND APOPITOSIS

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Lung cancer is the leading cause of cancer deaths worldwide. Depending on the type and stage of the disease in lung cancer, surgical intervention or treatment with chemotherapy drugs can be applied. But treatments are insufficient. Viscum album L. (VA) has been used in the treatment of many diseases for many years.
In this study we have done, VA. We aimed to investigate the effect of extract on apoptosis and cell proliferation in A549 and HEK-293 cells.
Cell proliferation was studied by MTT method and apoptosis analysis was studied by Annexin V method in Muse flow cytometer device. The ethanol extract of VA was obtained and applied to A549 and HEK-293 cells at concentrations of 1600,1400,1200,1000µg/ml and proliferation analysis was performed by MTT method.
The IC_{50} value was found to be 1090µg/ml at 72nd hour for A549 cells and 413.6µg/ml at 48th hour for HEK-293 cells. Apoptosis analyzes of A549 cells and HEK-293 cells were performed by Annexin V method. A549 cells treated with VA extract at an IC_{50} concentration went into late apoptosis at a rate of approximately 80%. HEK-293 cells, on the other hand, went to late apoptosis.
In other studies, Viscum album L. extract inhibited cell proliferation and led cells to apoptosis. However, the effect of VA extract on healthy cells was not investigated in these studies. According to these results we have obtained, we think that the VA plant cannot be used directly as a supplementary treatment and will guide other studies with advanced molecular research.
Keywords: Lung cancer, Viscum album L, Proliferation, Apoptosis

S142
THE EFFECT OF RESVERATROL ON LEVELS OF HEAT SHOCK PROTEIN-90 AND ASYMMETRIC DIMETHYL ARGINE IN LUNG CANCER CELL LINE

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Lung cancer is the first cause of cancer death in the world. Resveratrol (3,4',5-trihydroxy-trans-stilbene) is a polyphenol classified as a phytoalexin. Heat shock protein 90 (Hsp-90) is responsible for the activation, stabilization and function of various receptor proteins. Asymmetric dimethyl arginine (ADMA) is a modified amino acid that occurs naturally in the blood and is known to inhibit nitric oxide production.
In this study, the effects of resveratrol on the proliferation of A549-HEK-293 cell lines were investigated. Hsp-90-ADMA activities with determined resveratrol concentrations were also investigated. Proliferation test with MTT method, Hsp-90 levels with ELISA method, ADMA levels with LC-MS/MS method were studied.
Resveratrol IC_{50} doses were calculated for 24-48 hours with the help of %cell viability/concentration graph of A549- HEK-293 cell lines. For A549, IC_{50} at 24th hour was determined as 180.3µM. In both cell lines, proliferation results of determined concentrations in 24-48 hours, cell lysates and Hsp-90, ADMA levels were calculated.When comparing the resveratrol concentration for Hsp-90 over time, the difference between the groups treated with 45µM resveratrol was found to be statistically significant($p<0.05$). When each resveratrol concentration was compared according to the times, the groups with 0-45-90 µM resveratrol concentrations ($p<0.001$) were found to be significant as 180 µM($p=0.012$). No statistically significant difference was found between the groups with a value of 22.5 µM ($p=0.474$).
In line with these results, we think that resveratrol can be used directly as a supplementary treatment depending on the dose and its mechanism of action should be understood with further research.
Keywords: lung cancer, adma, hsp90, resveratrol, proliferation

S143
CHARACTERISTICS OF THE FORTY CASES WITH FREE LIGHT CHAIN PARAPROTEINS DETECTED VIA ELECTROPHORETIC METHODS

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BACKGROUND AND AIM: There are large numbers of clonal plasma cells secreting monoclonal light chains (LC), but the serum concentration is usually low due to the low molecular weight of the free LC, which is rapidly cleared from the circulation by the kidneys. Scanning 1-year records, we wanted to share our laboratory findings of the cases with free kappa or lambda LC paraproteins.
MATERIALS and METHODS: We reviewed 1,966 patients with serum immunofixation electrophoresis (IFE) tests (N=2,378), between September-2021 and August-2022, searching for cases with a free kappa or lambda LC detected via IFE.
RESULTS: We found 40 cases. An isolated free kappa (N=13) or lambda (N=27) LC was observed in 28 of those 40 cases; other 12 cases had additional IFE bands, such as IgA-lambda, IgG-kappa. In 5 cases, there was no capillary electrophoresis (CE) pattern indicating a paraproteinemia or hypogammaglobulinemia, and 4 (80%) of them had renal dysfunction. On the other hand, we had paraprotein peaks accompanying to fractions of beta-1 in 6 cases, beta-2 in 6 cases, and gamma in 23. Also 28 cases presented hypogammaglobulinemia. Urinary IFE was positive in 13 cases, and renal dysfunction was observed in 16 cases. Median values for total protein levels and albumin fractions were found as 67.14 g/L and 56.5%.
CONCLUSION: CE has been described as a method that allows precise separation of β1 (transferrin) and β2 (C3) bands. Presence of CE findings in favor of free LC paraproteins in 35 (87.5%) patients supported the fact that CE is a good choice for screening purposes.
Keywords: immunofixation, capillary electrophoresis, free light chain paraproteins, renal dysfunction, multiple myeloma

S144
ANTI PROLIFERATIVE EFFECT OF OLIVETOL ON HUMAN LUNG CANCER (A549) CELLS

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BACKGROUND AND AIM: In our study, we aimed to show the possible anti-proliferative effects of olivetol, which is found in some lichen species and has anti-oxidant, anti-inflammatory and anti-cholinergic properties, on A549 lung cancer cells.
MATERIALS and METHODS: A549 cell line (ATCC, USA) was used in the study. Different concentrations (50 and 100 µM) of olivetol were applied to the cells. Cell proliferation levels were analysed by MTT test. Then, proliferation analysis was performed according to cell absorbances at 24, 48 and 72 hours. Wound healing test was performed for migration analysis. The rate of wound closure was recorded at 12 and 48 hours.
RESULTS: In our study, it was determined that olivetol application prevented cell proliferation in dose and time depended manner. While 50 µM olivetol applications did not show any effect in the first 24 hours, 100 µM doses significantly reduced cell proliferation. It was determined that olivetol showed anti-proliferative effect depending on the dose at 48 and 72 hours. Similar to the proliferation results, it was determined that 50 and 100 µM olivetol applications prevented wound closure dose-dependently.
CONCLUSION: As a result, olivetol showed an anti-proliferative effect on A549 cells in a dose-dependent manner. From this point of view, the anti-proliferative effect of olivetol on lung carcinoma cells, which has a high incidence, is promising for future studies. This study needs to be supported by in-vivo experimental models and preclinical studies.
Keywords: Olivetol, A549, Proliferation, Migration

S145
INVESTIGATION OF THE ROLE OF JAK/STAT SIGNAL PATHWAY IN HL-60 (ACUTE PROMYELOCYTIC LEUKEMIA) CELL LINE

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BACKGROUND AND AIM: Leukemia is a type of hematological cancer that occurs when blood stem cells of myeloid origin transform into cancerous cells. One of the most important signaling steps regulating cell proliferation and apoptosis leading to the development of leukemia is Janus Kinase/Signal Transducers and Activators of Transcription(JAK/STAT) signaling pathway. In the treatment of leukemia, Jak/Stat pathway inhibitors are widely used. Bortezomib, a proteasome inhibitor, is used in the treatment of various cancers. We aimed to investigate the role of genes in the Jak/Stat signaling pathway in the antiproliferative effect of bortezomib on HL-60 cells.
MATERIALS and METHODS: HL-60 leukemia cell line was reproduced in cell culture. The IC_{50} value of bortezomib applied to this cell line was determined by performing the MTT test. RNA was isolated from the cells and cDNA synthesis was performed. Expression levels of Jak1, Jak2, Jak3, Stat1, Stat3 and Stat5a and Stat5b genes in the JAK/STAT signaling pathway were analyzed by Real-time-qPCR.
RESULTS: We observed that expression levels of Jak1, Jak2, Jak3, Stat1, Stat5a and Stat5b genes were significantly reduced at four different doses (0.02µM, 0.05µM, 0.1µM, and 0.5µM) of bortezomib applied to HL-60 cells. While Stat3 gene expression was close to control only at 0.02µM dose, it decreased at other doses. Thus, it has been determined that these genes in Jak/Stat pathway have important roles in leukemia.
CONCLUSION: Determining the potential roles of Jak/Stat pathway genes in bortezomib-induced cell death will enable the understanding of the disease at the molecular level and the development of more effective treatment strategies for leukemia.
Keywords: Leukemia, HL-60 cell line, Bortezomib, JAKSTAT Signaling Pathway, Real-Time qPCR

S146
EFFECTS OF SPARSTOLIN B AS AN ANTIPROLIFERATIVE AGENT IN COLORECTAL CANCER CELLS

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BACKGROUND AND AIM: Sparstolonin B (SsnB) is a compound isolated from the tubers of *Sparganium stoloniferum* and *Scirpus yagara*. This study investigated the anti-proliferative activity of SsnB, a polyphenol, in colorectal cancer cells (HCT-116) and healthy human fibroblasts (BJ).
MATERIALS and METHODS: The doses and incubation time of PMA which stimulated cell viability in HCT-116 and BJ cells were determined by the MTT test. Assessment of cell proliferation in experimental groups was by measurement of proliferating cell nuclear antigen (PCNA). Immunofluorescence microscopy and ELISA was employed to evaluate the amount of PCNA protein.
RESULTS: We observed that PMA treatment in HCT-116 cells stimulated cell proliferation, whereas PMA at the same doses and incubation time did not cause cell proliferation in healthy human fibroblasts. Application of SsnB significantly decreased cell viability by %41.5 in HCT-116 cells and had no significant effect on BJ cells when applied at the same doses and incubation period. Likewise, SsnB treatment significantly inhibited PMA-induced cell proliferation by %73.4 in HCT-116 cells and showed no major effect on PMA treated BJ cells.
CONCLUSION: Our data suggest that SsnB treatment inhibits cell proliferation in HCT-116 cells and that SsnB can be a potential therapeutic agent in the treatment of colorectal cancer.
Keywords: colorectal cancer, proliferating cell nuclear antigen, sparstolonin b, phorbol 12-myristate 13-acetate

S147
EFFECT OF DUBERMATINIB ON GEMCITABINE CYTOXICITY IN PANC-1 AND BxPC-3 HUMAN PANCREAS CANCER CELL LINES

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BACKGROUND AND AIM: Gemcitabine (GEM) is used as a first-line chemotherapeutic agent in pancreatic cancer and there are many studies to increase its cytotoxic effect. Axl is a membrane receptor among the Receptor Tyrosine Kinases. This study investigated the effect of Dubermatinib (TP-0903), one of the Axl-specific inhibitors, on GEM cytotoxicity in Panc-1 and BxPC-3 pancreatic

cancer cell lines.
MATERIALS and METHODS: IC_{50} values of GEM and Dubermatinib were determined in Panc-1 and BxPC-3 cell lines. Different GEM concentrations were determined from a concentration below the IC_{50} value of GEM in both cell lines, and drug combinations were formed by combining them with different Dubermatinib concentrations. GEM and Dubermatinib concentrations were in the range of 0.5-5 µM and 5-750 nM, respectively. Cytotoxicity test was performed 72 hours after GEM+Dubermatinib combinations were applied to the cells. Sulforhodamine B (SRB) test was used to determine cytotoxicity. Statistically, the ($p<0.05$) value was considered significant.
RESULTS: Cell viability of cells treated with GEM+Dubermatinib combinations in the Panc-1 cell line showed a significant decrease compared to cells treated with GEM alone ($p<0.05$). In the BxPC-3 cell line, there was a statistically significant decrease in cell viability of cells treated with the GEM+Dubermatinib combination compared to cells treated with GEM alone or Dubermatinib alone ($p<0.05$).
CONCLUSION: Dubermatinib can be said to increase the cytotoxic effect of GEM in both Panc-1 and BxPC-3 cell lines.

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Keywords: Pancreatic cancer, Gemcitabine, Dubermatinib TP-0903, cytotoxic effect

S148
THE RELATIONSHIP OF CD38/138 POSITIVE PERCENTAGE WITH KAPPA AND LAMBDA PERCENTAGES IN MULTIPLE MYELOM CASES

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BACKGROUND AND AIM: Multiple myeloma (MM) is disease of unknown cause characterized accumulation clonal malignant plasma cells in bone marrow (BM). MM is, 10% of hematological malignancies. Average age at diagnosis 65. In diagnos, besides anamnesis and physical examination; various tests used, BM examination, and radiography. İmmunophenotyping of BM helps in diagnosis. Clonal plasma cells (+) stained with CD45, CD38, CD138 and (+) stained with one of immunoglobulin (IG) light chains kappa and lambda. In study; We tried determine relationships between percentage of cells stained with CD38/CD138 (+) and percentage IG light chains.
MATERIALS and METHODS: Analyzes were performed using NAVIOS-EX-Flow-Cytometer (Beckman Coulter, USA) device by flow cytometry using staining markers of myeloid and lymphocytic stem cells. İmmunophenotypic examination 44 patients pre-diagnosis MM, CD38/CD138 association (+) >1% total, percentages kappa and lambda IG light chains were compared with Spearman's Correlations.
RESULTS: Analyzes ultimately; statistically significant, (+) relationship found between Kappa and CD38/CD138 ($r=0.333$, $p=0.027$). There was statistically significant, (-) relationship between Lambda and CD38/CD138 ($r=-0.347$, $p=0.021$). Statistically significant, (-) relationship found between kappa and lambda ($r=-0.934$, $p<0.001$).
CONCLUSION: In diagnosis MM; it gives fast and reliable results, importance flow cytometry is increasing day by day. In this study, in cases where the percentage of CD38/CD138 (+) cells is high, kappa light chain; we observed that lambda light chain was more intensely expressed when it was low. We predict, datas may helpful in evaluation MM treatment response, prognostic determinations, minimal residual disease rates. Further studies are planned using data of this study.
Keywords: Flow cytometry, Multiple myeloma, CD markers, Kappa and Lambda

S149
NOVEL TRANSFORMING GROWTH FACTOR-B TYPE 1 RECEPTOR INHIBITORS FOR POTENTIAL THERAPEUTIC TREATMENT OF CANCER

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BACKGROUND AND AIM: TGF-β is a multifunctional cytokine that plays substantial role in key cellular processes under physiologic conditions and is deregulated in many pathologies, including cancer. As a tumor promoter, the TGF-β pathway enhances cell proliferation, migration, metastasis and may contribute to drug resistance. TGF-β exerts effects through two transmembrane receptors, TGβR1 and TGβR2. Therefore, the inhibition of the TGF-β signaling pathway using TGβR inhibitors has been used in preclinical studies and clinical trials as therapeutic drugs for various cancer treatments. In this preliminary study, we aimed to show anti-proliferative effects of newly synthesized potential TGβR1 inhibitors.
MATERIALS and METHODS: New series of benzimidazole derivatives bearing thiosemicarbazide side chain at the first position were synthesized and docked computationally to the active site of the human TGβR1 and their structure-activity relationships were analyzed. Among them the most promising compounds 2a and 6a were chosen to evaluate cytotoxic effects by XTT assay. For this purpose, A549 and HepG2 cell lines were treated with compounds 2a and 6a (0.1, 0.2, 0.4, 0.6 and 0.8 mM) for 24 hours.
RESULTS: Thiosemicarbazide derivatives were obtained by reacting of benzimidazole hydrazide and corresponding isothiocyanates with reflux in ethanol medium. N-(5-chloro-2-methylphenyl)-2-(2-(2-phenyl-1H-benzo[d]imidazol-1-yl)acetyl)hydrazine-1-carbothioamide and N-(2-chloro-6-methylphenyl)-2-(2-(2-phenyl-1H-benzo[d]imidazol-1-yl)acetyl)hydrazine-1-carbothioamide -compounds 2a and 6a, respectively- showed statistically significant ($p< 0.001$) dose dependent cytotoxic effect on both A549 and HepG2 cell lines. These two compounds were chosen because the results of docking studies for TGβR1 were successful.
CONCLUSION: These results suggests that novel benzimidazole derivatives targeting TGF-βR1 is a promising strategy for cancer therapy.
Keywords: hepatocellular carcinoma, akciğer kanseri, Transforming growth factor-beta

S150
INVESTIGATION OF IONIZING RADIATION EFFECTS ON CELL VIABILITY IN BREAST CANCER CELL LINES

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BACKGROUND AND AIM: This study constitutes the first step of a comprehensive study to investigate the molecular effects of therapeutic ionizing radiation on breast cancer and aims to detect the change in cell viability by the effect of ionizing radiation in the dimensions of applied dose and post-irradiation time tracking. The obtained results will form the basis for molecular quantitative analysis studies.
MATERIALS and METHODS: We used MCF7 and MDA-MB-231 breast cancer cell lines for this the study. Cell cultures acquired from these cell lines were seeded into 96-well plates and exposed to 4Gy and 8 Gy doses of ionizing radiation (X-ray) by Linear Accelerator device. Viability determinations of irradiated cells were made using the MTT method at 48 hours, 96 hours and 7 days after irradiation (YTU-FDK-2019-3611).
RESULTS:
The viability values of MCF7 cells:
After 4Gy irradiation: 100.6% (48h), 88.7% (96h) 58.4% (7day).
After 8Gy irradiation: 95.9% (48h), 85.2% (96h), 42.2% (7day).
The viability values of MDA-MB-231 cells:
After 4Gy irradiation: 96.6% (48h), 86.3% (96h) 46.7% (7day)
After 8Gy irradiation, 93% (48h), 81.3% (96h) 38.7% (7day).
CONCLUSION: As a result of this study, it was observed that increasing dose of ionizing radiation also increased the effect on cell viability. and cell viability did not decrease immediately after irradiation, but gradually decreased depending on the time that passed. Consequently, it has been evaluated that the obtained data are compatible with the relevant literature studies and are promising for molecular quantitative analysis studies to examine the mechanisms of DNA repair and apoptosis.
Keywords: breast cancer, ionizing radiation, radiotherapy, cell viability

S151
ANTI-INVASIVE EFFECTS OF RANOLAZINE ON HUMAN BREAST CANCER CELLS

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BACKGROUND AND AIM: Studies have shown that voltage-gated sodium channels (VGSCs) are overexpressed in several human cancers including breast, prostate, and ovary cancer, where expression is associated positively with metastatic potential. Ranolazine, an approved antiangina drug, is also known as a blocker of the VGSC persistent current. This study aims to gain further understanding of how ranolazine affects (1)matrix metalloproteinases (MMPs) and VGSC expression/activity, and (2)metastatic cellular behaviours in MDA-MB-231 breast cancer cells.
MATERIALS and METHODS: First, we determined the ranolazine dose that did not affect MDA-MB-231 cell viability using WST-1. Then we treated the cells with ranolazine and analyzed i) SCN5A, SCN1B, and MMP-9 mRNA levels (Real-Time PCR), ii) Nav1.5, β1, and TIMP-2 protein levels (Western Blot), iii)MMP-2 and MMP-9 activity/secretion levels (Gelatin Zymography). Functionally, we evaluated the effects of ranolazine on metastatic cell behaviours (adhesion, lateral migration, matrigel invasion, and transwell migration) in MDA-MB-231 cells.
RESULTS: Ranolazine significantly increased SCN1B mRNA levels, whereas β1 protein levels were not altered. Besides, Nav1.5 expression levels (mRNA and protein) were statistically the same as the control group. However, ranolazine treatment resulted in decreased MMP-9 activity levels and increased TIMP-2 protein levels. Furthermore, ranolazine significantly inhibited metastatic cell behaviours in MDA-MB-231 cells.
CONCLUSION: Here, we conclude that ranolazine exhibits anti-invasive effects and decreases MMP activity by downregulating MMP-9 levels and upregulating TIMP-2 levels in breast cancer cells. Thus, we predict that ranolazine has a great potential for re-purposing to use as an anti-metastatic agent.
Keywords: ranolazine, voltagegated sodium channels, matrix metalloproteinases, metastatic cell behaviours, breast cancer

S152
SUPPRESSION OF GLUTATHIONE ACTIVITY BY SMALL MOLECULE INHIBITORS IN COLORECTAL CANCER CELLS INCREASES THE EFFECTIVENESS OF 5-FLUOROURACIL

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Colorectal cancer (CRC) is concerning malignancy death ranking third in incidence and second in mortality worldwide. Ineffectiveness of classical chemotherapeutical approaches due to potential side effects and drug resistance leads to development of novel treatment strategies such as combining oxidant chemotherapy with inhibitors of antioxidant mechanism. In our study, we focused on the inhibition of glutathione, which plays an important role in the antioxidant mechanism, by two main mechanisms as inhibition of glutaminase activity and inhibition of glucose-6-phosphate dehydrogenase (G6PDH) activity and reduction of NADPH level. We investigated whether glutathione inhibition enhances effects of 5-fluorouracil (5-FU), conventional chemotherapeutic, on cancer cells. Small molecule inhibitors CB-839 and polydatin were used to reduce glutathione activity respectively via glutaminase and G6PDH inhibition in CRC cell lines (HCT-116 and HT-29). Glutathione and NADPH level changes were determined by commercial chemiluminescence assays. The effects of the inhibitors and inhibitor-5-FU combination on cell viability were determined by SRB test.
In HT-29 cells, CB-839, 100nM, 10nM, 1nM doses were chosen as the first dose to kill, the highest non-lethal dose and the dose before

highest non-killing dose, respectively. It was observed that polydatin didn't affect cell viability in both cell lines, and the highest dose tested, 100µM, was chosen for the combination. The IC_{50} dose of 5-FU for the combination was determined in both cell lines. It has been shown that CB-839 inhibits glutaminase by detecting the amount of GSH-GSSG, and polydatinin inhibits G6PDH by detecting the amount of $NADP^+$/NADPH. Antioxidant system inhibition improved effectiveness of 5-FU.

Keywords: combined anticancer therapy, 5fluorouracil, cb839, polydatin, oxidative stress

S153
INVESTIGATION OF THE EFFECT OF EVEROLIMUS AND MELATONIN COMBINATION ON MAMMALIAN TARGET OF RAPAMYCIN PATHWAY-MEDIATED CELL DEATH IN MCF-7 CELLS

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BACKGROUND AND AIM: Breast cancer is the most common cancer in females, with three-quarters of patients positive for hormonal receptors and HER-2 receptor. These types of cancer cells respond to hormonal therapy at a high rate. However, resistance develops over time, and this resistance mechanism may also occur *de novo*. Increased activity of the PI3K/Akt/mTOR pathway is one of the reasons for the mechanism of resistance. In this study, it was aimed to combine everolimus, which is an mTOR inhibitor, and melatonin, that has anti-oxidant, anti-inflammatory, anti-metastatic properties, to examine its effects on cell proliferation, cell death, cell migration and cellular respiration.

MATERIALS and METHODS: To determine drug combination on the effect of proliferation MTT test were performed, cell migration analyzed and to the define the mTOR pathway proteins level western blot is used. Apoptotic cell death was determined with flow cytometry, p62 and LC3 level were analyzed for autophagic cell death and cellular respiration test processing through complex II were performed.

RESULTS: Co-administration of everolimus and melatonin to MCF-7 cells resulted with inhibition of cell migration, increased apoptosis, decreased mTOR pathway proteins, and changes in markers of autophagy (p62, LC3-II).

CONCLUSION: These findings show that there is a decrease in cell proliferation as a result of melatonin and everolimus administration, apoptotic cell death increases and the resistance to everolimus decreased with the application of melatonin and the combination of everolimus and melatonin may also play a role in autophagic cell death. This project was founded by TNKU BAP (01.DR.22.355).

Keywords: everolimus, melatonin, breast cancer, mTOR

S154
INHIBITION OF ESTROGEN-DEPENDED PROLIFERATION IN BREAST CANCER CELLS BY SPARSTOLIN B

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BACKGROUND AND AIM: Estrogen hormone has an important role in breast cancer by increasing cell proliferation. Sparstolonin B is a polyphenol which has menstrual cycle regulatory effects, anti-inflammatory and immunomodulatory properties. The time and dose dependent effect of Sparstolonin B on cell viability and proliferation was investigated in breast cancer and healthy human fibroblasts with and without the presence of estradiol.

MATERIALS and METHODS: Human breast cancer (MCF-7) and human fibroblast (BJ) cell lines were treated with estrogen (1-100 nM) and/or sparstolonin B (3-50 µM) between 12-48 hours. Cell viability was evaluated by MTT analysis while cell proliferation was determined by measurement of Proliferating Cell Nuclear Antigen (PCNA). PCNA was quantified by ELISA and cell distribution was assessed by immunofluorescence microscopy.

RESULTS: Estrogen administration for 48 hours in the range of 1-10 nM significantly increased(according to control %270) proliferation in MCF-7 cells, but did not have a significant effect on human fibroblast cell lines. 24 hours of 25 µM Sparstolonin B administration significantly decreased(according to control %25) cell viability in MCF-7 cells, while it did not cause toxicity in healthy fibroblasts. Increased cell proliferation as a result of 10 nM estrogen application in breast cancer cells was inhibited significantly by 25 µM Sparstolonin B application.

CONCLUSION: This study demonstrated the antiproliferative effect of Sparstolonin B administration in breast cancer cells exposed to estrogen-dependent proliferation. The fact that the applied Sparstolonin B concentration does not have a toxic effect on healthy fibroblast cells supports the development of this agent as a potential therapeutic in estrogen-dependent cancer types.

Keywords: Sparstolonin B, Breast cancer, Estrogen, Proliferation

S155
MESOPOROUS MAGNETIC FE3O4 NANOTUBE SYNTHESIS, IDARUBICIN IMMOBILIZATION, AND ITS EFFECT ON MCF7 CELL LINE

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BACKGROUND AND AIM: Targeting drugs to tumors and damaged cells have become one of the most studied and emphasized subjects in the field of medicine. Since chemotherapeutic drugs are not specific to cancer cells, affect healthy cells and tissues,have low solubility,serious cytotoxic effects, and cytotoxic degradation products, the patient needs high doses of the drug to achieve the desired therapeutic effect for the treatment of the disease. This study,it was aimed to attach idarubicin to mesoporous Fe_3O_4 nanotube support material for drug binding,transport, and targeting.

MATERIALS and METHODS: In this study,Mesoporous SiO2 was obtained by using PEG35000 and PEG6000 and mesoporous Fe_3O_4 was obtained by using this SiO_2 as a model with the anhydrous synthesis technique (MNP35 and MNP6).Then,the amine functional group with 3-aminopropyltriethoxysilane(APT) and the aldehyde functional group with glutaraldehyde (GA) were attached to the mesoporous Fe_3O_4 surface.Finally, MTT cytotoxicity test was performed on MCF7 cell lines by binding idarubicin(IDA) to

these support materials.
RESULTS: IC_{50} values for free idarubicin 3.56 and 0.92 µM, 0.25 and 0.071 µM for MNP35-APT-IDA, 0.32 and 0.087 µM for MNP35-GA-IDA, 1.24 and 0.58 µM for MNP6-APT-IDA and 1.56 and 0.69 µM for MNP6-GA-IDA in 24 and 48 hours.
CONCLUSION: The mesoporous systems increase the cytotoxic effects of the drug. It was observed that IC_{50} values decreased up to 15 times,especially in the system using PEG35000.Due to the size of the idarubicin nanoparticle, which enters the cell with the mesoporous system,it can avoid drug pumps and thus act at lower doses.
This study was supported by TUBITAK-BİDEB 2218 (Project No: 118C475).
Keywords: mesoporous magnetic fe3o4 nanotube, drug targeting, idarubicin

S156
THE EFFECT OF FUNCTIONAL NUTRITION ON PSORIASIS DISEASES AND SOME BIOCHEMICAL PARAMETERS

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BACKGROUND AND AIM: The aim of this study; To investigate the effects of functional nutrition on psoriasis, some biochemical parameters.

MATERIALS and METHODS: In our study, a patient diagnosed with psoriasis, who was evaluated in the 0-5 scoring range according to the physician's global assessment (PGA) score, was given functional nutrition for 9 months without any pharmacological treatment, some biochemical parameters were evaluated before, after the treatment.
RESULTS: Of the biochemical parameters before treatment, serum Fe:53 µmol/L, ferritin:38 µg/L, B12:267 pmol/L, TSH:2.05 µIU/mL levels were determined. Swelling was detected in the abdomen.(PGA score:5) After three months of treatment, biochemical parameters were measured at Fe: 79 µmol/L, ferritin: 126 µg/L, B12: 516 pmol/L, TSH: 0.81 µIU/mL, and after the physical examination, there was a significant decrease in the lesions on the skin (PGA score:3) It was determined that the swelling in the abdominal region disappeared with it. With the same diet, the lesions on the skin decreased at the end of the sixth month (PGA score: 2) and completely disappeared at the end of the ninth month (PGA score: 1, terminated).
CONCLUSION: Foods that have positive contributions to our health beyond their basic nutritional properties are called functional foods. It has been shown that nutrients have positive effects on our health and contribute to the prevention of chronic diseases. Although various treatments are applied in psoriasis, it should be kept in mind that nutrition therapy may also play a role among these treatments, studies in this direction should be expanded.
Keywords: psoriasis, functional nutrition, biochemical parameters

S157
EVALUATION OF THE EFFECT OF HEALTHY NUTRITION AND REACHING NORMAL BODY WEIGHT ON BIOCHEMICAL PARAMETERS IN ANOREXIA PATIENTS

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BACKGROUND AND AIM: Our aim is to shed light on the studies to be done in the nutritional treatment of the disease by revealing that the adequate and balanced nutrition program we apply in anorexia disease can be corrected with the biochemical parameters that develop with the weight loss caused by the disease.
MATERIALS and METHODS: The patient who applied to our clinic with 44 kg and 17 BMI was given a healthy diet program rich in vitamins and minerals such as omega-3 fatty acids, iron, zinc, B12, supplemented with 60% carbohydrates, 20% protein and 20% fat for 2 years.
RESULTS: In the examinations of patient who applied to our clinic with a BMI of 44 kg,17 2 years ago, AST 56 U/L, ALT 77 U/L, hemoglobin 11.3 g/dl, ferritin 20.7 ug/L were found. At the end of the first year of our nutritional therapy, our patient's biochemical tests showed that AST 37 U/L, ALT 31 U/L, hemoglobin 14.5 g/dl, ferritin 23 ug/L were measured, a weight of 54 kg, a BMI of 18 were reached. At the end of the 2nd year, AST was 23.7 U/L, ALT was 16.1 U/L, hemoglobin was 14.6 g/dL, ferritin was 24.8 ng/ml. In addition, with visible improvements in hair and skin structure, our patient reached 60 kg, 22 BMI.
CONCLUSION: In addition to the psychological support applied in anorexia disease, it is thought that an adequate, balanced nutritional support will be effective in the treatment of the disease, shorten the hospital stay, reduce mortality rates.
Keywords: anorexia, eating disorders, healthy diet, BMI

S158
PHENYLALANINE AND TYROSINE LEVELS DETECTION IN COLOSTRUM AND MATURE MILK BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY AND AFFAIR WITH MATERNAL NUTRITION

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BACKGROUND AND AIM: Breast milk is complex biological fluid containing all components that support newborn's optimal growth and development. Phenylalanine and tyrosine amino acids are involved in catecholamine, melanin and thyroid hormone's synthesis. Any disorder in their metabolism causes many diseases. In this study, it was aimed to develop HPLC method to determine phenylalanine and tyrosine levels in colostrum and mature milk, and to examine relationship between obtained levels and maternal nutrition.
MATERIALS and METHODS: Colostrum and mature milk samples were collected from 20 mothers and 24-hour recall was taken before squeezing. Phenylalanine and tyrosine levels in samples were determined by HPLC method. Via 24-hour recall, energy,

protein, phenylalanine and tyrosine levels of mothers' diet were calculated by BeBis 8.2 program. Statistical analyzes were evaluated using SPSS 25 and Microsoft Excel 2019.
RESULTS: With developed and validated HPLC method, retention time for tyrosine and phenylalanine was determined as 2,9 and 7,3 minutes. Colostrum and mature milk period mean phenylalanine (96,56±17,20mg/dL; 42,70±3,47mg/dL) and tyrosine (64,65±12,48mg/dL; 48,18±7,30mg/dL) levels were calculated, both levels were found to be higher in colostrum period($p<0,001$). It was observed that there was relationship between amount of phenylalanine and tyrosine taken by mothers before colostrum squeezing and colostrum phenylalanine and tyrosine levels($p<0,05$), but in mature milk, these levels weren't related to maternal nutrition($p>0,05$).
CONCLUSION: In this study, HPLC method was developed, validated and examined to determine total phenylalanine and tyrosine levels in colostrum and mature milk. Since number of worldwide studies about this subject is low, future studies are needed.
Keywords: Colostrum, Mature milk, Phenylalanine, Tyrosine, HPLC

S159
A SELECTIVE COLORIMETRIC REAGENT FOR SELENIUM ASSAY

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BACKGROUND AND AIM: For the first time in the world, development of an IVD assay with a colorimetric method for the essential trace element Selenium and its use in biochemistry autoanalyzer as a commercial kit was evaluated.
MATERIALS and METHODS: The new precise colorimetric method to determine the amount of selenium in 570nm via its specific new synthetic color detector (dinitrophenyl hydrazine) in human samples.
Selenium results of 504 human serum and urine was tested with ICP-MS first. By using related colorimetric assay in the Olympus AU-series, results were compared with ICP-MS.
Linearity, LOD, LOQ, interferences, stability, and performances were tested according to CLSI EP05-A3 and EP10-A3 guidelines.
RESULTS: Based on our comprehensive study, all the parameters were evaluated.
Our findings reveal high correlation between ICP-MS and related colorimetric assay. Sensitivity and specificity of the colorimetric method was assessed and shows appropriate in comparison with reference method. The interference of other ions in this method was not more than 2%.
CONCLUSION: The method needs neither heating for the complete color development nor extraction into any organic phase. The proposed method has been successfully applied to the determination of traces of selenium in human urine and serum samples. High-throughput Colorimetric Selenium assay kit can be used in all biochemistry auto-analyzers succesfully instead of the gold-standard method in clinical laboratories to facilitate the procedures of the tests and accelerate it too. The most important reflection of this development will be that it represents an economically highly profitable and effective option for every laboratory worldwide.
Keywords: SELENIUM, COLORIMETRIC, AUTOANALYZER, ICP-MS, CLSI

S160
INVESTIGATION OF SERUM ISCHEMIC MODIFIED ALBUMIN, GALECTIN-3, PARAOXONASE-1, AND MYELOPEROXIDASE ACTIVITY LEVELS IN PATIENTS WITH ACUTE BRUCELLOSIS

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BACKGROUND AND AIM: Infection remains current as an important discussion topic in the etiological factors of atherosclerosis. Ischemic modified albumin (IMA), galectin-3 (gal-3), paraoxonase-1 (PON-1) and myeloperoxidase (MPO) are biomolecules that play an important role in the pathogenesis of atherosclerosis. Our aim in this study is to investigate serum IMA, gal-3, PON-1 and MPO activity in acute brucellosis infection.
MATERIALS and METHODS: Forty patients with acute brucellosis and 40 healthy individuals were included in the study. Serum IMA, gal-3, PON-1, and MPO activity were analyzed by ELISA method.
RESULTS: In acute brucellosis infection, serum gal-3, IMA and MPO activities were found to be significantly increased compared to the control group, and PON-1 activity was found to be significantly decreased compared to the control group ($p<0.001$). There was a positive correlation between serum IMA and MPO activity ($r=0.707$ $p=0.000$) and a negative correlation ($r=-0.943$, $p=0.000$) between PON-1 activity. There was a positive correlation between serum gal-3 and MPO activity ($r=0.683$ $p=0.000$) and IMA level ($r=0.927$ $p=0.000$) and a negative correlation between PON-1 activity ($r=-0.951$ $p=0.000$).
CONCLUSION: In our study, it was found that serum gal-3, IMA levels and MPO activity increased, while PON-1 activity decreased. These results showed that the oxidant anti-oxidant balance is impaired in acute brucellosis infection. In addition, these results indicate that brucellosis infection may increase the risk of atherosclerosis. Further studies are needed to support our findings.
This study was supported by Mardin Artuklu University-Scientific Research Projects Coordinatorship (MAÜ.BAP.20.SHMYO.022).
Keywords: ima, galectin3, pon1, mpo, atherosclerosis, acute brucellosis

S161
EVALUATION OF SERUM NRF2 AND NF-KB LEVELS IN PATIENTS WITH TYPE 2 DIABETIC NEPHROPATHY

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BACKGROUND AND AIM: In this study, our aim is to evaluate the relation between oxidative stress/inflammation by comparing hemodialysis(HD), peritoneal dialysis(PD), nondialysis chronic kidney disease(CKD) patients and healthy individuals diagnosed with diabetic nephropathy(DN). We compared the levels of nuclear factor erythroid2-related factor 2(Nrf2) and nuclear factor-kappa-B(NF-kB), which is closely related to DN.
MATERIALS and METHODS: 16 nondialysis CKD patients(57.9±7.01,8 males,eGFR 38.2±20.5 mL/min/1.73m^2),23 HD patients(56.09±12.22,14 males,dialysis duration 3.22±1.44 years),17 PD patients(54.18±15.64,11 males,dialysis duration 2.88±1.11years)with DN and 17 healthy individuals(52.2±3.24,10 males)were included in the study.NF-kB(ng/mL) and Nrf2(ng/mL)

levels were analyzed by ELISA from serum samples.
RESULTS: Nrf2 was significantly higher in HD patients(41,25±27,14) when compared to nondialysis CKD patients(11.7±17.29,p=0.001*) and PD patients(6.4±1.95,p=0.001*) but similar to healthy individuals(31.89±22.47, p = 0.611).NF-kB in HD patients(0,14±0,08),PD patients(0,13±0.11,p=0.426) and nondialysis CKD patients(0.21±0.18,p=0.35) were significantly higher when compared to healthy individuals(0.09±0.06,p=0.039*). There was no statistically significant correlation between the groups but Nrf2 was positively poor correlated with levels of NF-kB in PD patients(r=0.33,p=0.9) and nondialysis CKD patients(r= 0.144, p=0.594).By contrast, Nrf2 levels were inversely correlated with NF-κB levels
(*r*=−0.65,=0.003) in HD patients(r=-0,318,p =0,139) and healthy individuals(r=-0.117,p=0.622).
CONCLUSION: The interaction between Nrf2 and NF-κB is very complicated and poorly understood. Both endogenous Nrf2 activation and suppression are present in CKD.We demonstrated an increase in serum Nrf2 and NF-KB in HD patients.Serum Nrf2 and NF-KB levels are increased in HD patients.It was observed that Nrf2 decreased and NF-KB increased in PD and CKD patients. More research is needed to evaluate the relationship between Nrf2 and NF-κB expressions and nutritional status, stage of kidney disease, or immune deregulation.
Keywords: Nrf2, NF-kB, Hemodialysis, Chronic kidney disease, Diabetic nephropathy

S162
HOW TO UTILIZE GENE EXPRESSION OMNIBUS (GEO) DATA SETS IN PATHWAY-BASED BIOMARKER STUDIES: CHOLANGIOCARCINOMA CASE

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The advances in health technology within recent decades have accelerated the accumulation of data in health science, considered as fundamental of personalized medicine. Gene Expression Omnibus (GEO) data sets becomes integral part of conducted studies in health informatics to capture the similarity and differences in gene expression patterns within designed cohorts that were designed to explain more about specific questions. Within the scope of this study, we select GEO datasets of Cholangiocarcinoma(CCA) cases both in intrahepatic CCA(iCCA) and extrahepatic CCA(eCCA) to identify potential genes as biomarkers. Since the molecular mechanism of CCA is not yet fully understood, the treatment response and 5-year survival rates are so low and hence there is a continuous need for biomarker(s) that could be used for varied purposes including early diagnosis or differentiating sub-types for effective treatment.
Herein, we selected GSE45001(iCCA), GSE76311(iCCA) and GSE132305(eCCA) data sets to represent iCCA and eCCA cases, and we set a study pipeline including statistical and computational approaches to elucidate significant pathway in CCA cases and CCA-related missense variants in selected genes. We reported 5 common pathways between iCCA and eCCA, and then gene components were further analyzed in terms of missense variants either being already associated with CCA or not. We identified *COL1A1*, *COL1A2*, and *MMP7* genes were promising biomarker candidates in CCA, in which
COL1A1 and *COL1A2* can distinguish iCCA from eCCA. Also, we reported different CCA-associated variants genes in iCCA (*ANLN, COL1A1, COL1A2, DSG2, ESRP1 & SPINK1*) and eCCA (*FN1, JUP, MYH14 & PLA2G7*).
Keywords: Tumor marker, In silico, Gene bioinformatics, Cancer

S163
COVIID-19 AND VACCINATION

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BACKGROUND AND AIM: Vaccines are the most cost-effective, efficient and effective means to control the coronavirus disease (COVID-19) pandemic. The aim of this study is to retrospectively evaluate the antibody levels checked in our hospital after the vaccines used in our country.
MATERIALS and METHODS: 70 (44.0%) women and 89 (56.0%) men participated in this retrospective study. Patient information was obtained from the hospital automation system. IgG antibody levels were measured using the Electro-Chemiluminescence Immunoassay (ECLIA) method with Elecsys Anti SARS COV2 S commercial kits belonging to Roche Diagnostics International Ltd CH-6343 Rotkreuz Switzerland in the Roche-Cobas e601 device. The data were evaluated with the SPSS 24 statistical program. P<0.001 was considered significant.
RESULTS: The mean age of women was 37.21±9.95 and men 37.42±9.73, and there was no significant difference (p=0.898). Sinovac was the most common first and second vaccine (86.8%), respectively. As the third vaccine, Biontech was the most used (59.7). The antibody levels after the first two vaccines were found to be >250 (U/mL) in 12 (7.5%) people while after the third vaccination were found to be >250 (U/mL) in 139 (87.4%) participants. PCR results of 126 (79.2%) people for Covid-19 were negative. 1 (0.6%) person had PCR positivity after the first vaccination, 6 (3.8%) after the second vaccination, and 8 (5.0%) after the third vaccination.
CONCLUSION: After the first two vaccinations, immunity developed and antibody level increased. The increase in antibody titer after the third vaccination is significantly higher than after the first two vaccinations.
Keywords: covid19, vaccination, pcr, anticor titer

S164
THE RELATIONSHIP OF SYSTEMIC IMMUNE-INFLAMMATORY INDEX AND CLINICAL FINDINGS IN CHILDREN DIAGNOSED WITH INFECTIOUS MONONUCLEOSIS

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BACKGROUND AND AIM: Epstein-Barr virus (EBV), one of the etiological agents of infectious mononucleosis (EMN), is a latent infectious herpes virus responsible for the etiology of various lymphomas and posttransplant lymphoproliferative disease. In this

retrospective study, the relationship between the systemic immune-inflammation index (SII) and clinical findings in EMN patients was investigated.
MATERIALS and METHODS: Clinical and laboratory findings of 70 patients diagnosed with primary EMN who applied to the pediatric outpatient clinic between 2015-2001 were scanned. 70 healthy children who came to the hospital with various complaints and did not have any disease were included in the study as the control group.
RESULTS: SII, neutrophil lymphocyte ratio (NLR), platelet lymphocyte ratio (PLR) and CRP levels were found to be higher in EMN patients compared to the control group, while the lymphocyte-monocyte ratio (LMR) and lymphocyte CRP ratio (LCR) were statistically significantly lower. SII, NLR, PLR and CRP levels increased, LCR and LMR decreased, patients with lymphadenopathy and tonsillar hypertrophy were statistically significantly different from patients without.
CONCLUSION: The inflammatory process in EMN can accelerate the apoptosis of lymphocytes while stimulating the synthesis of neutrophils. According to our results, increased SII may be associated with a severe course of the disease. EMN may cause different clinical findings apart from the classical findings. EMN can be confused with viral or bacterial infections and malignancies. In the differential diagnosis, inexpensive, easily applicable, noninvasive parameters such as SII, NLR, LCR, LMR, PLR and CRP should be considered and patients should be followed in this regard.
Keywords: infectious mononucleosis, systemic immuneinflammation index, neutrophil lymphocyte ratio, platelet lymphocyte ratio, lymphocyte monocyte ratio, lymphocyte crp ratio

S165
DETERMINATION OF S100A12, SRAGE PROTEIN&GENE EXPRESSION LEVELS IN FAMILIAL MEDITERRANEAN FEVER PATIENTS, THEIR RELATIONSHIP WITH INFLAMMATION MARKERS

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BACKGROUND AND AIM: This study was conducted to elucidate the relationship of S100A12 protein with inflammation in patients with FMF and to determine the role of sRAGE (soluble receptor of S100A12) in the prevention of inflammation.
MATERIALS and METHODS: Study was 121S193 numbered TUBITAK-1002 project. Three groups were formed. Control, consisted of healthy, remission and attack group consisted of voluntary FMF patients carrying the M694V mutation. Routine parameters and TNF-α, IL-1β, NF-Kβ, S100A12, AGE and sRAGE protein levels were measured from blood samples taken from volunteer patients who applied to Rheumatology Polyclinic. In addition, mRNA levels of TNF-α, IL-1β, NF-Kβ, S100A12 and RAGE genes were investigated by RT-qPCR.
RESULTS: IL-1β was found highest in remission group and plasma protein levels of TNF-α, S100A12 and sRAGE were increased significantly in the attack ($p<0,05$). Significant fold changes in mRNA levels of TNF-α, IL-1β and S100A12 detected in the attack group. A positive correlation was found between S100A12 and NF-Kβ mRNA levels. A strong positive correlation was observed between S100A12 protein and CRP levels, significant increase in the sRAGE protein level in the attack without any change in the RAGE gene expression level.
CONCLUSION: Results show that S100A12 is associated with inflammatory processes in FMF. In addition, it was thought that the increase in S100A12 may lead to the cleavage of the RAGE receptor by metalloproteases and thus it can play role in the formation of sRAGE. The increase in the amount of sRAGE shows that sRAGE is an important protein in prevention of inflammation.
Keywords: fmf, ınflammation, s100a12, srage, m694v

S166
ANTI-CANCER POTENTIAL OF CURCUMIN IN ANAPLASTIC THYROID CANCER

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BACKGROUND AND AIM: Anaplastic Thyroid Cancer (ATK); It is one of the aggressive malignancies whose potential molecular mechanisms have not been elucidated and is the 9th among common cancers. It is resistant to existing cytostatic agents.To support the current therapy, the antimetastatic property of Tetrahydrocurcumin (THC) was compared with DX and in-vitro studies were conducted to demonstrate synergism in combination use.
MATERIALS and METHODS: IC25 and IC50 concentrations of THC and DX in CAL62 and 8505C cell lines were determined by the modified MTT method we developed. Cell motility, indicative of metastatic potential; In-vitro wound healing method and 3D colony formation potential were evaluated with Agarose Gel Spheroid Model. The effects of treatments on oxidation on cells were evaluated by TAS and TOS analyzes. SPSS program was used in the evaluation. Compliance with normal distribution (Kolmogorov-Smirnov/Shapiro-Wilk tests), comparison of groups was evaluated with ANOVA, Significance, Holm-Sidak test.
RESULTS: In migration analysis; It was observed that the THC50 dose decreased the migration significantly compared to the DX50 and DX+THC (Combined) groups ($P<0.05$). DX+THC; It was observed that it reduced spheroid formation the most, and there was a close effect between this dose effect and the THC25 dose in terms of spheroid formation and numbers ($P<0.05$). There was no statistically significant difference in Total Oxidant level between the combination and control.
CONCLUSION: We predict that THC may be effective in metastasis and tumor growth at low doses in ATK cells. We think that in combined use, THC reduces the oxidative stress of DX.
Keywords: oxidative stress, antineoplastic, Migration

S167

S168
KNOCKDOWN OF MIR-182 INCREASES APOPTOSIS AND CELL CYCLE ARREST AT G2/M PHASE IN WWOX-DEFICIENT BREAST CANCER CELLS

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BACKGROUND AND AIM: Breast cancer is the most common type of cancer and a major cause of mortality among women. Studies have shown that dysregulated miRNA expression plays a role in the initiation and progression of breast cancer. Although different miRNAs associated with cisplatin resistance have been targeted, especially in WWOX-deficient triple negative breast cancer (TNBC), there is no study yet on the possible relationship between cisplatin resistance and miR-182. The aim is to reveal whether cisplatin resistance in the WWOX-deficient TNBC cell line is due to increased expression of miR-182.
MATERIALS and METHODS: miR-182 knockdown was performed in the MDA-MB-231 human TNBC cells using antimiR-182 oligonucleotides. Knockdown was confirmed by qRT-PCR. Cisplatin was treated to the cells in the both knockdown and control groups. Apoptosis analysis was performed by staining the treated cells with PI (propidium iodide) and Annexin V. Cell cycle analysis was performed by using flow cytometry staining the same cells with PI.
RESULTS: When the cells treated with antimiR-182 oligonucleotides and cisplatin were compared with cells treated with only cisplatin a 12.58% increase was found in apoptosis. In cell cycle analysis with flow cytometry, when cells treated with antimiR-182 and cisplatin were compared with cells treated with only cisplatin an increase of 10,49% was found in the G2/M phase.
CONCLUSION: As a result, knockdown of miR-182 expression in WWOX-deficient TNBC cells may play a role in reducing cisplatin resistance by increasing apoptosis and cell cycle arrest at the G2/M phase. Further studies are needed for precise results.
Keywords: cell cycle, cisplatin resistance, breast cancer, miR-182, apoptosis

S169
EFFECTS OF NRF2 INHIBITION ON CHEMOSENSITIVITY IN COLORECTAL CANCER

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BACKGROUND AND AIM: Colorectal cancer is a significant disease with high mortality. Side effects and drug resistance are several problems in treatment. Therefore, new treatment strategies are needed. The aim of the study was to examine the effect of Nrf2 inhibitor on irinotecan chemosensitivity.
MATERIALS and METHODS: HCT-116 and HT-29 were used. First, the effect of Nrf2 inhibitor ML385 on cell viability was determined by SRB. IC_{50} was determined by using logarithmic doses of irinotecan. IC_{50} change was examined by administering ML385 and irinotecan in combination. Colony formation assay was performed at combination doses and efficacy was analyzed by counting the colonies.
RESULTS: 25 and 50 µM ML385 caused a decrease in viability when applied alone. The IC_{50} of irinotecan was 4.42 and 6.34 µM for HCT-116 and HT-29, respectively. The efficacy of irinotecan combined with 50 µM ML385 in HCT-116 cells increased for low doses, but no differentiation was observed at higher doses. No difference was observed in HT-29 cells. 0.01 µM irinotecan+50 µM ML385 treatment in HCT-116 cells caused less colony formation than 0.01 µM irinotecan alone. On the other hand, 0.1 µM irinotecan+50 µM ML385 application did not differ from 0.1 µM irinotecan alone.
CONCLUSION: Nrf2 inhibition increased the chemosensitivity of irinotecan at lower doses in HCT-116 cells. This effect was not seen in HT-29 cells. It is known that the KRAS mutation found in HCT-116 cells is responsible for the increased activity of Nrf2. This suggests that KRAS mutant cells may be more sensitive to Nrf2 inhibition.
Keywords: Nrf2, ML385, Chemosensitivity, KRAS

S170
THE EFFECTS OF SUGAR:PROTEIN RATIO AND CONCENTRATIONS ON REDOX HOMEOSTASIS IN DROSOPHILA MELANOGASTER DIET MODEL

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BACKGROUND AND AIM: Drosophila melanogaster is a model organism widely used in the evaluation of the mechanism of various diseasesand nutrition studies.
We evaluated the oxidative stress parameters and redox status in the groups formed by changing the sugar/protein ratio as well as the sugar-protein concentrations.
MATERIALS and METHODS: In our study, mediums were prepared with sugar/protein ratios as 4 fold and 2 fold containing 25 flies/each medium. Subgroups were formed by changing the sugar and protein concentrations in these media.
According to this procedure we prepare 3 groups;
Group 1: The sugar / protein ratio was 4 and the protein concentration was 3.33%
Group 2: The sugar / protein ratio was 4 and the protein concentration was 6.66%
Group 3: The sugar/protein ratio is 2 and the protein concentration was 6.66%
Redox status (RS), advanced oxidation protein products (AOPP), dityrosine (DT), kynurenine (KN), lipid hydroperoxide (LHP), advanced glycation end products (AGE), total thiol (T-SH) concentrations and Cu,Zn-superoxide dismutase (Cu,Zn-SOD) activities were analyzed.
RESULTS: RS was found to be higher in the group 2 and group 3 compared to the group 1 ($p<0.05$). AOPP and LHP, DT, KYN, AGE levels were lower in Group 1 than Group 2 ($p<0.05$), DT, KYN, AGE were higher in Groups 1 and 2 compared to Group 3 ($p<0.05$), TSH Groups 1 and 2 were lower than Group 3 ($p<0.05$); SOD activity was found to be lower in Group 2 compared to Group3 ($p<0.05$).
CONCLUSION: Dietary protein may be protective against possible oxidative stress caused by carbohydrates.
Keywords: Drosophila melanogaster, Oxidative stress, Protein, Redox status, Sugar

S171
THE ROLE OF MIR-204-3P, MIR-223-3P AS AN EPIGENETIC FACTOR AND ITS TARGETED CTLA-4 AND DTX1 IN FAMILIAL MEDITERRANEAN FEVER

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BACKGROUND AND AIM: Familial Mediterranean fever (FMF) is the most common inherited autoinflammatory disease in the world. We attempted to investigate the efficacy of serum miR-204-3p, miR-223-3p, plasma pyrin, deltex 1 (DTX1), CTLA-4 levels in FMF patients and their relationship with the pathogenesis and progression of the disease.
MATERIALS and METHODS: Forty-eight children with FMF and 36 healthy children were included in the study.
RESULTS: There was no statistical significance between the groups in plasma CTLA-4 levels. Serum miR-204-3p, miR-223-3p, plasma DTX1 levels were found to be significantly lower in FMF patients compared to the control group, while plasma pyrin levels ($p<0.05$, in all) were significantly higher. A positive correlation was found between CTLA-4 levels and pyrin and DTX1 levels ($r=0.602$; $p<0.001$; $r=0.740$; $p<0.001$, respectively).
CONCLUSION: miR-204-3p and miR-223-3p may be effective in the pathogenesis of FMF. Increased plasma levels of the pyrin protein encoding the MEFV gene may have an important role in apoptotic and inflammatory signaling pathways. Increasing pyrin may increase the sensitivity of putative pyrin inflammasomes as FMF mutations. A decrease in DTX1 levels and a positive correlation between DTX1 and CTLA-4 suggest that subclinical inflammation may continue in attack-free periods in FMF patients.
Keywords: deltex1, disease activity, mir2043p, mir2233p, Familial Mediterranean fever, cytotoxic T-lymphocyte antigen 4

S172
DETERMINATION OF EXPRESSION OF MiR-150-3P AND MiR-155-3P IN COVID-19 CASES

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BACKGROUND AND AIM: COVID-19, caused by SARS-CoV-2, continue to shake the whole world deeply. There are not enough studies yet on how the virus affects host cell metabolism. Experiencing various health problems after COVID-19 increased the importance of combating this disease. As COVID-19 causes a wide range of damage, examining miRNAs expression, that function in controlling the entire metabolism, may contribute to the understanding of the disease mechanism. We aim to evaluate the effects of COVID-19 in terms of miRNAs.
MATERIALS and METHODS: Our study samples included COVID-19 RT-PCR (+) patients hospitalized in the intensive care and healthy individuals. Targeted miRNAs were isolated from the subjects' whole blood. Target genes miR-150-3p and miR-155-3p expressions for the two groups were determined by RT-PCR. The data was calculated according to 2-ΔΔCt and evaluated by the Mann-Whitney U test and $p<0.05$ was considered significant.
RESULTS: 21 intensive care patients, 11 female and 10 male, with a mean age of 70.8±17.9 years, and 80n% with comorbid diseases (hypertension, diabetes, etc.); The control group included 18 individuals, 6 female and 12 male, with a mean age of 37.4±7.7 years, and 15 % with comorbid disease (hypothyroidism). Analytically, no significant difference was observed between miRNAs expressions in COVID-19 cases and the healthy group (miR-150-3p $p=0.09$; miR-155-3p $p=0.2$).
CONCLUSION: Considering that the exact day of infection in patients hospitalized in the intensive care unit may have affected the results of our study, we think that further studies should be supported to explain the relationship between miRNA and COVID-19
Keywords: COVID-19, miRNA, SARS-CoV-2

S173
EFFECT OF WHEY PROTEIN DERIVATIVES ON CELL VIABILITY, CELL MIGRATION AND CELL CYCLE PHASES IN MCF-7 CELLS

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BACKGROUND AND AIM: This study aimed to obtain protein derivatives after treatment of whey proteins with hazelnut and olive oil and determine their effects on MCF-7 cells.
MATERIALS and METHODS: Whey proteins (WP) obtained from 6% whey powder were treated with hazelnut oil (HO) and olive oil (OO) at a protein to lipid ratio of 1:10 at 60 ℃ for 120 minutes. The protein derivatives formed with whey protein and hazelnut oil, or olive oil were applied to MCF-7 cancer cells and healthy fibroblasts. The effects of protein derivatives on cell viability, apoptosis, reactive oxygen species (ROS) production, wound healing, cell cycle phase distribution and cell cycle related proteins Akt and p21(Waf1/Cip1) expressions were investigated.
RESULTS: Cell viability decreased significantly after 24 h of incubation with WP:OO. The percentage of apoptotic or necrotic cells varied between 5-10% and no statistically significant effect was observed. There was no statistically significant difference in ROS production and colony formation between controls and WP:HO or WP:OO groups. Treatment of cells with WP:OO for 24 h significantly decreased cell migration compared to the control group. G2/M phase was significantly suppressed in WP:OO group compared to the control group. WP:OO also increased the expression of p21(Waf1/Cip1) significantly when compared with the control group.

CONCLUSION: It was determined that milk serum protein derivatives applied to MCF-7 cell line were cytotoxic and the effect of WP: OO derivative on cell migration, cell cycle and expression of related proteins was significant.
Keywords: whey protein, oleic acid, cell survival, apoptosis, cell cycle

S174
CONTAGIOUS INTERFERENCE WITH K3-EDTA TUBE IN IRON AND UNSATURATED IRON BINDING CAPACITY PARAMETERS: CASE REPORT

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BACKGROUND AND AIM: A case will be presented as an example of how iron and unsaturated-iron-binding-capacity (UIBC) levels are affected as a result of contamination with K3-EDTA during blood collection.
MATERIALS and METHODS: A 23-year-old male patient admitted to the emergency room with abdominal pain lasting for several days revealed gallbladder stones and common bile duct dilatation on CT. In routine biochemical tests of the patient, serum iron was 71 µg/dl. The UIBC was found at 25276 µg/dl by using 1/50 dilution. Analyzes were made on Roche Cobas-8000 device.
RESULTS: Hemolysis, lipemia, and icterus indices were normal. That was learned that there were no present illnesses or history of drug use that could explain such a high UIBC from the relevant clinician. Considering the literature research, it was thought the blood might have been contaminated with K3-EDTA. Ca and K were tested again with the patient's serum in our archive and Ca was -0.78 mg/dl and K was 34.55 mmol/L. When tests were studied on newly taken blood, it was found that iron was 351 µg/dl and UIBC, 178 µg/dl. According to the examination at the blood collection unit, it was observed that some personnel did not comply with the order of taking blood into the tube. In order that it was concluded that iron might have been chelated as a result of contamination of the blood with K3-EDTA, and UIBC was affected due to interference.
CONCLUSION: Contamination with EDTA can seriously affect the results of tests such as iron and ESBC.
Keywords: Iron, Preanalytical error, K3-EDTA, UIBC

S175
EFFECT OF HEMOLYSIS ON BIOCHEMISTRY TESTS AND ACCEPTABLE THRESHOLD VALUES ACCORDING TO TESTS

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BACKGROUND AND AIM: In this study, it was aimed to determine the acceptable threshold values of hemolysis with the effect of hemolysis on routine biochemistry tests.
MATERIALS and METHODS: A serum pool was created using the sera of 20 healthy individuals with a hemolysis-index (HI) >10. K3-EDTA blood was centrifuged at 5000 g for 5 minutes and washed 3 times with 0.9% NaCl. Hemolysate was obtained with distilled water. Using serum pool and hemolysate, serum samples were created at 0, 20, 50, 100, 200, 300, 400, 500, 600 and 1000 mg/dL hemoglobin (Hb), respectively. Routine biochemistry analyzes (Roche-Cobas 8000) of the tests were performed to evaluate the effect of hemolysis on test results according to CLIA-88 and AAB criteria.
RESULTS: In HI corresponding to 50 mg/dL Hb, AST, LDH and potassium results were positively affected, while direct bilirubin was negatively affected. It was observed that at 300 mg/dL Hb, GGT was negatively affected, while iron, UIBC and CK were positively affected. While ALT was positively affected at 500 mg/dL, ALP, uric acid and phosphorus were negatively affected at 600 mg/dL. It was found that urea was positively affected at 1000 mg/dL, while amylase and calcium were negatively affected. No changes exceeding the criteria were observed in total protein, albumin, total bilirubin, magnesium, ferritin and troponin-T tests.
CONCLUSION: In the biochemistry laboratory, the initial HI threshold value is 50 mg/dL, where AST, LDH, and potassium tests are affected. When the threshold HI value is exceeded, reporting of the corresponding test is not appropriate.
Keywords: AST, Hemolysis index, LDH, Potassium, Threshold value

S176
RELATIONSHIP OF COVID-19 AND THYROID FUNCTIONS

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BACKGROUND AND AIM: In this study, we aimed to investigate the relationship between thyroid functions and COVID-19.
MATERIALS and METHODS: The study included 173 patients hospitalized in the COVID wards. Clinical features, laboratory data, treatments in the service, and prognosis data were analyzed. Free thyidothyronine (fT3), free thyroxine (fT4), thyroid stimulating hormone (TSH), anti-thyroglobulin antibody (Anti-TG), anti-thyroid peroxidase antibody (Anti-TPO) levels were measured from venous blood samples taken from the patients. Patients were grouped according to disease severity, need for intensive care, mortality and thyroid dysfunction (TD) conditions.
RESULTS: TD was detected in 39 (22.5%) of 173 patients diagnosed with COVID-19 included in the study. In patients diagnosed with COVID-19 with TD, compared to patients without TD; serum urea, creatinine, c-reactive protein, fibrinogen, erythrocyte sedimentation rate, d-dimer, Troponin I and prothrombin time levels were higher and lymphocyte, platelet, eosinophil and basophil counts were lower. Serum fT3 and TSH levels were lower in patients with high disease severity. It was observed that patients with TD needed more intensive care unit and the disease progressed more severely. The hospitalization period of patients with TD was found to be longer than patients without TD (9.66 days vs. 15.31 days, $p<0.001$). Patients with TD had a significantly higher mortality rate (10.3% vs. 0.7%, $p = 0.002$).
CONCLUSION: Our study shows that TD is associated with disease severity and mortality in patients with COVID-19. We suggest

that routine examination of thyroid functions in newly diagnosed COVID-19 patients is instructive in terms of predicting prognosis and arranging treatment.
Keywords: COVID-19, SARS-CoV-2, thyroid function tests, thyroid dysfunction

S177
DETERMINATION OF THE EFFECTS OF INFLAMMATORY MARKERS ON MORTALITY İN İNTENSIVE CARE PATIENTS

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BACKGROUND AND AIM: MPV, NLR, PLR and RDW play important role as effective factors in predicting mortality and morbidity in various diseases. In the present study we aimed to assess and compare MPV, NLR, PLR and RDW of survived and non-survived patients by examining the blood samples taken within the first hour after admission to our intensive care unit.
MATERIALS and METHODS: This retrospective study included 672 patients who were hospitalized in a mixed 16 bed ICU between January 2019 and January 2020. By examining our hospital's computer-based data system, patient data of the survived and non-survived patients who were treated in the intensive care unit (ICU) were analyzed.
RESULTS: The demographic parameters of the patients (gender), concominant disease, and laboratory parameters including Htc, PLT, WBC, MPV and PLR were not significantly different between the survived and non-survived patients. RDW, albumin, CRP and NLR were found statistically different between the study groups.
CONCLUSION: The elevated RDW, NLR and CRP levels were found more significant than the other inflammatory markers for determining mortality of the critically ill patients. In addition, evaluation of albumin level was found important in defining the prognosis of the intensive care unit patients.
Keywords: Mean platelet volume, neutrophil to lenfosit ratio, platelet to lymphocyte ratio, red cell distribution width, intensive care, mortality

S178
DETERMINING THE CONCENTRATION OF SdLDL USING PLASMA LIPIDS AND LIPOPROTEINS WITH MACHINE LEARNING METHOD

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BACKGROUND AND AIM: Plasma lipid and lipoprotein concentrations play an important role in determining the risk of atherosclerotic cardiovascular disease.The determination of LDL subclasses, especially the analysis of sd-LDL, is more important in determining the risk of disease. However, the clinical application of the analytical methods used in the analysis of sd-LDL is limited due to the difficulty and high cost. In this study,we aimed to determine sd-LDL using plasma lipids and lipoproteins by deep learning method.
MATERIALS and METHODS: The study included 750 patients diagnosed with CAD. Plasma lipid and lipoprotein levels were measured were measured by autoanalyzer in routine biochemistry laboratory. LDL subclasses were analyzed by the Quantimetrix lipoprinting system.Using the data obtained from routine analyzes, the values closest to the sdLDL results obtained with the kit were derived by training based on prediction using the deep learning method.The data set was adjusted to be 80% training and 20% testing according to the split validation method.The comparison of the two methods was made according to the bland-altman method.
RESULTS: Regression metric type was used from deep learning approaches.According to the deep learning results, the mean square error value of the model was 462.66, the root mean square error value was 21.5, the R^2 value was 0.87, the mean residual devince was 462.6 and the mean absolute error value was 16.23.
CONCLUSION: The R^2 value (0.87) obtained by the deep learning method is considered sufficient according to the number of samples used and the variables determined in the sub-fraction.
Keywords: lipoprotein, sdldl, deep learning, multilayer neural networks

S179
TELEMEDICINE IN URINALYSIS

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BACKGROUND AND AIM: Telemedicine is the practice of medicine using electronic and telecommunication technologies at a distance. We aimed to connect to Sysmex UN automated urine analyzer on-line in a study about the experimental parameter "atypical cells".
MATERIALS and METHODS: The research aimed to evaluate the performance of the instrument in this parameter. Accordingly, a modular unit composed of Sysmex UF-5000 flow cytomery instrument and Sysmex UD-10 digital imaging instrument was built. UF-5000 was completely automated, but digital images by UD-10 had to be revised by an experienced user. While the instrument, the urologist and other members of the study were located in Ankara, the expert pathologist to review the digital images joined the study from Antalya. The pathologist was able to reach the instrument on-line and perform any action possible on-board.
RESULTS: Final patient report was composed of flow-cytometric analysis performed by the instrument in a city and a decision comment performed by the pathologist living in another city. Every component of the study was located in Ankara whereas the only missing component was able to participate from Antalya owing to telemedicine.
CONCLUSION: As started with transforming information and images between telephones, the rise of the digital age has brought a plethora of applications. On-line validation of laboratory test results found to be feasible by most laboratories through the pandemic. We here describe a totally different experience where a pathologist reached the instrument from a distance and worked on it. We believe it will influence telemedicine applications in the near future.
Keywords: telemedicine, urinalysis

S180
FROM LABORATORY TO DIAGNOSIS: AN UNKNOWN CASE WITH HIGH CREATINE KINASE LEVELS

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INTRODUCTION: Many causes such as trauma, autoimmune diseases, ischemia, metabolic causes, toxic drugs, infectious agents and malignancy result in elevated serum CK (creatine kinase). In this case the importance of clinician-laboratory cooperation to reduce unnecessary test requests is emphasized.

CASE: An 18-year-old female patient was found unconscious in her room by her mother and was brought to the emergency room. Meaningless speech, limited orientation and cooperation were remarkable in the physical examination. The patient was admitted to the internal medicine service. A dramatic increase was observed in ALT, AST and CK activities within hours (Rosche Cobas c702). The patient, whose unconsciousness lasted for one day, described intense muscle pain when she became conscious. Since the patient declared no drug or substance use, clinician planned to elucidate the autoimmune and viral etiology. In our interviews with clinician, we reported that the patient's complete urinalysis results might indicate myoglobinuria. Spot urine myoglobin test was requested by clinician and patient was found to be myoglobinuric. In addition we found a very similar case in the literature and shared this case with the clinician. We reassessed the case together and the clinician started to consider the possibility of rhabdomyolysis due to drug intoxication, which was similar to the literature. The relatives of the patient were informed and the patient's mother found four empty boxes of sleeping pills. The patient confirmed her 80 tablets of doxylamine intake.
CONCLUSION: In this case; unnecessary test requests were prevented and hospitalization period was shortened by clinician-laboratory cooperation.
Keywords: ck, rhabdomyolysis

S181
DEVELOPMENT OF THE VITAMIN K METHOD AND DETERMINATION OF ITS REFERENCE INTERVAL

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BACKGROUND AND AIM: This study aimed to develop a measurement method with high sensitivity and specificity of K1, MK-4, and MK-7 sub-derivatives of vitamin K on an LC-MS/MS.
MATERIALS and METHODS: The dispersive liquid-liquid microextraction method was used for the separation of analytes. 500 ng/mL Vitamin K1-d7/methanol solution was used as internal standard, Methanol for protein precipitation, Hexane as an organic solvent, iso-Propanol as extraction solvent, and Methanol in isocratic flow as mobile phase. The reference interval determination study was carried out with the group selected from the samples of healthy individuals. R and Python programming languages were used for statistical analysis. The reference interval determination program, written in Python programming language, was run on the Google Colab platform. In the code, operations are programmed by the reference interval calculation standards determined by IFCC, using pandas, NumPy, matplotlib, and seaborn libraries.
RESULTS: As a result of the studies, Vitamin K1, K1-d7, MK-4, and MK-7 values were determined with 90% recovery in 0.88-4.82 minutes of retention time. 521 vitamin K results were included in the reference interval determination group data set. Non-parametric distribution was observed. After removing the outliers, the logarithmic transform was applied to the remaining 507 results and a normal distribution was obtained. The reference interval was calculated as 0.1-1.3 ng/mL by running the programmed reference interval calculation program.
CONCLUSION: As a result, the method of vitamin K and its sub-derivatives can be applied to different laboratories. The programmed reference interval determination program can be integrated into laboratory information systems.
Keywords: Vitamin K, Mass spectrometry, Reference interval

S182
IMPACT OF THE VITAMIN D ON TRACE ELEMENT AND MINERAL METABOLISM IN BONES OF A HIGH-FRUCTOSE DIET/STREPTOZOTOCIN-INDUCED TYPE 2 DIABETES MODEL

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BACKGROUND AND AIM: The incidence of type 2 diabetes mellitus (T2DM) is increasing every year. Bone metabolism is impaired in the diabetic individuals beside other adverse health effects. Vitamin D has considered as a possible treatment for T2DM, however impact of the vitamin D treatment on the bone metabolism has not been studied previously.
MATERIALS and METHODS: Eight-week-old male Sprague–Dawley rats were administered with a high-fructose diet and streptozotocin to make T2DM model. After 8 weeks bones were collected and acidic digestion via microwave were performed to hydrolyze the bones. 1 ml of digested bone sample was diluted in 9 ml of ultrapure water and trace and mineral elements were measured.
RESULTS: We evaluated Na, Mg, K, Ca, Se, Fe, Rb and Ba levels in the bone samples of rats belonging all groups. Na, Mg, Ca and Ba levels significantly increased in the control + vitamin D and diabetes + vitamin D compared to the control and diabetes groups respectively**.** Rb and Se levels significantly decreased in all groups compared to the control group, where higher in the groups diabetes + vitamin D groups compared to the diabetes group. Fe levels significantly increased in all groups compared to the control. K levels decreased in the control + vitamin D groups.
CONCLUSION: It is known the adverse effects of diabetes on bone metabolism via bone density measurements. We have shown impact of the vitamin D treatment on the trace element and mineral metabolism in bones of T2DM rat model.
Keywords: trace elements, d vitamini

S183
EVALUATION OF LABORATORY COST MANAGEMENT IN THE COVID-19 PANDEMIC

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BACKGROUND AND AIM: The aim of the study was to evaluate the impact of the COVID-19 pandemic on laboratory cost management.
MATERIALS and METHODS: The impact of the pandemic on cost management was assessed mainly by the number of routine biochemical parameters affected. The parameters 1 year before (2019), pandemic duration (2020) and 1 year after COVID-19 pandemic (2021) were evaluated. The effect of the change in test numbers on laboratory cost management, personnel requirement, reagent, analyzer and material supply were evaluated.
RESULTS: The 2019 and the 2020 test requests show that the use of D-dimer and CK tests increased 69.2% and 12.8%, respectively ($p<0.05$). The number of tests of CEA, CA-15-3, AFP and 25-OH Vitamin D tests decreased more than 100% when the 2019 and the 2020 were compared ($p<0.05$). The overall test score for D-dimer increased from 100,622.4 (year 2019) to 345,159.6 (year 2020). Total test scores for biochemistry and hormone parameters for 2019, 2020 and 2021 were calculated as 9,798,151.91, 7,224,240.35 and 9,696,602.57, respectively. The need for reagents, turnaround time and staff workload for D-dimer testing have increased.
CONCLUSION: This study showed that the increase in the use of D-dimer testing in the COVID-19 pandemic has a great impact on cost, analyzer and personnel management. For our laboratory, using devices with high analysis speed and test working capacity will be appropriate to reduce the cost and workload. This study might be guide laboratory cost managements about what precautions should be taken in the laboratory during the pandemic.
Keywords: laboratory cost management, pandemic, COVID-19, D-dimer

S184
THE ROLE OF CAPILAR PROTEIN ELECTROPHORESIS IN THE DIAGNOSIS OF MONOCLONAL GAMMOPATHY

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BACKGROUND AND AIM: 'M protein', which is synthesized by the proliferation of a single clone of plasma cells. M protein can be composed of all immunoglobulin types as well as heavy chains or light chains. In our study, immunofixation electrophoresis is recommended in the reports of patients required to confirm and define MG by interpreting the graphics in the reports of the samples for which capillary protein electrophoresis test is requested.
MATERIALS and METHODS: 208 serum samples were studied in the Sebia Minicap automated CPE device. Also, the IFE test was performed on 29 serum as reflex test without CPE.
RESULTS: Out of 208 CPE tests studied, 66 (31.7%) patients were recommended to study IFE by a biochemist. IFE was requested from 40 patients out of 66 patients who were recommended to study IFE. Monoclonal band was detected in 23 patients (57.50%) with IFE. IFE test was performed on 29 patients without CPE being studied. Monoclonal bands were detected in 6 (20.68%) of 29 patients in whom IFE was studied.
CONCLUSION: CPE is a cheap and simple method used to detect M protein in MG screening. In the presence of monoclonal protein in CPE, the result is considered abnormal and IFE is required to confirm and identify the monoclonal protein. In our study, it was found that the rate of monoclonal band detection with IFE among the patients who were interpreted for CPE was higher than the patients whose direct IFE was studied without the CPE being studied.
Keywords: electrophoresis, capillary, immunofixation, monoclonal protein

S185
UNNECESSARY REPEATED TESTS IN THE BIOCHEMISTRY LABORATORY

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BACKGROUND AND AIM: The aim of the study is to evaluate "repeated tests" and "unnecessary repeated laboratory tests" according to minimum retest interval.
MATERIALS and METHODS: TSH, ferritin, CRP and sedimentation test data analyzed in the laboratory of İzmir Kemalpaşa State Hospital between April 1, 2022, and July 30, 2022, were obtained retrospectively through the laboratory information system. Minimum retest intervals for tests were determined according to National Minimum Re-testing Intervals in Pathology report composed by The Royal College of Pathologists, The Association for Clinical Biochemistry and Laboratory Medicine, and The Institute of Biomedical Science. Accordingly, minimum retest interval was determined as 28 days for the TSH, 30 days for the ferritin, 24 hours for the CRP, and 7 days for the sedimentation tests. Tests performed more than once per patient during the study period were determined as "repeated tests". Tests repeated in less than the minimum retest interval was determined as "unnecessary repeated tests".
RESULTS: The number of TSH, ferritin, CRP and sedimentation tests performed in laboratory during four-month period were 3905, 3501, 8102 and 1532, respectively. The "repeated test" numbers (%) were found as 150 (3.84%), 242 (6.91%), 192 (2.37%) and 249 (16.25%) for TSH, ferritin, CRP and sedimentation tests, respectively. The ratios of "unnecessary repeated test" in repeated TSH, ferritin, CRP, and sedimentation tests were 10.6%, 7.44%, 6.25%, and 9.24%, respectively.
CONCLUSION: Unnecessary repeated tests are one of the causes of money and labour loss in healthcare. Informing hospital administrators and clinicians about unnecessary testing rates can increase awareness.
Keywords: Unnecessary repeated tests, minimum retest interval, demand management

S186
INVESTIGATION OF SORTILIN EFFECT ON HEPATIC VLDL SECRETION IN APOE-/- MICE

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BACKGROUND AND AIM: Sortilin is a type 1 transmembrane protein synthesized in various tissues and cells and converted to soluble form by the sheddase process by ADAM(a disintegrin and metalloprotease)10.In the literature,there are conflicting results in studies investigating the effects of sortilin on VLDL(very low den-

sity lipoprotein) secretion from hepatocytes. In this study,we aimed to elucidate the effects of sortilin on VLDL secretion.
MATERIALS and METHODS: In this study, a total of 3 groups(n=12) were formed as control(C57BL-6J+control diet), sham(C57BL-6J+atherogenic diet) and case($ApoE^{-/-}$+atherogenic diet). The groups were given a daily diet of 4-6 g/mouse ad libitum for 16 weeks. At the end of the period, 1mg/g Fluoronic F-127 detergent was administered intraperitoneally to all groups and at the end of 2,4 and 6 hours,4 animals from each group were sacrificed and blood,aorta and liver tissues were collected.While VLDL[containing triglyceride(TG) and total cholesterol(TK)] secretion was examined in serum by isopycnic ultracentrifuge method,sortilin and ADAM10 levels in liver tissue were examined immunohistochemically.In addition,the liver was examined semi-quantitatively by Oil Red O(ORO) and hematoxylin-eosin(H&E) staining.
RESULTS: VLDL-TG/TC levels in the case group increased significantly compared to the control and sham groups($p<0.05$).Sorilin and ADAM10 levels were significantly increased in the liver of the CASE group($p<0.05$).As a result of ORO and H&E staining,it was observed that the adipocyte count,steotase and SAF score increased significantly in the case group compared to the control and sham groups($p<0.05$).
CONCLUSION: As a result,it is thought that sortilin contributes to the increase of VLDL secretion from hepatocytes and thus plays an important role in cardiovascular diseases.
Keywords: ADAM10, SORTİLİN, VLDL

S187
VITAMIN D RECEPTOR POLYMORPHISMS IN OVERWEIGHT/OBESE HEMODIALYSIS PATIENTS

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BACKGROUND AND AIM: Many studies were carried out to investigate the relationship between single nucleotide polymorphisms (SNPs) in vitamin D receptor (VDR) gene with obesity. However, little is known about the role of VDR gene polymorphism with obesity in hemodialysis (HD) patients. Therefore, we aimed to investigate VDR gene TaqI, ApaI and FokI SNPs in overweight/obese HD patients.
MATERIALS and METHODS: Seventy-one normal weight and 68 overweight/obese HD patients were included in study. PCR-RFLP method was used for genotyping. Demographic and laboratory data obtained from patients' medical records.
RESULTS: For all three SNPs, no significant association was found between normal and overweight/obese patients ($P>0.05$). Lower HDL concentrations and higher levels of triglyceride (TG) and glucose were detected in the obese/overweight patients compared to normal weight ($p<0.001$ for HDL, and TG and $p=0.023$ for glucose). In obese/overweight patients, subjects with CC genotype of TaqI showed higher PTH level (717.1±616.4 pg/ml) than those TC genotype (342.7±360.8 pg/ml) and TT genotype (310.2±323.4 pg/ml) ($p=0.028$). Higher TG level was found in patients with CC genotype of ApaI (627.3±653.0 mg/dl) compared to AA (223.3±156.6) and AC genotypes (193.1±85.4) ($p<0.001$). Obese/overweight patients carrying FokI TT genotype had higher glucose concentration compared to those carrying CC and CT genotypes (TT=183.4±128.4 mg/dl; CC=151.9±66.1 mg/dl; CT=107.6±41.9 mg/dl, $p=0.008$).
CONCLUSION: Our study suggest that VDR TaqI, ApaI and FokI polymorphisms are not associated with obesity in HD patients. However, they might be increase the risk of secondary hyperparathyroidism, dyslipidemia, and hyperglycemia, which are among the most common obesity related comorbidities of chronic kidney disease.
Keywords: vitamin d receptor, polymorphism, hemodialysis, obesity, chronic kidney failure

S188
INVESTIGATION OF THE RELATIONSHIP OF HDL SUBCLASSES WITH CORONARY ARTERY DISEASE AND SEVERITY

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BACKGROUND AND AIM: It was determined that serum low-density(LDL) and high-density lipoprotein(HDL) cholesterol levels were normal in more than half of the coronary artery patients(CAD). It has been shown that HDL,which has a very heterogeneous structure,may become dysfunctional by gaining proatherogenic features in CAD patients. HDL subclasses are also functionally heterogeneous,and their atherogenicity pattern is controversial. It's thought that examining HDL subclasses in clinical practice will contribute to current therapeutic approaches for atherosclerosis. In this study,it was planned to investigate the relationship of HDL subclasses with CAD and its severity.
MATERIALS and METHODS: Blood was taken from 82 patients diagnosed with CAD and 86 healthy controls,and routine lipid profiles were measured in an autoanalyzer. HDL subclasses were analyzed using the Lipoprint system and apolipoproteins(ApoA/B/E) were determined using the nephelometric method. The Syntax(SX) score was used to determine the extent and severity of CAD.
RESULTS: Lower HDL (HDLs) subclasses were found in the CAD group compared to the healthy control group($p<0.05$).Compared to the control group, a significant decrease was observed in ApoA, E and HDL levels in patients with mild plaque prevalence, while a significant decrease in ApoA levels and an increase in VLDL and TG levels were observed in patients with severe plaque prevalence($p<0.05$).Significantly higher TG and VLDL levels were found in patients with severe plaque load compared to patients with mild plaque load($p<0.05$).HDLs subclasses were negatively correlated with SX($p=0.032$,$r=-0.195$).
CONCLUSION: It has been shown that it may be important to investigate the relationship between plaque prevalence and HDL subclass distribution,composition and functionality in CAD patients.
Keywords: CAD, Hdl subclasses, Lipit

S189
EFFECT OF FASTING DURATION ON LIPID LEVELS: A CROSS-SECTIONAL STUDY INCLUDING 30102 PARTICIPANTS

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BACKGROUND AND AIM: Although fasting is traditionally considered to be necessary for measurement of lipid profile, current guidelines support that measurement can be performed without this condition. However, there is limited data on the validity of this recommendation in populations with different ethnicity or different diet content from countries where studies in relevant guidelines were conducted. This study was aimed to investigate the relationship between different fasting durations and lipid profile in Turkish individuals.
MATERIALS and METHODS: Time last meal was asked patients who were requested lipid profile measurement at blood collection room between 01.01.2019 and 31.12.2020. Participants were divided into groups as 0-2, 2-4, 4-6, 6-8, 8-10, 10-12, 12-14, 14-16 and >16 hours according to their fasting duration. Triglyceride, total cholesterol, HDL-cholesterol, calculated LDL-cholesterol (Friedewald and Martin-Hopkins), and non-HDL cholesterol results from 8-10-hour fasting group were compared with other groups using general linear model after adjusting for age and gender.
RESULTS: 18470 female and 11632 males aged 18 to 101 were included in the study. Compared to 8-10-hour fasting state, 0-2- and 2-4-hour fasting groups had significantly higher triglyceride marginal means (difference 45.6 and 27.2 mg/dL, respectively), and lower LDL-cholesterol (Friedewald) marginal means (difference 10.4 and 9.8 mg/dL, respectively). There was no significant difference for total cholesterol, HDL-cholesterol, non-HDL cholesterol and LDL-cholesterol (Martin-Hopkins).
CONCLUSION: For triglyceride, and LDL-cholesterol (Friedewald), a fasting period of at least 4 hours is required to reduce variation depending on fasting duration. However, fasting duration is negligible for total cholesterol, HDL-cholesterol, non-HDL cholesterol, and LDL-cholesterol (Martin-Hopkins).
Keywords: fasting duration, hdlcholesterol, ldlcholesterol, total cholesterol, triglyceride

S190
THE LEVELS OF TRYPTOPHAN AND ITS METABOLITES IN THE FIRST TRIMESTER OF PREGNANT WOMEN

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BACKGROUND AND AIM: L-tryptophan (Trp), is an indole-derived essential amino acid that regulates inflammation and is necessary for the synthesis of metabolites that are not in the human body, taken with a diet. Pregnancy is the monitoring of physiological, anatomical, metabolic, psychological changes of the mother and fetus since fertilization. Recent studies have shown that tryptophan is important in pregnancy because of fetal growth and development requirements.The aim of our study was to compare the levels of tryptophan and its metabolites depending on age in pregnant women who are in the first trimester of pregnancy.
MATERIALS and METHODS: Serum samples were taken from 80 patients aged 18-42 years. 100 µl of internal standard and 1000 µl of acetonitrile were added to the 300 µl sample.Vortexed for 30 seconds. It was centrifuged, sampled into 1000 µl supernatant glass tubes and evaporated in a nitrogen setup.Dissolved in 200 µl acetonitrile:water (25:75) mixture containing 0.1% formic acid. Injected into 50 µl LC-MS/MS.Statistical analysis was done with SPSS 22.0.
RESULTS: For the study,two groups were formed by determining the age limit of 26 years in pregnant women.In our study,tryptophan and its metabolites were determined from serum samples of pregnant women in the first trimester.According to the data obtained, a significant relationship was found between age(mean=22.68 under 26 years; mean=31.43 over 26 years) (p=0.002) and tryptophan metabolite 3-hydroxy anthranilic acid(mean=598.09 over 26 years=775.24 under 26 years) (p=0.031).
CONCLUSION: It is thought that age and tryptophan metabolite 3-0H anthranilic acid may be associated with pregnant women in the first trimester, and accordingly, the metabolite is associated with inflammation.
Keywords: immunity, tryptophan, age, pregnancy

S191
DETERMINATION OF REFERENCE RANGE OF TRYPTOPHAN AND METABOLITES IN HEALTHY INDIVIDUALS

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BACKGROUND AND AIM: Tryptophan, an essential amino acid, is metabolized primarily via the kynurenine pathway. As a result of metabolism, metabolites such as kynurenic acid, 3-OH anthranilic acid, 3-OH kynurenine and quinolinic acid are formed. It is known that these metabolites have various physiological activities and metabolic changes in this pathway are associated with some pathologies (inflammation,neurodegenerative diseases,etc.). The aim of our study is to compare the levels of tryptophan and its metabolites in healthy individuals and to determine the reference range.
MATERIALS and METHODS: 185 healthy individuals (female:99, men:86) between the ages of 18-60 were included in the study. The levels of tryptophan and its metabolites were analyzed by LC-MS/MS method in ABSCIEX API 3200 device. Reference intervals were determined according to the robust method, and gender and age groups were compared with the Mann Whitney U test.
RESULTS: Two groups were formed for both genders, taking the age of 30 as a reference.In healthy subjects, reference intervals for all identified metabolites were calculated at 95% confidence intervals. When general comments are made;3–OH anthranilic acid value of men under 30 years of age was significantly higher compared to men aged 30 years and older(3.195[IQR,1.475–5.510] vs. 1.785[IQR,0.562-3.940],Z=2.140,p=.032). Between males and females, 3–OH anthranilic acid (Z=–0.402,p=0.687), 3–OH kynurenine (Z=1.855,p=0.063), kynurenic acid (Z=–1.226,p=0.220), kynurenine (Z)=1.781,p=0.074) and quinolinic acid (Z=–1.235,p=0.217) values were similar, while the tryptophan value was significantly higher in males (19900[IQR,15300–27200] etc 17560[IQR,13125–20700],Z =–2.893,p=0.003).
CONCLUSION: Considering the physiological and pathophysio-

logical roles of tryptophan and its metabolites, it is important to determine reference intervals.
Keywords: kynurenine pathway, tryptophan, reference range, LC-MSMS

S192
A NOVEL MULTIVARIABLE OUTLIER DETECTION APPROACH FOR INDIRECT REFERENCE INTERVAL CALCULATION

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BACKGROUND AND AIM: The reference interval (RI) is a tool that can show the values range of results in healthy individuals. RIs can be used as manufacturers' recommendations (RI-M) or laboratory-specific RIs can be determined. In this study, we aimed to determine RIs by using multiple outlier detection methods for six parameters analyzed in Bilecik Public Health Laboratory.
MATERIALS and METHODS: Test results obtained from outpatients from Family Health Centers that were withdrawn between March-August 2022 were included study, and patient ages ranged from 18 to 65 years. Liver function tests (LFT: ALT, AST, GGT, ALP) and thyroid function tests (TFT: TSH and free T4/fT4) were selected. Any patient with follow-up results was excluded and only the records which have all related tests were included in the study. Final results of 5,488 LFT and 13,973 TFT were obtained. RIs were calculated with two methods: (1) proposed method by Ammer et al. (RI-1), and (2) recommended indirect non-parametric method by CLSI after multivariate outlier exclusion (RI-2). Then, calculated RIs were compared with RI-M. Statistical analyses were performed using R statistical software.
RESULTS: The upper limits of RI-1 and RI-2 for the LFT and fT4 tests were lower (3% - 30%) than the RI-M. In particular, the RI-M was found to be more compatible with the ALT RIs. The upper limit of the TSH RIs was calculated higher than the RI-M.
CONCLUSION: We concluded that additionally to the conventional calculation methods, the multivariate outlier detection method is a significant step, especially for related tests.
Keywords: Reference interval, multivariable outlier detection, liver function tests, thyroid function tests

S193
DETERMINATION OF PEDIATRIC REFERENCE INTERVALS ACCORDING TO AGE AND GENDER FOR AST AND ALT WITH THE INDIRECT METHOD

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BACKGROUND AND AIM: In this study, we aimed to calculate the age and sex-specific reference intervals(RIs) of aspartate aminotransferase(AST) and alanine aminotransferase(ALT) by indirect method using data obtained from pediatric patients and to compare these RIs with CALIPER's RIs.
MATERIALS and METHODS: In this study, AST and ALT results of patients aged 1-19 years who visited Ankara Training and Research Hospital Pediatrics Polyclinics between January2020 and December2021 were analyzed retrospectively.Groups were determined based on age and gender as recommended by CALIPER. For AST, 1-7 years(n=3626), 7-12 years(n=3331), 12-19 years(n=4618);For ALT, 1-13 years(n=7602), 13-19 years(n=4195) groups were formed. Outliers in the groups were excluded according to the Tukey outlier exclusion method. SPSS IMD program was used for statistical analysis.
RESULTS: Data from 11,575 patients for AST and 11,797 patients for ALT were used.After exclusion, 11,056 data were obtained for AST and 10,826 for ALT.In males, AST(U/L) RIs were 21-47(90% CI 21-48) for 1-7 years, 17-35(90% CI 16-36) for 7-12 years, 12-30(90% CI 12-31) for 12-19 years.In females, AST(U/L) RIs were 20-46(90% CI 20-47) for 1-7 years, 15-35(90% CI 15-36) for 7-12 years, 11-24(90% CI 11-25) for 12-19 years.ALT (U/L) RIs were 7-24(90% CI 7-24) for 1-13 years, 7-25(90% CI 6-26) for 13-19 years of age in males.ALT(U/L) RIs were 7-22(90% CI 7-22) for 1-13 years and 5-19(90% CI 5-19) for 13-19 years in females.
CONCLUSION: There were age and sex-spesific differences in RIs, which we derived by indirect method using laboratory data in pediatric patients.We found that our results were similar to CALIPER's RIs.
Keywords: AST, ALT, REFERENCE INTERVALS, PEDIATRIC POPULATION

S194
DETERMINATION OF PT AND APTT REFERENCE INTERVALS BY INDIRECT METHOD FROM RECORDS IN THE HOSPITAL INFORMATION MANAGEMENT SYSTEM

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BACKGROUND AND AIM: International guidelines recommend that each laboratory determine its own reference range. In this study, I aimed to determine the reference ranges of PT and aPTT parameters by using the patient results registered in the laboratory information system (LIS), by non-parametric percentage estimation method, and to compare the results obtained with the reference intervals in the manufacturer's kit insert.
MATERIALS and METHODS: In the study, PT and aPTT results of patients registered in LIS between January 2020 and December 2021 were used. Inpatients, covid-19, cardiovascular surgery, neurology, cardiology, hematology, intensive care and emergency room patients were excluded from the evaluation. Since the raw data did not fit the normal distribution, the extreme values were discarded using SPSS/Explore/Outliers after performing the logarithmic transformation. Ordinal numbers of 2.5 and 97.5 percentiles were calculated with the formulas 0.025(n+1) and 0.975(n+1) to determine reference intervals. Standard normal deviation test (Z test) was used to test the significance of differences between subgroups.
RESULTS: While the reference intervals for aPTT were 20.5-29.4 seconds, the manufacturer's recommendation was 20-36 seconds. As a result of the Z test, it was seen that two separate PT reference intervals should be used for men and women. The reference intervals found for PT were 8.3-12.3 seconds for men and 7.4-12 seconds for women. The manufacturer recommended the 8-13 sec interval for all patients.
CONCLUSION: Although the reference values in the study differ from the values recommended by the manufacturer, I think that these values better reflect our patient population.
Keywords: Reference range, indirect method, PT, aPTT

S195
THYROID FUNCTION TESTS USING ARTIFICIAL INTELLIGENCE CALCULATION OF REFERENCE INTERVALS

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BACKGROUND AND AIM: Machine learning applications have attracted great interest in medical laboratories for the last ten years.In this study,it was aimed to determine the most appropriate groupings to be used in the calculation of reference intervals of thyroid function tests with artificial intelligence applications and to determine reference intervals with parametric and nonparametric reference interval calculation methods accordingly.
MATERIALS and METHODS: In our study,thyroid function test data(TSH,fT3,fT4) between January 2019 and December 2021 measured in Roche Cobas e802 analyzer at Ankara Training and Research Hospital were used.Persons aged >18years were included in the study.Patients with diagnoses thought to affect thyroid function tests were excluded from the study.After the patients were excluded with the applied filtering processes,8500 data were obtained for the necessary calculations.The 'kmeans' algorithm, one of the unsupervised machine learning applications, was used for grouping in the Python program. In grouping, not only age and gender, but also blood type, TSH, free T4 and free T3 results of individuals were accepted as criteria.Six groups were obtained:Group-I:18-24years,Group-II:24-31years,Group-III:32-40years,Group-IV:41-50years,Group-V:51-63years,Group-VI:64-94 years.Reference intervals were calculated from the data obtained after the groupings by parametric and nonparametric methods and compared with the reference intervals recommended by the manufacturer.
RESULTS: In the data obtained, generally higher limits were obtained for TSH compared to the currently used reference intervals.(currently used reference intervals 20-50years:0.4-4.2mIU/ml_50-60years:0.52-4.03mIU/ml_60-70years:0.49-4.33mIU/ml_70-80 years:0.45-4.59mIU/ml_>80years:0.33-7.5mIU/ml) (0.72-4.47mIU/ml_0.66-4.45mIU/ml_0.58-4.22mIU/ml_0.54-4.43mIU/ml_0.53-4.60mIU/ml_0.50-4.33mIU/ml,in group order). While a single reference interval(0.93-1.6ng/dl) is currently used for the free T4 test,we obtained six different reference intervals(0.97-1.64ng/dl_0.95-1.61ng/dl_0.93-1.55ng/dl_0.89-1.53 ng/dl_0.88-1.58ng/dl_0.91-1.56ng/dl,in group order).For free T3, lower reference limits were obtained compared to the currently used reference interval(2.5-4.4ng/L), except for group 1.(2.55-4.46ng/L_2.46-4.25ng/L_2.34-4.01ng/L_2.27-3.82ng/L_2.13-4.01ng/L_2.20-3.88ng/L,in group order).
CONCLUSION: In our study,we concluded that the reference intervals can be calculated more cheaply,accurately,quickly and easily with the groupings created with machine learning applications after filtering the data.
Keywords: reference interval, thyroid function tests, artificial intelligence, machine learning

S196
DEVELOPMENT OF LIQUID CHROMATOGRAPHY TANDEM MASS SPECTROMETRIC METHOD FOR FEXADINE(FEXOFENADINE HCL)

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BACKGROUND AND AIM: Fexadine is an antihistamine. It reduces the effects of histamine in the body. Histamine causes itching, runny nose and also chronic idiopathic urticaria in individuals. Fexadine is used to treat seasonal allergy symptoms and hives. The active ingredient of fexadine is fexofenadine. The aim of this study is to develop a simple, fast and reliable tandem mass spectrometric measurement method for the quantification of fexofenadine.
MATERIALS and METHODS: Fexofenadine was detected by AB-Sciex API 3200 tandem mass spectrometer (Applied Biosystems/MDS Sciex) in positive electrospray ionization mode. The selected ion transitions for fexofenadine and internal standard(carbamazepine) were m/z 502.3/171.2 and m/z 237.0/194.0, respectively. The pretreatment procedures are briefly as follows, 300 µl of standard or sample was taken into eppendorf tubes and 100 µl of internal standard(100 ng/mL carbamazepine) and 600 µl of 7.5% trichloroacetic acid (TCA) were added. The mixture was vortexed for 30 seconds and centrifuged for 10 minutes at 13000 rpm for 10 min. After taking 200 µl of supernatant into vials, 30 µL was injected into the device.
RESULTS: The linearity range was determined as 3.5-3600 ng/ml with a correlation coefficient (r2) higher than 0.998. The Limit of Quantification (LOQ) value was determined as 3.5 ng/ml. Fexofenadine retention and total working time were observed as 2.62 and 5 minutes, respectively.
CONCLUSION: A rapid and economical LC-MS/MS measurement method has been developed for the determination of fexofenadine. The method developed after validation studies is used for the determination of fexofenadine levels in routine analysis and research studies.
Keywords: fexadine, lcmsms measurement method

S197
DEVELOPMENT OF A TANDEM MASS SPECTROMETRIC MEASUREMENT METHOD FOR THE DETERMINATION OF ALPRAZOLAM LEVELS

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BACKGROUND AND AIM: Alprazolam is a highly potent triazolobenzodiazepine approved by the United States Food and Drug Administration (FDA) for the treatment of anxiety and panic disorders. The side effects of alprazolam tablets are likely to be an extension of its pharmacological activity and often lead to side effects such as drowsiness, dizziness, fatigue, dysarthria, headache, memory impairment and depression. Therefore, measurement of blood levels is important.
MATERIALS and METHODS: Briefly; 250 µl of sample was taken into ependorpha and 500 µl of methanol was added. It was then vortexed for 30 seconds and centrifuged for 10 minutes. Supernatants were taken into tubes and dried in nitrogen setup. The dried residues were dissolved in 200 µl of methanol:water 1:1 mixture. 40 µL was injected into the LC-MS/MS system.
RESULTS: The linear range for alprazolam was 25-1000 ng/ml. Total run time is 5 minutes for each sample. The %CV values calculated from intraday and interday reproducibility studies were less than 8.0%. Extraction recovery ranged from 90.4% to 101.0%, and

matrix effect values were less than 12% for all analytes.
CONCLUSION: A fast, economical, simple and accurate LC–MS/MS measurement method has been developed for the measurement of alprazolam levels.
Keywords: Alprazolam, LC-MS/MS, Drug Level

S198
DEVELOPMENT OF LIQUID CHROMATOGRAPHY TANDEM MASS SPECTROMETRY METHOD FOR AMLODIPINE

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BACKGROUND AND AIM: Amlodipine is a third-generation, long-acting dihydropyridine calcium channel antagonist, prescribed for the treatment of angina pectoris, hypertension, cardiac arrhythmias and coronary heart failure. Common side effects of the drug include edema, fatigue, abdominal pain and nausea. Low blood pressure and heart attack are serious side effects. Measurement and monitoring of amlodipine is necessary to minimize the possibility of side effects. The aim of this study was to develop a simple, fast and accurate LC-MS/MS method for quantification of amlodipine.
MATERIALS and METHODS: 250 µL of sample was taken in the eppendorf tubes and 100 µL of internal standard carbamazepine (100 ng/mL) was added. After adding 750 µl acetonitrile for precipitation, mixture was vortexed for 30 seconds and centrifuged at 12000 rpm for 10 minutes. Supernatants were taken into clean glass tubes and evaporated at 40°C under nitrogen gas. The dried residues were dissolved in 200 µl of acetonitrile:water (30:70, %v/v). 20 µL was injected into the device.
RESULTS: In the linearity study, the correlation coefficient (r^2) was found to be linear in the range of 1-1000 ng/mL, with a better result than 0.997. The recovery obtained as a result of the study was between 96-105.3%. The CV results for inter-assay and matrix effect studies were less than 7.2% and 8.9%, respectively.
CONCLUSION: A rapid, cost-effective, simple and robust measurement method has been developed for the quantification of amlodipine. Further studies are needed with the measurement of drug levels in patients.
Keywords: Amlodipine, mass spectrometry, adverse effect, therapeutic drug monitoring

S199
DEVELOPMENT OF LIQUID CHROMATOGRAPHY TANDEM MASS SPECTROMETRIC METHOD FOR CLONAZEPAM

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BACKGROUND AND AIM: Clonazepam is a long-acting benzodiazepine commonly used to treat panic disorders, severe anxiety and seizures. The recommended dose is between 1-20 mg/day. The most common side effects are dizziness, drowsiness, ataxia, drowsiness. As a result of the correlation between its concentration and clinical effect, concentration measurement is important to avoid toxicological effects. Our aim in this study is to develop a simple, fast and effective LC-MS/MS method for the quantification of clonazepam.
MATERIALS and METHODS: Briefly; 250 µl of sample was taken into eppendorf and 500 µl of methanol was added. The mixture was then vortexed for 30 seconds and centrifuged for 10 minutes. Supernatants were taken into glass tubes and dried at 40°C under nitrogen gas. The dried residues were dissolved in 200 µl of methanol:water (1:1, %v/v). 40 µL was injected into the ABSCIEX API 3200 LC-MS/MS system.
RESULTS: Linearity is 50-5000 ng/ml view. Total working time is 5 minutes. The precision value was less than 8.7% and the weakness was between 85.0% and 110.2%. Extraction recovery was 92% to 108% appearance and matrix values were less than 10% for all analytes.
CONCLUSION: A rapid, cost-effective measurement method has been developed for the assay of clonazepam.
Keywords: LC-MSMS, panic attack, anxiety

POSTER PRESENTATION ABSTRACTS

P001
CALCULATION OF IMPRESSION AND REFERENCE CHANGE VALUES OF TESTS RUN ON ROCHE COBAS 8000 ANALYZER

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OBJECTIVES: We aimed to calculate analytical variation and reference change value for biochemistry analytes studied on the Roche Cobas 8000 analyzer that we routinely use in our laboratory.
MATERIALS and METHODS: The reference change value for our analytes;calculated with formula $2^{1/2}$ x Z x $(CV_A^2 + CV_I^2)^{1/2}$. (95% probability, two-way; Z=2.58 taken) Three-month, two-level internal quality control results were used to calculate analytical coefficient of variation (CV_A). Median values from meta-analysis studies in EFLM biological variation database were used for intra-individual (CV_I) and inter-individual (CV_G) coefficients of variation. The formulas CVA < 0.25 x CVI for optimum performance, CVA < 0.50 x CVI for acceptable performance and CVA < 0.75 x CVI for minimum performance were used to determine quality specifications developed for precision.
RESULTS: When evaluated accordingly, the reference change values (%) for our analytes are in order; glucose 16, urea 39, creatinine 19, total cholesterol 15, triglyceride 55, HDL-cholesterol 19, LDL-cholesterol 24, AST 27, ALT 29, sodium 5, potassium 13, chlorine 8, calcium 7, magnesium 10, phosphorus 23, iron 57 calculated. Optimum for urea, triglyceride, AST and iron from our analytes; acceptable for total cholesterol, LDL-cholesterol, ALT and phosphorus; it meets the minimum performance quality specifications for glucose, HDL cholesterol and potassium; creatinine, sodium, chlorine, calcium and magnesium do not seem to provide.
CONCLUSIONS: Analytical and biological sources of variation should be considered for reliability of laboratory results. Tests that do not meet quality specifications require root cause analysis followed by corrective and preventive action.
Keywords: analytical performance, precision, reference change value

P002
WHICH ANALYTICAL PERFORMANCE MODEL TO CHOOSE FOR Hb A1C: BIOLOGICAL VARIATION, MEASUREMENT UNCERTAINTY, TOTAL ERROR OR SIGMA-METRICS?

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OBJECTIVES: HbA1c test is one of the most important biomarkers in the diagnosis, follow-up and treatment of diabetes. HbA1c analytical performance should be closely monitored as it may alter the treatment algorithm.
MATERIALS and METHODS: Using Bio-Rad Variant II Turbo HbA1c analyzer, %CV from daily bi-level internal quality control data and %bias(B) from monthly external quality control data covering a 6-month period were calculated. Measurement uncertainty (the top-down method), total analytical error (TAE= B+1.65xCV) and sigmametric (σ = (TEa - B)/CV) were calculated. IFCC biological variation data were used.
RESULTS: The %CV and %bias were found to be 1.8% and 0.57%, respectively. Measurement uncertainty, total analytical error and sigma values for HbA1c were calculated as 4.05, 3.54 and 3.01, respectively. The allowable measurement uncertainty and total analytical error values are 6.7% and 3%. The analytical error value of our laboratory was found to be between desirable and optimum according to biological variation data of IFCC.
CONCLUSIONS: for the HbA1c test working via HPLC method, the data calculated according to the biological variation produced more realistic results. The analytical performance model suitable for the needs and dynamic structure of clinical laboratories and the selection of appropriate analytical targets are very important. According to the modelling system, the points that need to be promoted can be determined and effective corrections can be made.
Keywords: Analytic Chemistry, Hb A1c, HPLC

P003
SELÇUK UNIVERSITY FACULTY OF MEDICINE EVALUATION OF THE 6-MONTH QUALITYRNPERFORMANCE OF THE COBAS 6000 BIOCHEMISTRY AUTOANALYZER FOR 2022

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OBJECTIVES: Today, medical laboratories must establish and implement an appropriate quality system for the accuracy and precision of test results, and therefore patient safety, in accordance with national and international standards. The aim of these quality control processes is to achieve the quality targets determined by the authorities. These quality targets are commonly expressed as the total allowable analytical error. In this study, we aimed to evaluate the method performance parameters of the biochemistry device in our laboratory according to the 6-month internal quality control and external quality control results.
MATERIALS and METHODS: Total Analytical Error (TAH) was calculated by using the percent coefficient of variation (%CV) obtained from the internal quality control results of the 6-month COBAS 6000 autoanalyzer between February 2022-July 2022 and the % BIAS values of the external quality control reports. TAH values were compared with the total allowable analytical error values determined by the Ministry of Health in the laboratory performance evaluation guide published by the Turkish Biochemistry Association.
RESULTS: The TAH values determined by the ministry and found in the Turkish Biochemistry Society laboratory performance evaluation guide vary between 9% and 30% according to the parameters, the CV values vary between 5% and 10%. %CV and TAH levels calculated for all our parameters were below the specific values stated for them.
CONCLUSIONS: The quality performance of our COBAS 6000 autoanalyzer in our laboratory is successful compared to the values allowed by the ministry.

P004
EFFECTS OF SAMPLE VOLUME ON SERUM MAGNESIUM ANALYSES IN VACUUM GEL SEPARATOR TUBES

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OBJECTIVES: When serum samples are taken into vacuum gel tubes, the level of some analytes may change. In this study, in the blood taken in different brand vacuum gel tubes, the gel; It was investigated whether it had an effect on serum magnesium level.
Materials and Methods: Small (1 ml) and large (5 ml) blood samples were collected randomly from 20 healthy volunteers in vacuum gel tubes of brands A and B. Simultaneously, another sample , was taken into a fifth tube with B brand gelless clot activator, left for 30 minutes, and centrifuged at 3500 rpm for 10 minutes. Magnesium levels were measured in clinical chemistry autoanalyzer with chemiluminescence method in triplicate. The mean of the results of the five tubes were compared with each other.
RESULTS: Magnesium values of small and large amounts of serum taken into A brand tubes were found to be statistically significantly higher than the magnesium results of all B brand tubes ($p<0.001$). No significant difference was found as a result of the comparison of magnesium values of small and large amounts of serum taken into B brand tubes with each other and with the tubes without gel ($p<0.05$).
Conclusions: In our study, it was observed that the high magnesium values detected in the gel tube of brand A were related to the separator gel, and the increase in magnesium levels became more pronounced as the sample volume decreased.
Keywords: laboratory process, error sources

P005
METHOD COMPARISON OF 17-OH PROGESTERONE LEVELS IN "SNIBE MAGLUMI X3" AND "AUTOBIO AUTOLUMO" DEVICES

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OBJECTIVES: The proposed new method is compared with the current method used in the laboratory, and if an equivalent performance result is obtained, it is decided that it can replace the old method. In this study, we aimed to evaluate the performance of two different commercial devices for the determination of 17-OH Progesterone.
MATERIALS and METHODS: Snibe Maglumi X3 and Autobio Autolumo devices were compared in Ankara Private Avicenna Center Laboratory. Bi-level internal quality control samples were used for reproducibility studies. A total of 98 patient samples at three different levels (low-medium-high) were examined. The difference between methods and its 95% confidence interval were calculated from the standard deviation (Sy/x) of the scatter around the regression line, the regression equation, as provided in the CLSI's manual. Passing Bablok Regression Analysis and Bland Altman Plots were examined.
RESULTS: While Total Analytical Error (TAH) was found to be 18.6% for Snibe device, TAH was 12,4% for Autobio. No significant deviation from linearity was observed in the CUSUM test ($p=0.96$). A very strong correlation was found between the two methods ($r=0.9975$). According to the regression equation, it was determined that the Autobio device 18% lower than Snibe at the 95% confidence interval in the reference interval value. According to the Bland Altman plot, it was observed that the mean value was 6.6% lower.
CONCLUSIONS: Since the %TAH value was below the target TAH value of 30.2%, it was considered acceptable. It is thought that the two devices examined are compatible with each other.
Keywords: method comparison, regresion analysis, 17oh progesterone

P006
COMPARISON OF A IMMUNOTURBIDIMETRIC AND HPLC METHODS IN HBA1C DETERMİNATION

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OBJECTIVES: In this study, the Roche Cobas 6000 autoanalyzer using the turbidimetric immunoinhibition (TINIA) method and the Tosoh G8 device using the high performance liquid chromatography (HPLC) method as a reference for HbA1C measurement were compared.
MATERIALS and METHODS: Intraday and interday reproducibility studies were performed with twenty control and patient samples on both analyzers. Linearity and stability studies were performed for both analyzers. Sixty samples, sent for routine HbA1C determination, measured by TOSOH G8 and Roche Cobas 6000 autoanalyzer and the results were compared.
RESULTS: Intraday and interday CVs in control sera were <0.45% and <0.80% in HPLC; It was found to be <1.46% and 1.79% in the TINIA method. For stability study, two blood samples low (5.5%; 37 mmol/mol) and high HbA1C (10.7%; 93 mmol/mol) were determined five times at 0, 2, 4 and 24 hours by HPLC and TINIA method. It was observed that the stability of both HPLC and TINIA method was preserved. In the method comparison made with fresh whole blood samples with HbA1C levels in the range of 4.8%-13.3% (29 mmol/mol-122 mmol/mol) in HPLC, 4.49%-12.01% (26-109 mmol/mol) with the TINIA method. The correlation coefficient of the two methods was $R2=0.987$, $p<0.05$; the regression equation was %HbA1C = 0.903*HPLC %HbA1C +0.159. A significant difference was found between two measurement methods.
CONCLUSIONS: Although the TINIA method correlates well with the HPLC system, its average low HbA1C result of 7.9% may cause problems in the diagnosis and follow-up of diabetes.
Keywords: method comparison, HbA1C, hplc, immunoturbidimetry

P007
THE COMPARISON OF 25-HYDROXY VITAMIN D [25(OH)D] RESULTS BETWEEN SNIBE MAGLUMI 4000 AND SIEMENS ADVIA CENTAUR XP

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OBJECTIVES: Vitamin D, a fat-soluble vitamin, plays a role in regulation of calcium and phosphorus metabolism and bone mineralization. 25(OH)D is the major circulating form of Vitamin D and considered as the best indicator of the amount of vitamin D. This study was assessed to compare a new system for 25(OH)D testing with a widely used and validated system.

MATERIALS and METHODS: In total, 30 serum samples with 25(OH)D were analysed on Snibe Maglumi 4000 and Siemens Advia Centaur XP analysers. Statistical analyzes were performed with IBM SPSS v25.0 (IBM Corp., Armonk, NY, USA) and MedCalc Statistical Software version 15.8 (MedCalc Software bvba, Ostend, Belgium). Pearson correlation, Passing & Bablok regression and Bland-Altman analysis were performed to evaluate the data correlation and % differences among the assays. The reliability was assessed by Bland-Altman plot and intraclass correlation coefficient (ICC). $p<0.05$ was considered as statistically significant.
RESULTS: There was a strong correlation between the measurements for the 25(OH)D test ($r= 0.896$; $p<0.001$). Measurements were found reliable according to the ICC (0.944; 95% CI: 0.875-0.975). No statistically significant bias was observed between analysers according to Bland-Altman plot (0.66 ng/mL [95% confidence interval: −0.87 to 2.19]). Moreover, two analysers were compared using Passing & Bablok regression analysis, indicating no significant differences and a strong correlation between the two analytical methods ($y = 0.918x + 2.148$, $r =0.896$).
CONCLUSIONS: As a result, the consistency between the measurements of the two analysers for 25(OH)D shows that Snibe Maglumi 4000 is reliable for routine analysis.
Keywords: 25 Hydroxy Vitamin D, Snibe Maglumi 4000, Advia Centaur XP, Comparison

P008
DATA ANALYSIS OF METHODS AND BIOMARKERS USED IN MEDICAL DIAGNOSIS

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OBJECTIVES: Our objective is to analyze works on disease diagnosis.These analyses have become simpler and more accurate thanks to the new software tools and the strength of the accumulated data. This analysis focused on three important categories (Diseases, Biomarkers, Methods) using TURBOARD business-intelligence software and data from the PharmaCircle database.
MATERIALS AND METHODS: Data analysis was implemented by dimensional modeling with TURBOARD, which is software that performs statistical modeling, regression, clustering, forecasting and network graph analysis.
RESULTS: Diseases are divided into 18 major groups and then classified hierarchically. The most common 5 of the main categories, together with their percentages in data, are as follows; Infection-51.8%, Cancer-11.7%, Endocrine/Metabolism-8.5%, Inflammation/Immune-7.1%, Cardiovascular-4.8%. 67.8% of infections are viral. Due to the current pandemic, SARS-CoV-2 constitutes 45.8% of viral disease data.
Methods are divided into 11 major groups and then classified hierarchically. The most common of these main categories are Immunoassays (43%) and Molecular Diagnosis (23.5%). It is seen that rapid immunoassay diagnostic tests (35.4%) are preferred in diagnosis of SARS-CoV-2 (specifically immunochromatographic SARS-CoV-2 antigen tests).
CONCLUSIONS: As a result of this data analysis, the most preferred method in the diagnosis of cancer diseases is molecular diagnosis. The widely used method for cancer in molecular diagnosis is gene panels sequencing (the most preferred biomarkers are BRAF, KRAS and EGFR).
However, immunoassays attract more attention in infections. The same picture is seen with Endocrine/Metabolism, Inflammation/Immune and Cardiovascular diseases as seen in infection. Protein biomarkers are preferred in the diagnosis of these diseases.
Keywords: Medical Diagnosis, Disease, Biomarker, Method, Data Analysis

P009
IN SILICO IDENTIFICATION OF POTENT MODULATORS THAT MAY BIND TO CERTAIN PANCREATIC ADENOCARCINOMA-ASSOCIATED PROTEINS

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OBJECTIVES: The 3D structures of proteins encoded by some pancreatic adenocarcinoma-associated genes (kynureninase (KYNU), Ecto-5p'-nucleotidase (NT5E, CD73) and adenylate kinase 4 (AK4)), which are supported by preliminary bioinformatics and experimental studies, are investigated. It is aimed to detect potent modulators that can affect function of these proteins by applying virtual screening to several molecules in available databases and to investigate the interactions between protein-ligand (small molecule, modulator) in depth by molecular docking studies.
MATERIAL AND METHODS: In this study, the FTMap web server and Essential Site Scanning Analysis (ESSA) method were used to detect potent ligand binding sites of these proteins. For this, their 3D structures from different organisms as well as their monomeric and oligomeric forms were considered for in-depth comparison. In line with the results, pharmacophore models will be created, and virtual screening (VS) will be performed to several molecules in big drug libraries and potent molecules with high docking scores will be determined.
Findings: In preliminary studies, mRNA levels of AK4 and NT5E, KYNU genes in pancreatic ductal adenocarcinoma tumor tissues (n=179) included in the cancer genome atlas program (TCGA) pancreatic adenocarcinoma (PAAD) dataset were higher in tumor than in normal tissue ($p< 0.05$) ($p<0.01$, fold change>2) and high expression was found to be associated with decreased survival rate in patients ($p<0.05$). FTMap and ESSA results are in conformity in terms of potent ligand binding sites of the proteins encoded by these genes and new alternative binding sites are also revealed. Our virtual screening studies on these proteins are currently ongoing.
RESULTS: Analysis of molecular docking data would provide the most ideal, potent molecules to be used in further in vitro and in vivo laboratory studies. These preliminary molecular docking studies will reduce experimental costs and enable an effective use of budget and time.
Keywords: molecular docking, virtual screeening, pancreatic adenocarcinoma, binding sites, modulator molecules

P010
MOLECULAR MODELLING OF NON-COVALENT INTERACTIONS BETWEEN SHORT NUCLEOTIDES

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OBJECTIVES: Nucleic acids are important molecules to store and use the information to synthesize the functional molecules like proteins or enzymes for the sustainability of the metabolic functions. In addition, some proteins implicated in the transcription of a gene by binding to short DNA sequences in promoter region in order to initiate RNA synthesis.
MATERIALS and METHODS: In current work, we investigated short single nucleotide chains that are related to a protein-binding site. The Spartan'14 program was used to analysis of the conformer structures of the mono, di, tri and tetramer structures of the Pribnow-box sequence. The MOPAC2016 program with PM6-D3H4 method and Gaussian09 program at ωB97XD/6-311++G(d, p) level were used for optimizations and frequency calculations for each investigated conformer. Using the calculated results, the most stable structures were determined using the relative energies. Molecular structures were drawn by Discovery Studio Visualizer 2021. The noncovalent interactions between di, tri and tetra-nucleotides structures were demonstrated by using Multiwfn'3.6 with VMD. Molecular structures were presented by Discovery Studio Visualizer 2021 software.

RESULTS: We found that the –H bond was formed between the –OH group of the ribose ring and -PO_4^{3-} group of the nucleotide structure. In addition, we observed nucleobase conjugates of tetranucleotide structures and CH–π bond, as non-covalent interactions.
CONCLUSIONS: The computational results may provide useful information for systematic understanding of protein-nucleic acid interactions. Most of the calculations were performed on TUBITAK-ULAKBIM Truba resources. This study was sponsored by Ege University, Scientific Research Projects Coordination (18-FEN-007).
Keywords: Pribnow-Box, Nucleotide, Molecular Modelling

P011
THE EVALUATION OF THROMBOCYT FUNCTION TESTS BY AggRAM AND APACT 4004 AGGREGOMETERS

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OBJECTIVES: Platelet function tests are recommended for patients who have a history of bleeding but can not be diagnosed with standard laboratory tests. In patients with suspected platelet dysfunction, activation and aggregation of platelets should be evaluated by aggregometry using platelet agonists (Adenosine diphosphate, Epinephrine, Collagen, Ristocetin). In this study, we aimed to compare the test results obtained with AggRAM (Helena) and APACT 4004 (Tokra) aggregometers and to evaluate the reagent stability.
MATERIALS and METHODS: In this study, blood samples (n=20) taken into Na citrate tubes (Vacusera and BD) were centrifuged at 1000 rpm for 15 minutes to obtain platelet-rich plasma. Plasma samples were analyzed on AggRAM and APACT 4004 aggregometers using Born principle. Adenosine diphosphate, Epinephrine, Collagen, Ristocetin reagents were added to the plasma samples sequentially, turbidity was decreased by the formation of platelet aggregates and the increase in transmittance was measured.
RESULTS: In this study, the results obtained with AggRAM and APACT 4004 devices were evaluated according to the Pearson correlation analysis made in IBM SPSS Statistics 23 program; a positive and significant relationship was found between the results for each of the parameters. Among the reagents, $r= 0.748$ ($p<0.001$) for ADP-10µM, $r= 0.935$ ($p<0.001$) for Epinephrine, $r= 0.852$ ($p<0.001$) for Collagen, and $r= 0.966$ ($p< 0.001$) for Ristocetin-0.6µM was found. Spearman's Rank Correlation Coefficient analysis was used for tube comparison, and the r value was determined as 0.639 ($p<0.001$).
CONCLUSIONS: It was observed that the samples should be kept at room temperature for maximum of 2 hours before analyzes and the platelets formed aggregates when plasma was kept for more than 1 minute after pipetting into test cuvettes. It was determined that the reagents remained stable for a minimum of 1 week under storage conditions at -20°C.
Keywords: Platelet function tests, Aggregometry

P012
THE EFFECT OF VITAMIN B12 DEFICIENCY ON THROMBOCYTE/LYMPHOCYTE RATIO AND IMMATURE GRANULOCYTE LEVELS IN CHILDREN: RETROSPECTIVE ANALYSIS

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OBJECTIVES: Vitamin B12, takes place as a cofactor in many metabolic processes. This vitamin deficiency is associated with megaloblastic anemia and various neurological disorders. Immature granulocytes (IG) are immature white blood cells that can be easily detected in complete blood count tests. Recent studies suggest that IG may play a role in determining the prognosis of inflammatory diseases. The aim of this study is to investigate the possible relationships between platelet-lymphocyte ratio (TLR), IG levels and B12 levels in pediatric gastroenterology patients.
MATERIALS and METHODS: This study included 139 individuals under the age of 18 who applied to Selçuk University Medical Faculty Hospital Pediatric Gastreontology Polyclinic between January to July 2022. Two different groups were formed, 99 individuals with normal B12 levels (B12≤190 pg/ml) and 40 individuals with low B12 (B12≤190 pg/ml) levels. Complete blood count data were obtained retrospectively from the hospital automation system and its relationship with vitamin B12 and IG, TLR were evaluated. Statistical analyzes were performed using SPSS 16 computer programs. The results are given as the median.
RESULTS: In the group with low and normal B12 levels, TLR and IG values were determined as (329,97;103,18) (0,00; 0,00) respectively. These parameters were found to be significantly higher in the group with low B12 levels. There was no significant difference between the groups in terms of other parameter levels.
CONCLUSIONS: TLR and IG parameters show that it can be a new biomarker that can be used in the diagnosis of B12 deficiency in children.
Keywords: neutrophil lymphocyte ratio, platelet lymphocyte ratio, vıtamın B12, Immature granulocyte, nucleated red blood cells

P013
LABORATORY TECHNICIAN PRACTICE TRAINING BEFORE, DURING AND AFTER THE COVID-19 PANDEMIC

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OBJECTIVES: The aim of this study is to evaluate the laboratory skills training in associated degree medical laboratory students before,during and after pandemic conditions.Evaluation was taking with individual feedback and theoretical course(hematology and clinical biochemistry)grade averages data analysis.
MATERIALS and METHODS: Practical courses such as hematology (1st grade)and clinical biochemistry (2nd grade) was lectured face-to-face on pre-pandemic (2018 and 2019),online during the pandemic (2020 and 2021) and face-to-face on post-pandemic (2022)accordance with the curriculum. Written feedback was received from the students after the applications.They were asked to mark the applications they liked or were satisfied with.In addition,their grades were calculated by relative evaluation after the final exam.
RESULTS: When the application feedbacks are examined, the satisfaction rate in the pre-pandemic groups ranged between 91-95%,while this rate decreased to 64-80% with the pandemic, and reached 92-95% in the post-pandemic groups. Blood smear preparation examination, blood group analysis and cell count were among the most popular in the applications, that was performed individually by students.Given the theoretical grade assessments, hematology and clinical biochemistry course notes were found at the highest level in 2020.
CONCLUSION: The physical performance of the skills-based training to enable the practice skills of the students, who have undergone medical lab pre-undergraduate training has been found to be more satisfied with both their individual success and education. In the period of the fight against pandemic, it is seen that the training of laboratory techniques in the laboratory is more appropriate and the actual execution of them is more appropriate.
Keywords: COVID-19, Education, Medical laboratory, Laboratory skills

P014
THE ROLE OF 24-HOUR URINE FREE CORTISOL MEASUREMENT IN THE DIAGNOSIS OF CUSHING'S SYNDROME

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OBJECTIVES: Cushing syndrome is a rare and serious disease with high mortality. Patients are often diagnosed late in the course of the disease. The Endocrine Clinical Practice Guidelines recommend a 24-hour urine free cortisol test, nocturnal dexamethasone suppression test, and a late night cortisol measurement for the diagnosis of Cushing's syndrome. In this study, we were investigated the role of 24-hour urine free cortisol measurement in the diagnosis of Cushing's syndrome.
MATERIALS and METHODS:For this purpose, patients with suspected Cushing's disease between 2017 and 2019 and who had 24-hour urine free cortisol measurement as the first tier test were analyzed retrospectively. A total of 587 samples were analyzed, at least 2 samples from each patient. The mean age of the patients was 45.5 ± 14.4. The K/E ratio was 1.78. Urine free cortisol concentrations of the patients were measured by LC MS /MS (Shimadzu 8040).
RESULTS: The analytical sensitivity of the urine free cortisol measurement was 90%, the analytical specificity was 92%, and the accuracy was 96%. The positive predictive value of the test was found to be 93%.
CONCLUSIONS: Considering these findings, 24-hour urine free cortisol measurement is a suitable and sensitive biochemical marker in the diagnosis of Cushing's syndrome
Keywords: Cushing syndrome, urinary free cortisol, mass spectrometry, sensitivity

P015
INVESTIGATION OF THE EFFECTS OF FORCED EXERCISE ON ASPROSINE HORMONE LEVELS IN EXPERIMENTAL RAT MODELS OF TYPE 2 DIABETES

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OBJECTIVES: Asprosin is a protein-based hormone secreted from unilocular fat cells in response to the decrease in blood glucose levels. We conducted this study to investigate the effects of exercise on asprosin hormone levels and primary related organs such as liver and pancreas in diabetes.
MATERIALS and METHODS: 21 male Wistar rats were divided into a control group consisting of 7 rats and a diabetes group including two subgroups: the exercise and the sedentary groups each containing 7 rats. Diabetes exercise group was subjected to swimming training protocol for 30 minutes/day for 6 weeks. Serum asprosin, IL-6, and other biochemical parameters were measured with commercial kits.
RESULTS: There was a significant difference between control and diabetes groups for glucose and insulin ($p < 0.001$ p: 0.004, respectively). Also a significant difference between the control and sedentary diabetic groups and between the diabetic subgroups for Total Oxidant Status (TOS) was seen (p: 0.014). For IL-6, there was a significant difference between the control and diabetes groups (p: 0.037). There was a significant difference between the diabetic subgroups for asprosin (p: 0.007).
CONCLUSIONS: The decrease in asprosin has positive reducing effects on glucose, insulin and HOMA-IR levels. Regular and appropriate physical exercise reduces asprosin and TOS levels in diabetes. Since the follow-up of serum asprosin levels can provide information about the course of diabetes, asprosin can be used as a marker related to the prognosis of diabetes.
Keywords: Asprosin, Training, Obesity, T2DM, TOS

P016
SERUM PHOENIXIN, NESFATIN LEVELS IN PATIENTS WITH IRON, VITAMIN B12, VITAMIN D DEFICIENCY

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OBJECTIVES: Micronutrient deficiencies are important contributors to the global burden of disease. Phoenixin-14 (PNX-14) and nesfatin-1 are neuropeptides associated with many physiological processes. The aim of the study was to test whether peripheral circulating levels of nesfatin-1 and PNX-14 are altered in patients with iron, vitamin B12, vitamin D and combined deficiency.
MATERIALS and METHODS: This study was performed in patients with iron (n=33), vitamin B12 (n=30), vitamin D (n=33), combined (n=32) deficiency, received vitamin D supplementation (n=24) and healthy controls (n=32). Serum nesfatin-1 and PNX-14 levels were determined by ELISA method.
RESULTS: Serum PNX-14 values were significantly lower in iron, vitamin B12, vitamin D and combined deficiency groups compared to the control group. There was no significant difference in serum PNX-14 levels after vitamin D supplementation, compared to the control group. Serum nesfatin-1 values were significantly lower in patients with iron, vitamin B12 and combined deficiency compared to control. There was no difference in the levels of nesfatin-1 between those vitamin D deficiency, receiving vitamin D3 or those controls. There was a positive correlation between PNX-14 and nesfatin-1 in the iron deficient group. The levels of PNX-14 were positively correlated with high-density lipoprotein cholesterol and negatively correlated with BMI in the vitamin B12 deficient group.
CONCLUSIONS: Our study observed significant differences in PNX-14 and nesfatin-1 concentrations between iron, vitamin D, vitamin B12 deficiency and the control group. PNX-14 and nesfatin-1 may be related to the pathogenesis of micronutrient deficiencies.
Keywords: Phoenixin-14, Nesfatin-1, Iron Deficiency, Vitamin B12 Deficiency, Vitamin D Deficiency

P017
CLINICAL AND CYTOLOGICAL ASPECTS OF TRISOMY 21 AT MOHAMMED VI UNIVERSITY HOSPITAL: ABOUT 77 CASES

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OBJECTIVES: Trisomy 21 is a common genetic disease that affects 1/700 live births. It is caused by the presence of a third copy of chromosome 21 free in a homogeneous or mosaic manner, or translocated. The clinical presentation includes variable intellectual disability, hypotonia with characteristic facial dysmorphism and various abnormalities. The karyotype has an important role to confirm the diagnosis and conduct the genetic counseling consultation.
MATERIALS and METHODS:This is a retrospective study of 77 patients seen at the medical genetics consultation from 2016 to 2022 and who underwent a constitutional karyotype.
RESULTS: The average age of patients at the time of diagnosis was 3.11 years with extremes of 1 day and 24 years. A male predominance was noted with a boy-girl sex ratio of 1.37. The average maternal age was 33.19 years with a high frequency of the age range above 40 years. The cytogenetic study revealed free and homogeneous trisomy 21 in 72 cases, a frequency of 93.5%, and trisomy 21 by translocation in 4 patients, including a Robertsonian translocation between chromosome 14 and chromosome 21: t(14;21) and 3 translocations on chromosome 21: t(21;21) as well as a mosaic trisomy 21 (1.2%).
CONCLUSIONS: We emphasize through this work the role of the medical geneticist in clinical and cytological diagnosis in order to provide appropriate genetic counseling.
Keywords: Trisomy 21, genetic disease, karyotype

P018
DIAGNOSTIC VALUE OF PRESEPSIN IN SEPTIC PATIENTS WITH COVID-19

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OBJECTIVES: In critically ill patients with Coronavirus Disease (COVID-19), we investigated the diagnostic value of presepsin in the early diagnosis of superinfection with sepsis, and the effect of antibiotic therapy on presepsin and procalcitonin (PCT) and C-reactive protein (CRP).
MATERIALS and METHODS: A total of 68 critically ill patients in ICU and 20 outpatients (control group) with COVID-19 were taken. Patients with sepsis (n=68) were further divided into three groups. BC(-)AT(-) had negative blood cultures (BC) and who were not initiated antibiotic treatment (AT) on admission to ICU (n=18), BC(-)AT(+) had negative BC, and the AT was initiated on admission to ICU (n=31) and BC(+) had positive BC (n=19). Presepsin, PCT, CRP, and other laboratory test results were compared between the groups.
RESULTS: There were no significant relationships between presepsin levels with sepsis, septic shock, mortality, or length of stay in ICU in patients with COVID-19. For PCT and CRP levels in BC(-)AT(+) and BC(+) groups were significantly higher than in control and BC(-)AT(-) groups ($p<0.001$). Additionally, CRP levels in BC(-)AT(-) group were significantly higher than in the control group ($p<0.001$). PCT and CRP, there was no difference between BC(-)AT(+) and BC(+) groups, and PCT there was no difference between control and BC(-)AT(-) groups.
CONCLUSIONS: Presepsin was not found as a useful biomarker for the prediction of sepsis in COVID-19 patients. These study findings indicate that PCT and CRP may be an indicator of an early diagnostic marker for superinfection in critically ill with COVID-19.
Keywords: covıd19, sepsis, presepsin, procalcitonin, crp

P019
COMPARATIVE PROTEOMIC STUDY OF Leishmania Tropica CAUSING CUTANEOUS AND VISCERAL LEISHMANIASIS

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OBJECTIVES: Leishmaniasis is a parasitic disease with two main clinical forms: Cutaneous (CL) and Visceral Leishmaniasis (VL). Recently, hybrid clinical forms have derived; L. tropica can cause both CL and VL.
L. tropica isolates from CL and VL patients are analyzed with gel-based and gel-free methods to compare the protein expressions and determine differential proteins that might cause viscerotropism in L. tropica.
MATERIALS and METHODS: Proteins were purified with acetone precipitation. Total protein quantification is determined by Bradford method before MS/MS analyses. 2D-PAGE coupled with MS and high-pH RPLC LC-MS/MS are used to analyze the proteins. Data were searched in the database by the Mascot server. Common and differential proteins between CL and VL samples were determined.
RESULTS: Proteins showing statistically significant changes between two groups are determined by t-test (p=0.05). Down-regulation of immunogens might reduce the immune system stimulation. Peroxidoxins might provide resistance to oxidative stress and contribute to parasite survival. Up-regulation of endoribonuclease in visceral isolates might protect the parasite against accumulated damaged proteins by any source of stress. Shotgun analysis results collaborates 2D-PAGE MS analysis results.
CONCLUSIONS: L. tropica might reduce essential functions and express minimum variety of proteins to avoid immune system recognition. Moreover, there were statistically significant proteins playing essential roles in L. tropica survival in macrophages in case of oxidative stress.
Keywords: Leishmaniasis, proteomics, mass spectrometry

P020
INFLAMMATION-BASED INDEXES PREDICTING MORTALITY IN COVID-19 PATIENTS

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OBJECTIVES: In this paper, we examined the efficiency of various Inflammation-based indexes, including neutrophil/lymphocyte ratio (NLR), platelet/lymphocyte ratio (PLR), lymphocyte/monocyte ratio (LMR), C-reactive protein/lymphocyte ratio (CLR), albumin/globulin ratio (AGR), hemoglobin, albumin, lymphocyte, and platelet (HALP), systemic immune inflammatory index (SII) and prognostic nutritional index (PNI) in predicting mortality in COVID-19 patients.
MATERIALS and METHODS: A total of 827 patients with COVID-19 were enrolled in our study. They were divided into survivor group (n= 733) and non-survivor group (n=94). Laboratory data were used to calculate the NLR, PLR, LMR, CLR, AGR, PNI, SII, and HALP score.
RESULTS: Compared with the survivor group, the NLR, PLR, CLR, and SII values of non-survivor group were markedly higher; however, the LMR, PNI, HALP and AGR values were markedly lower. Multivariate analysis identified PNI ≤40.03 (Odds ratio [OR] 5.89, P<0.001), NLR >4.78 (OR 4.21, P=0.002), CLR >16.65 (OR 3.60, P=0.011), age >57 years (OR 3.86, P=0.001), male sex (OR 2.03, P=0.022), and dyslipidemia (OR 2.52, P=0.038) as independent factors associated with mortality in COVID-19 patients. Additionally, PNI had the largest area under the curve to predict mortality (AUC= 0.897), followed by CLR (0.887), NLR (0.838) and other indexes.
CONCLUSIONS: Our data revealed that PNI, NLR and CLR are independent factors of mortality in COVID-19 patients among inflammation-based indexes. Assessment of these three indexes, particularly the PNI, can assist physicians in identifying high-risk cases with COVID-19 at an early stage.
Keywords: COVID-19 mortality, prognostic nutritional index, C-reactive proteinlymphocyte ratio, neutrophillymphocyte ratio

P021
ANALYSIS OF 8-OHDG, IMMUNOGLOBULINS, CRP, PROCALCITONIN, PROLIDASE, ANTIOXIDANTS IN PATIENTS WITH BRONCHIECTASIS TREATED WITH N-ACETYLCYSTEINE

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OBJECTIVES: Bronchiectasis is a chronic disease defined as permanent and irreversible dilatation of the bronchi. A long history of cough with purulen sputumt is typical sign for bronchiectasis. We aimed to analyze whether seum levels of biomarkers such as 8-hydroxydeoxyguanosine (8-OHdG), immunoglobulins, CRP, procalcitonin, prolidase, and antioxidants can be reliable markers in the diagnosis and follow-up thec clinical outcome of bronchiectasis in both N-Acetylcysteine (NAC). treated and non treated patients.
MATERIALS and METHODS: The study included bronchiectasis patients who applied to the Harran University Faculty of Medicine Chest Diseases Outpatient Clinic and healthy controls. The studied subjects were divided into patients treated with NAC, NAC non treated patients and healthy controls. 8-OHdG and Prolidase tests were studied with Eliza principle, IgG, IgA, nephelometric method in siemens BNII and procalcitonin radiometer AQT90 FLEX and TAS, TOS, OSI and CRP spectrophotometrically siemens atellica devices.
RESULTS: Serum levels of 8-OHdG, TOS, TOS, OSI prolidase, IgG, IgA, procalcitonin and CRP were significantly higher in the Non-NAC group compared to the other groups, while IgM was significantly decreased (P<0.001).
CONCLUSION: The study showed that NAC had significant effects on tle levels of studied variables. Monitoring immunoglobulin levels both in NAC treated and non treated patients may be helpful for earlier identification of risk for developing significant microbial infections and dectection the presence of any underlying immunological defect.
Keywords: Bronchiectasis N-Acetylcysteine 8-OHdG Prolidase

P022
THE RELATIONSHIP OF SERUM SORTILIN AND PCSK9 LEVELS WITH LIPID METABOLISM IN BEHCET'S PATIENTS

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OBJECTIVES: Behcet disease (BD) is a systemic vasculitis of unknown etiology that affects the small and the large vessels of the venous and arterial systems. Sortilin, which facilitates the secretion of proprotein convertase subtilisin/kexin 9 (PCSK9), causes an increase in circulating LDL-C levels by decreasing the entry of LDL into hepatocytes by increasing the destruction of LDLR. We aimed to measured Sortilin and PCSK9 parameters related to the lipid profile with an integrative approach on the basis of inflammatory and vasculitis in Behçet's disease.
MATERIALS and METHODS: A total of 47 patients with BD, 17 patients with AS as patients controls, and 17 healthy controls were enrolled in this study. Behcet's patients were three sub-grouped as without any organ involvement, with only eye involvement, and with only vascular involvement. Sortilin, PCSK9, OxLDL, and ApoB100 levels were determined by immunoassays.
RESULTS: Sortilin (p<0,001) and PCSK9 (p<0,001) levels were higher in Behcet's patients compared to healthy controls. Sortilin was found to be positively correlated with LDL-C (r=0.309, p =0.034) and PCSK9 (r=0.410, p=0.004) in BD.
CONCLUSIONS: These findings might indicate high serum Sortilin levels increase the LDL-C and PCSK9 and that Sortilin is a possible marker of Behçet's disease. In the literature review conducted so far, these are the first reported investigation the levels of Sortilin and PCSK9, which are considered to be regulators of cholesterol metabolism, in Behcet's patients. Further studies are needed to determine whether these parameters can be used as markers of cardiovascular complications in BD.
Keywords: behcets disease, eye ınvolvement, sortilin, vasculitis, pcsk9

P023
ELEVATED LEVELS OF NEOPTERIN AND PENTRAXIN 3 IN PATIENTS WITH RHEUMATOID ARTHRITIS

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OBJECTIVES: Rheumatoid arthritis (RA), a systemic inflammatory disease, is the most common inflammatory arthritis in the population and there is no biomarker in laboratory tests. The aim of the study was to determine whether serum neopterin and pentraxin 3 (PTX3) levels may be a marker of inflammation in RA patients.
MATERIALS and METHODS: The study were performed with 30 RA patients and 30 healthy controls who were admitted to the department of rheumatology. Blood samples were taken from both group, and the levels of neopterin were analyzed by chromatography method (HPLC) and the PTX 3 levels were measured by enzyme-linked immunosorbent assay (ELISA).
RESULTS: The serum levels of PTX 3 and neopterin of the RA patient group (25.99±7.24 ng/mL and 4.19±1.01 ng/dL, respectively) was higher than the control group (9.55±0.74 ng/mL and 2.23±0.39 ng/dL, respectively). These results were significant (p<0.01). No statistically significant correlation was found between age-PTX 3, age-neopterin and PTX 3-neopterin parameters in the patient group. In the control group, a significant negative correlation was found between age and PTX 3 (p<0.05), and a positive correlation between PTX 3 and neopterin.
CONCLUSIONS:
As observed, serum PTX 3 and neopterin levels were inreased in patients group as compared to the controls. These results may proposed that PTX 3 and neopterin are potantial biomarkers in RA disease.
Keywords: rheumatoid arthritis, neopterin, inflammation, pentraxin 3

P024
ANALYZING HEMOGRAM PARAMETERS IN INDIVIDUALS WITH NON ALCOHOLIC FATTY LIVER DISEASE

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OBJECTIVES: Non-alcoholic fatty liver disease (NAFLD) is a disease characterized by hepatic steatosis without a secondary cause (Alcoholism, etc.). Its growing in importance, by progression to cryptogenic cirrhosis, could even lead to hepatoceluller carcinoma (HCC) and it is ranked first among the causes of liver transplantation, by surpassing alcoholic cirrhosis. The increase in the prevalence of metabolic syndrome, obesity and Type 2 Diabetes Mellitus (Type 2 DM) throughout the world also contributed to this increase. In this study, we aimed to evaluate Mean Neutrophile Volume (MNV), Mean Lymphocite Volume (MLV), Mean Eosinophile Volume (MEV) and Mean Monocyte Volume (MMV) parameters in adults with (NAFLD)
MATERIALS and METHODS: The study was performed on 30 patients and 35 control individuals. All Statistical analysis was performed using the SPSS program. Laboratory parameters of the patients were investigated with Mann-Whitney U test.
RESULTS: While the mean age was 42.53 (34-53) in the patient group, it was 39.37 (29-58) in the control group. MNV and MLV values were found as 147 fl (136-157) and 92 fl (85-99) in the patient group; and found as 153.71 fl (138.6-169, p<0.001) and 162.10 (154.50-176, p<0.001) in the control group. MEV and MMV values were found as 157.86 fl (140-172) and 179.16 fl (160-197) in the patient group, and found as 154.47 fl (140-169, p=0.073) and 162.10 (154,50-176, p<0.001) in the control group.
CONCLUSIONS: NAFLD, which is a outcome of metabolic syndrome, obesity and Type 2 DM; is an important disease that can lead to cryptogenic cirrhosis and HCC and as a result of these conditions leading to liver transplantation. Hemogram parameters MNV, MLV and MMV can be used for follow up of the disease
Keywords: cryptogenic cirrhosis, nonalcoholic fatty liver disease, hemogram parameters, metabolic syndrome, obesity

P025
INVESTIGATION OF INHIBITORY EFFECTS OF PROPOLIS EXTRACTS ON LIPASE ENZYME PURIFIED FROM BOVINE PANCREAS

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OBJECTIVES: The aim of this study is to purify pancreatic lipase enzyme from different biological sources, frequently used in medical and drug industry, with chromatographic methods and investigate inhibitory effect of natural propolis on this enzyme activity.
MATERIALS and METHODS: Pancreatic lipase enzyme (EC.3.1.1.3), which is responsible for digestion of triglyceride and released by acinar cells of pancreas, was purified with gel-filtration chromatography method from bovine pancreas. Lipase activity was characterized with sodium dodecyl sulfate polyacrylamide gel electrophoresis with 17,94 % productivity ratio and 568.58 purification ratio. Propolis samples collected from six different regions of Turkey and were analyzed for their potential effect on pancreatic lipase enzyme activity after extraction. To define the composition of propolis extracts, total amount of polyphenol and flavanoid matter were calculated spectrophotometrically.
RESULTS: All propolis extracts indicated inhibitory effect on lipase activity and their IC_{50} values were 4,00 mg/mL (Düzce propolis), 11,80 mg/mL (Balıkesir propolis), 7,69 mg/mL (Kırmızı propolis), 6,91 mg/mL (Hakkâri propolis), 12,68 mg/mL (Kırklareli propolis), and 9,23 mg/mL (Artvin propolis). According to this data, Düzce propolis extract has the highest inhibition effect with ratio of IC_{50} 4,00 mg/mL. The highest polyphenol and flavanoid matter has been determined in Düzce propolis as 41,35+0,43 mgGAE/ mL and 5,69+0,05 QE/mL respectively. Conclusions: These findings indicate that inhibition effect of propolis extracts on lipase activity is directly related to their composition and they have a good potential to be used as anti-obesity agent.
Keywords: Pancreatic lipase, Propolis, Inhibitory effect

P026
THE FUNCTION OF THE HISTONE VARIANT H2A.Z-1 IN THE EPITHELIAL TO MESENCHYMAL TRANSITION IN VARIOUS CELL TYPES

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OBJECTIVES: Epithelial-to-mesenchymal transition (EMT) is an embryonic program in which epithelial cells lose their characteristics and gain mesenchymal features. Histone variants, the main epigenetic actors, are non-allelic protein isoforms that play key roles in diversifying chromatin structure. Our main goal is to examine how the histone variant H2A.Z-1 controls the epigenetic regulation of EMT. This variant is important for many different nuclear functions and transcriptional processes, including the activation and silencing of genes.
MATERIALS and METHODS: In this study, we compared the effects of H2A.Z-1 depletion in two EMT models (MCF10A and NMuMG). We transfected the cells with control and siRNA targeting H2A.Z-1 for 3 days and observed morphological changes by phase-contrast and confocal microscopy. Efficient knock-down of the H2A.Z-1 gene and mRNA expression analysis of EMT-related markers was verified by qPCR.
RESULTS: Our results revealed that the depletion of H2A.Z-1 gene in MCF10A resulted in an EMT-like phenotype, characterized by the downregulation of epithelial markers and the upregulation of mesenchymal markers. While knockdown of H2A.Z-1 did not lead to any EMT-like phenotype in NMuMG cells.

CONCLUSIONS: Taken together, our findings suggest that H2A.Z-1 knockdown leads to a profound EMT-like phenotype that is accompanied by a downregulation of CDH1 gene expression in MCF10A cell line. However, no significant differences were detected on NMuMG. Further research is needed to better understand the reasons for the observed differences between MCF10A and NMuMG on the progression of EMT.
Acknowledgment: This study is supported by TUBITAK with grant number 118C354.
Keywords: emt, histone variants, h2az1, mcf10a, nmumg

P027
HISTONE VARIANT H3.3 ASSOCIATED REGULATION OF EPITHELIAL TO MESENCHYMAL TRANSITION IN HUMAN AND MOUSE BREAST CELL LINES

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OBJECTIVES: The epithelial to mesenchymal transition (EMT) is a highly complex process in which epithelial cells lose their polarity and gains mesenchymal properties. EMT and its regulation has significant importance in cancer and metastasis. Among their important functions in different processes, mutations in histone variant H3.3 are also found in several cancer types. However, the role of histone variants in tumorigenesis and epigenetic regulation of EMT remains elusive. Here, we used loss of function approach to study the effect of H3.3 on EMT progression.
MATERIALS and METHODS: In this study, the effects of H3.3A depletion are compared in two EMT models;MCF10A and NMuMG. Cells are transfected with control and H3.3A siRNAs by Lipofectamine-RNAi reagent and morphological changes are observed by phase-contrast microscopy and immunostaining. Efficient knock-down of H3.3A was confirmed and expression analysis of EMT-related markers was studied by qPCR.
RESULTS: Our results showed an efficient knock-down of H3.3A gene in MCF10A cells, accompanied by the downregulation of epithelial markers such as CDH1 and GRHL3 and upregulation of mesenchymal markers including CDH2, ZEB1/2, revealing a major correlation with EMT phenotype while it didn't lead to a clear EMT-like effect when NMuMG cells were used.
CONCLUSIONS: Our results suggest that H3.3A knockdown leads to EMT-like phenotype in MCF10A while no significant change was detected in NMuMG cells. This novel insight into the epigenetic regulation of EMT by histone variants need to be further studied to understand the contradictory effects in different cells.
Acknowledgement: This study is supported by TUBITAK grant:118C354.
Keywords: Epithelial to Mesenchymal Transition EMT, MCF10A, H33, NMuMG, Histone Variants

P029

PHOTOTHERAPY OF CALCIUM OXALATE CRYSTALLYSATION IN PRESENT EXTRACT PLANTS IN VITRO

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OBJECTIVES: This in vitro study aimed to determine whether dietary restriction of calcium and oxalate, combined with medicinal plants treatment, would prevent stone formation and avert bone loss.
MATERIALS and METHODS:Ten extracts of wild Algerian plants were prepared daily just before handling by suspending a weighed amount of dry plant material in boiling tap water at room temperature. The artificial urine was prepared immediately before use by mixing in a T-type mixing chamber. Mixture agitation was maintained to prevent sedimentation. Percentage of inhibition of crystallisation (I%) was calculated as previously described.
RESULTS: Extracts of plants used in this study were found to potently inhibit the nucleation, growth and aggregation phases of calcium oxalate crystallysation. Ammodaucus leucotrichus and Ajuga iva extracts demonstrated inhibition at all three phases of calcium oxalate crystallysation, while extracts of Erica multiflora, and Globularia alypum (flowers), inhibited nucleation and growth but not the aggregation of crystals.
DISCUSSION: Our study demonstrates typical effects of the plant extracts on the various phases of calcium oxalate crystallization. Dietary restriction of calcium and oxalate, combined with medicinal plants satisfactorily controlled hypercalciuria, prevented the secondary increase in urinary oxalate, reduced urinary saturation of calcium oxalate, virtually eliminated recurrent stone formation, and increased bone density. This dietary pharmacological program controlled stone formation as well as bone loss that often accompany absorptive hypercalciuria.
Keywords: Vitro study, Crystallysation, Medicinal plants, Inhibition, Artificial urine

P030

THE EFFECT OF REFLEXOLOGY APPLIED IN THE EARLY LACTATION PERIOD ON VEGF, ENDOSTATIN, MMP AND THROMBOSPONDIN LEVELS

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OBJECTIVES: Women's life goes through many different physiological stages. One of the important life periods of women is the lactation period, which is in the fertile period. Lactation is the process of making breast milk. In our study, we aimed to investigate the effect of VEGF, MMP, Endostatin and Thrombospondin-1 levels, which are angiogenic and antiangiogenic markers, on lactation in individuals who were applied reflexology on the pituitary and reproductive organs and lumbosacral area.
MATERIALS and METHODS: In this study, a total of 90 postpartum women, 60 experimental group and 30 control group, who had a normal birth in the Obstetrics and Gynecology Service of MCBU Hafsa Sultan Hospital, who met the inclusion criteria and accepted to participate in the study were collected. All blood was collected, it was studied at the same standards using the same analysis method. VEGF, Endostatin, MMP and Thrombospondin levels were measured using the Elisa method.
RESULTS: While MMP and Endostatin decreased statistically, TSP level increased statistically when the control group and endocrine / reproductive system were compared. When the control group and the lumbosacral region were compared, MMP level decreased statistically, while VEGF, Endostatin and TSP levels were not statistically significant. When the lumbosacral region was compared according to the endocrine / reproductive system, MMP level increased statistically while TSP level decreased statistically
CONCLUSIONS: In conclusion, in this study, it was observed that reflexology applied to the region where the lumbosacral and endocrin systems / reproductive organs are located is more effective in terms of breast milk production. Considering that angiogenetic factors increase especially during the lactation process, it is expected that reflexology will increase breast milk and the mother will also relax and experience a comfortable breastfeeding process.
Keywords: Refloxology, Lactation, Angiogenesis

P031

INVESTIGATION OF THE LEVELS OF METHYL ARGINE METABOLITES IN THE GESTATIONAL PERIOD

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OBJECTIVES: The importance of methylated arginine derivatives, which is an indicator of chromosomal anomalies, especially endothelial dysfunction, is extremely important in hemodynamic changes and maternal problems (cardiovascular diseases, preeclampsia, eclampsia, cervical insufficiency, etc.) that may occur during pregnancy or in pregnancy problems related to the fetus. The methylarginines asymmetric dimethylarginine (ADMA), N-monomethyl L-arginine (L-NMMA), and symmetric dimethyl arginine (SDMA) are the major methyl arginine derivatives. In our study, we aimed to investigate the reference intervals of ADMA and its metabolites (SDMA, L-NMMA, arginine, citrulline, homoarginine and ornithine) levels during the gestational period (6-10 weeks).
MATERIALS AND METHODS: A total of 80 pregnant women between the ages of 18-45 were included in the study. Pregnant women were divided into 2 groups as 30 years and older. The levels of ADMA and its metabolites in serum samples were analyzed by LC-MS/MS method in ABSCIEX API 3200 device.
RESULTS: According to the statistical data of the results obtained, the median (minimum-maximum) values (respectively) for ADMA SDMA, L-NMMA, arginine, citrulline, homoarginine and ornithine; 0.13 (0.0695-48 (; 0.2 (0.09-64.5(; 0.0078 (0.00257-2.55(; 0.13(7.39-42); 0, 37 (10.5-162), 0.5 (0.264-57.9) and 7 (2.62-74), and p values (0.62; 0.608; 0.456; 0.523; 0.421; 0.453; 0.355) respectively was calculated as.
CONCLUSIONS: There was no significant difference between gestational age groups in the levels of ADMA and metabolites. In

order to determine the levels of ADMA and its metabolites, further studies are needed by considering gestational week intervals at different ages.
Keywords: pregnancy, adma, sdma, lnmma

P033
Abstract Number : 3865
PARAOXONASE-1 ACTIVITY AND ZINC LEVELS IN COVID-19 POSITIVE PATIENTS

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OBJECTIVES: Paraoxonase-1 is a circulating enzyme-functional protein bound to HDL. It is important for the prevention of oxidative stress in the development of atherosclerotic vascular diseases. Zinc is very important for the functioning of mechanisms that are important in combating oxidative stress. The aim of this study was to evaluate changes in zinc levels and PON-1 activity in COVID-19 positive patients during illness and after recovery.
MATERIALS and METHODS: 32 COVID-19 female patients between the ages of 21-38 who applied for COVID-19 and were discharged in good health were included in the study. Serum samples were collected from the same patients 6 months after recovery. Colorimetric method (Rel Assay Diagnostics) was used for zinc measurement and kinetic measurement (Rel Assay Diagnostics) was used for PON-1. Related-Samples Wilcoxon Signed Rank Test was used for comparison of the two groups.
RESULTS: No significant differences in relation to demographic data were found between the two groups. As a result of statistical analysis p=0.055 for PON-1 activity and p=0.02 for zinc levels were determined. PON-1 activity was not significantly different between the two groups whereas zinc levels were significantly decreased during COVID-19 infection.
CONCLUSIONS: In this study, no statistically significant difference was observed for PON-1 activity during and after COVID-19 infection. Decreased serum zinc levels during COVID-19 infection indicate that zinc is used in the defense mechanism during the disease. For both parameters, studies with larger samples and healthy control groups are needed.
Keywords: paraoxonase1, covıd19, zinc

P034
A NEW BIOMATERIAL AS A GELLING AGENT IN ELECTROCHEMICAL AND IMPEDIMETRIC-BASED GLUCOSE SENSORS: PECTIN OF OPUNTIA FICUS INDICA

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OBJECTIVES: The design of the bioactive layer is a vital part of electrochemical/impedimetric biosensor development. Its gelling property contributes to the stabilization of the bioactive layer. Glucose biosensors are point-of-care devices in determining blood glucose levels. For this purpose, the spiny stem of Opuntia ficus-indica (OFI) was evaluated as a gelling agent in sensor systems.
MATERIALS and METHODS: After the pectin extracted from the stem of OFI was compared with commercial pectin, SEM and FTIR analyzes were performed by forming composites with alginate, chitosan, BSA, gelatin and starch. In biosensor measurements, glucose oxidase-peroxidase and 2.5% glutaraldehyde were used.
RESULTS: The pectin-chitosan complex is found in a heterogeneous-bud structure in SEM micrographs. There are characteristic peaks in the FTIR spectra of the complex formed. In the voltammogram of the electrochemical sensor, it was observed that the highest peak studied in the range of 0.3-1.2V belonged to the pectin-chitosan polymer. In the impedimetric sensor, the formal potential for pectin and pectin-chitosan polymer was calculated as 220 and 232mV. Peak separations were calculated as 170 and 85mV.
CONCLUSIONS: The hydrophilic and granular pectin-chitosan is beneficial in that it does not allow unstable molecules to be in the active layer and allows the binding of proteins to solid surfaces. By expanding the surface matrices with gel complexes, they increase the immobilization capacity and provide a network environment for ligand binding. SEM, FTIR and electrochemical-impedimetric results, we can define
OFI as a new biomaterial with its gelling property in the bioactive layer of glucose sensors.
Keywords: impedance, electrochemistry, biosensor, Opuntia ficus indica pectin, glucose

P035
STUDY OF FERRITIN KINETICS IN SEVERE FORMS OF COVID-19

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OBJECTIVES: The objective of our work is to study the evolution of ferritin levels in severe forms of Covid-19, in patients hospitalized at the Mohammed VI University Hospital of Oujda.
MATERIALS and METHODS: This is a retrospective study including 100 patients with severe forms of Covid-19, who were hospitalized at the Mohammed VI University Hospital of Oujda. Ferritin was determined by immunological method on microparticles by chemiluminescence. We calculated the evolution rate of ferritin from the values obtained from the first and last examination requested during hospitalization according to the following formula: Rate of change = [(Final value - Initial value)/ Initial value] * 100. This rate of change was studied according to age and sex, so we compared this rate between the group of deceased subjects and the group of cured subjects by performing the Student's test.
RESULTS: Twenty-six subjects of our study population had died. The mean value of the evolution rate of ferritin was 2465.14%, the study of the evolution rate according to sex found a rate of 4251.43% in women and 132.87% in men. The rate of progression in cured subjects was -28.14%, while the rate of progression in deceased subjects was 435.98%, the Student's t test found that the mean of the deceased group was significantly higher than the mean of the cured group ($p<0.05$).
CONCLUSIONS: Our study underlined the interest of studying ferritin kinetics in severe forms of Covid19, which may have a prognostic value. Further studies should be performed in this

setting to properly assess this parameter in the clinical context.
Keywords: Covid-19, ferritin, prognosis

P037
EVALUATION OF PEPTIDE PROFILES OF BREAST CANCER TISSUES IN DIFFERENT RISK GROUPS ACCORDING TO PAM50 TEST RESULTS BY MALDI-IMAGING MASS SPECTROMETRY

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OBJECTIVES: Formalin-fixed-paraffin-embedded(FFPE) tissues are valuable in proteomic studies as they allow for retrospective research.Matrix-assisted laser desorption/ionization(MALDI)-Imaging mass spectrometry method is soft ionization technique in which laser energy is used for the ionization of molecules, and spatial distribution of analytes on tissue is determined in accordance with tissue histology.In this study, it was aimed to analyze the peptide profiles of FFPE breast cancer tissues evaluated in different risk groups.
MATERIALS and METHODS: Sections of 3µm thickness from FFPE breast tissues were taken on indium-tin-oxide coated slides in microtome.After washing with xylene and decreasing alcohol concentrations, antigen retrieval was performed with 10mM Tris-HCl buffer solution.100ng/µl trypsin enzyme was used to digestion proteins into peptides, and then tissue was coated with 5mg/ml α-CHCA matrix prepared in 70%acetonitrile and 1%trifluoroacetic acid.Tissues were analyzed with RapifleX-MALDI-Tissue-Typer. The number of monoisotopic peptides, peptide localizations associated with histological and hierarchical clustering analyzes were used to evaluate the results.
RESULTS: The peptides obtained as a result of the analysis were compared between the groups in terms of peak numbers and signal intensities.Higher number of peptides were obtained in tissues of luminal A subtype evaluated in high-risk group compared to other groups.S/N ratios and relative intensity values of 5peptides with the highest signal intensity were found to be higher than other groups. Peptide identifications were made by LC-MS/MS method and common and different peptides were determined between groups.
CONCLUSIONS: The localization and identification of peptides belonging to tissues, which are evaluated in different risk groups and subtypes according to the PAM50 test, have been completed.
Keywords: FFPE, MALDI-Imaging Mass Spectrometry, LC-MSMS, Peptide, PAM50

P038
THE EFFECT OF VASCULAR ACCESS ADAPTER ON HEMOLYSIS RATE IN EMERGENCY ROOM PATIENTS

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OBJECTIVES: Hemolysis is an important rejection criterion in patients admitted to the Emergency Department. In this study, the hemolysis effect of intravenous adapter use was investigated.
MATERIALS and METHODS: Blood was drawn from the first group (n=100) routinely and from the other group (n=100) using an intravenous adapter (VACUETTE® Safelink). Samples were taken from the non-fluid arm and delivered to the laboratory within 15-30 minutes by the same personnel, reducing the elements that could cause hemolysis and then centrifuged (4000 rpm).
RESULTS: Hemolysis was observed in eight out of 100 patients in the vascular access adapter group. Six of them were one positive (+) and the other two were two positive (++). On the other hand, hemolysis occurred in 47 out of 100 patients in the group in which blood was drawn with an injector. In this group, 33 one-positive (+), 10 two-positive (++), two three-positive (+++) and two four-positive (++++) hemolyzed samples were detected. Total Protein, Urea, LDH, AST, ALT and Potassium values in the samples taken with the intravenous adapter were found to be significantly lower than the injector group (p values; 0.018, 0.031, 0.001, <0.001, 0.001 and 0.004), respectively.
CONCLUSIONS: It was determined that blood samples taken from emergency room patients using an intravenous adapter seriously prevented the formation of hemolysis. Reducing the rate of hemolysis prevents repetitions of analysis and facilitates the evaluation and intervention of the patient in a shorter time, both in terms of cost and time.
Keywords: Hemolysis

P039
THERAPEUTIC MONOCLONAL ANTIBODY INTERFERENCE IN MONOCLONAL GAMMOPATHY MONITORING: A DENOSUMAB EXPERIENCE

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OBJECTIVES: Interference is a major concern in clinical laboratories. Every test is prone to the risk and electrophoresis is no exception. Introduction of monoclonal agents as a therapeutic option in multiple myeloma is a breakpoint in managing interferences in electrophoresis. The basic structure of these agents is very much alike the protein end products of the neoplastic myeloma cells: both are monoclonal immunoglobulins.
Case Report: A 73-year-old woman was diagnosed with a lambda light chain myeloma. A follow-up immunofixation electrophoresis showed a monoclonal immunoglobulin G kappa in addition to the regular lambda band. A monoclonal antibody therapy interference was suspected but her VRD (bortezomib, lenalidomide, dexamethasone) regimen lacked such a medication. Later it was learned that she was using denosumab, a monoclonal human antibody agent to cure the bone lesions. Immunoglobulin G kappa

band disappeared 4 months after the first and 7 months after the last dose of denosumab, confirming a case of interference.
CONCLUSIONS: This case once again emphasizes the importance of delta check and close relations with the clinicians to avoid a false result in electrophoresis. It also describes the migration pattern of denosumab. As therapeutic antibodies gain approval and enter into common clinical practice, drug interference will complicate electrophoresis testing in diagnosis and patient follow-up.
Keywords: denosumab, immunfixation electrophoresis, multiple myeloma, interference

P040
FALSE CALCIUM AND POTASSIUM RESULTS DUE TO CONTAMINATION WITH K3-EDTA IN THE PREANALYTICAL PROCESS

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OBJECTIVES: In the medical biochemistry laboratory, approximately 70% of all errors in the total testing process are preanalytical errors. In this study, we aimed to determine the effects of errors made in the preanalytical process on calcium and potassium results due to K3-EDTA contamination during blood collection.
MATERIALS and METHODS: Between 01 August and 30 September 2022, serum calcium (Ca) and potassium (K) results and retest requests of 8470 patients with serum Ca levels below 8.6 in the Medical Biochemistry Laboratory of Hamidiye Etfal Training and Research Hospital were examined.
RESULTS: It was determined that 205 of the patients were asked for blood again. Serum Ca levels were found to be higher (4.91±1.89 vs 8.57±0.70 mg/dl, $p<0.0001$) and serum K levels were lower (8.91±4.99 vs 4.0±0.67, $p<0.0001$) in 32 of 205 patients whose blood was taken under appropriate conditions. In the examination carried out in the blood collection unit, it was observed that the blood was not taken into the sample tubes in the correct order or the blood taken with the injector was transferred to the straight tube after contacting the contents of the tube with K3-EDTA.
CONCLUSIONS: Contamination with K3-EDTA during blood collection may cause false Ca and K results. Necessary training should be given to all nurses and health personnel working in the preanalytical process in this regard.
Keywords: K3-EDTA, Calcium, Potassium, Preanalytical Error

P041
ZINC AND SELENIUM LEVELS MAY AFFECT THE SEVERITY AND PROGNOSIS OF COVID-19

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OBJECTIVES: Pathogenesis of COVID-19 is multifactorial and the resulting systemic hyperinflammatory response predicts disease outcome. Many publications emphasize the relationship between disease prognosis and the immune system. Zinc and selenium supplements are recommended to support immunity in the treatment of the disease. The clinical significance of plasma selenium and zinc levels has not yet been clarified, as it is not well known whether these patients have pre-treatment selenium and zinc deficiency. The aim of this study is to determine the clinical significance of selenium and zinc levels in COVID-19 and examine the possible correlation with disease severity.
MATERIALS and METHODS: Patients who attended Lokman Hekim University Ankara Hospital with COVID-19 symptoms and had positive PCR test results were included in the study. In addition to selenium and zinc levels, D-dimer, ferritin, C-reactive protein, and arterial oxygenation levels, presence of pneumonia, need for oxygen inhalation therapy, and mechanical ventilation was evaluated to determine the severity and prognosis of the disease. Patients were grouped according to disease severity as mild and severe and were compared to data of patients who did not have COVID-19.
RESULTS: While D-dimer, C-reactive protein and ferritin levels of patients in the severe COVID-19 group were significantly higher; selenium and zinc levels were significantly lower compared to the non-COVID-19 group.
CONCLUSIONS: Maintaining an optimum level of selenium and zinc is essential in the prognosis of the disease.
Keywords: covıd19, trace elements, selenium, zinc, immune system

P042
EVALUATION OF ACTIVE B12 LEVELS IN PATIENTS WITH BORDERLINE TOTAL B12 LEVELS

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OBJECTIVES: Vitamin B12 is an essential vitamin required for normal cell activity, proliferation and metabolism. Studies have shown that the total B12 level can be normal in the early stage of deficiency. In our study, we aimed to determine the active form holotranscobalamin levels of borderline group patients with total B12 level of 200-400 ng/L and to reveal the relationship between holotranscobalamin and total B12 levels.
MATERIALS and METHODS: Patients were divided into three groups according to their Total B12 levels: High Level Group (>400 ng/L, n:32), Borderline Group (200-400 ng/L, n:32), Low Level Group (<200 ng/L, n:33). A cut-off value of 32 pmol/L was accepted for holotranscobalamin in determining the deficiency. Both tests were studied with the Chemiluminescent Microparticle Immunoassay (CMIA) method. (Abbott Architect i2000SR). Statistical analysis was performed using IBM SPSS v.22.0.
Holotranscobalamin mean±SD values were 112.68±63.67 pmol/L in the high-level group, 49.62 ± 25.92 pmol/L in the borderline group, and 25.14 ± 11.36 pmol/L in the low-level group. A strong positive correlation was found between total B12 and holotranscobalamin. ($r=0.774$, $p=0.000$) It was observed that holotranscobalamin levels were below the cut-off value in 24 samples (72.7%) in the low-level group, in 10 samples (31.3%) in the borderline group, and above the cut-off value in all samples (100%) in the high-level group.
CONCLUSIONS: Active B12 levels may be more determinative to detect B12 deficiency earlier in low-level and borderline groups

compared to total B12 levels.
Keywords: Holotranscobalamin, Active B12, Total B12, B12 Deficiency

P044
ROLE OF TOLL-LIKE RECEPTORS IN PHOTODYNAMIC THERAPY OF NOVEL ZN(II) PHTALOCYANINE COMPOUND ON LUNG CANCER CELLS

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OBJECTIVES: Lung cancer is the leading cause of cancer deaths worldwide according to GLOBOCAN. Photodynamic therapy (PDT) is one of the alternative cancer treatments that combines a photosensitizer, specific light, and molecular oxygen. Phthalocyanines can be used as a photosensitizer for PDT. Toll-Like Receptors (TLRs) are a family of transmembrane receptors and play a role in cancer development and progression. In this study, it was aimed to investigate the phototoxic effect of a novel compound (n-DM-C6-ZnQ) on human lung (A549) cell lines and the relationship between TLR signaling pathway and PDT with phthalocyanines.
MATERIALS and METHODS: The cytotoxicity and phototoxicity (red light, 15 mW/cm^2, 5 and 15 min) of n-DM-C6-ZnQ were investigated using MTT assay on A549 cells (n=6, 0.01-10 µM, 24 h). Then, Anneksin V-FITC apoptosis test were used to determine the cell death mechanism. Finally, the expression of TLR4, TLR2, NFkB, p-NFkB, and caspase-3 were investigated using western blotting.
RESULTS: The results showed that n-DM-C6-ZnQ did not have noticeable cytotoxic actions on A549 at used concentrations, but the compound displayed significant phototoxic actions ($p < 0.001$). In addition, cells were induced to apoptosis in the presence of n-DM-C6-ZnQ (1 µM) when irradiated with red light.
After treatment, the expression of TLR2, TLR4, and caspase-3 significantly increased and phospho-NF-kB/total NF-kB decreased compared to that of control group ($p < 0.05$).
CONCLUSIONS: These results provide strong evidence that n-DM-C6-ZnQ might be a potential therapeutic candidate with its phototoxic and apoptotic effects via activating TLR signaling for alternative lung cancer treatment.
Keywords: A549, cancer, photodynamic therapy, toll-like receptors

P045
ATG9A GENE IS REQUIRED FOR THE SURVIVAL OF MALIGNANT PLEURAL MESOTHELIOMA CELLS

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OBJECTIVES: Malignant pleural mesothelioma (MPM) is a cancer that occurs in the mesothelial cells lining the pleural surface of the chest wall and lung. Currently available multimodal treatments do not provide long-term survival. To identify novel targets, we performed a comparative genome-wide CRISPR/Cas9 screening in MPM cell lines and identified MPM-specific candidate genes with the potential to play a vital role in carcinogenesis. One of these genes is the Autophagy Related 9A (ATG9A) gene which is known to play an important role in autophagy.
MATERIALS and METHODS: H2052 and H2452 cancer cell lines and one non-tumorigenic mesothelial cell line, Met5A were used. ATG9A expressions were silenced by CRISPR-Cas9 targeting. Cell proliferation response was demonstrated by colony formation, BrdU labelling, soft agar and MTT assays. Transwell assay and wound healing assay were also performed.
RESULTS: We found that the proliferation capacity of cancer cells in which ATG9A gene was perturbed is reduced in Competition assay, MTT assay, BrdU labelling, colony formation and soft agar experiments compared to the control gene, Renilla. We also showed that invasion and migration capacity of ATG9A silenced cancer cells was significantly decreased.
CONCLUSIONS: Since few studies are effective in characterizing the genes involved in the MPM carcinogenesis and ATG9A is a gene that has been under-studied, we believe that the findings of this study may strongly contribute to the ATG9A and cancer literature while also promoting future studies for the discovery of effective therapeutic strategies for the treatment of MPM patients.
Keywords: malignant pleural mesothelioma, ATG9A, Autophagy, CRISPRCas9

P046
THE MOLECULAR ROLE OF RUVBL1 GENE ON CANCER CELL PHENOTYPES IN MALIGNANT PLEURAL MESOTHELIOMA

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OBJECTIVES: Malignant pleural mesothelioma (MPM) is a fatal tumor of the pleural membrane of the lung. Elucidating the molecular mechanisms underlying MPM carcinogenesis is critical for the development of new therapeutic modalities. To this end, we conducted a CRISPR/Cas9-based genome-wide negative-selection screening in MPM cell lines and identified several genes that were associated with cancer cell survival. One of these genes, RUVBL-1, is a highly conserved eukaryotic AAA+ ATPase. The aim of this study is to investigate the molecular and functional aspects of genetic and pharmacological inhibition of RUVBL1 gene in MPM cells.
MATERIALS and METHODS: H2052 and H2452 cell lines were used in this study. BrdU labeling, colony formation, cell cycle and MTT assays were performed to investigate cell proliferation and colony-forming capacity of these cells. Wound healing and transwell invasion assays were examined to evaluate invasion and migration capacity of these cells.
RESULTS: We report that CRISPR/Cas9-mediated perturbation of the RUVBL1 gene reduces the colony-forming capacity

and invasiveness of MPM cells and slows their proliferation. We also observed that RUVBL-1 overexpression did not affect cell proliferation and colony formation, yet the cells acquired mesenchymal properties.
CONCLUSION: Our findings reveal that reduced expression of RUVBL1 gene is associated with the survival inhibition of MPM cells, suggesting that this prominent gene may play key roles in MPM carcinogenesis and represent a therapeutic vulnerability in this cancer. Our future studies aim to elucidate the main regulators and molecular mechanisms through which RUVBL1 contributes to these cancer cell phenotypes in MPM.
Keywords: ruvbl1, pharmacological ınhibition, crısprcas9, malignant pleural mesothelioma

P047
DEVELOPMENT OF "CELL IN SITU COLLAGEN ZYMOGRAPHY" METHOD FOR DETERMINING LOCAL ACTIVITIES OF COLLAGENASES

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OBJECTIVES: Collagenases (MMP-1,-8,-13) are enzymes belonging to the family of matrix metalloproteinases and play significant roles in tumor invasion and metastasis. Collagen gel zymography and in situ zymography are used in the analysis of collagenases. Existing in situ methods are not sufficient for in vitro determination of local activities of collagenases. In this study, it was aimed to develop the "cell in situ collagen zymography" method.
MATERIALS and METHODS: 8505C anaplastic thyroid cancer cells were first fixed with zinc, methanol and ethanol, and the effects of fixatives on cell adhesion were investigated. Three different gel models were formed in a 96-well plate with gel mixtures containing type-1 collagen/ fluorescent-labeled type-1 collagen with different ratios. These models are: cell on bottom- gel mixture on top, gel mixture on bottom- cell on top and cell between two different gel mixtures (sandwich).
RESULTS: The effects of the fixatives used on the fluorescence signal intensity were examined on the formed collagen gels and the sandwich model was determined as appropriate. In this model, the ratio of type-1 collagen: fluorescent-labeled type-1 collagen was applied as 2:1. We observed that thyroid cancer cell adhesion and fluorescence intensity increased with methanol fixation compared to zinc and ethanol fixation.
CONCLUSIONS: In the sandwich model we developed, we observed that the cells and fluorescence signal were better preserved in the fixation based on protein precipitation between two thin collagen gel layers. Consequently, we developed the "cell in situ collagen zymography" method that can be used in vitro by adapting it to a 96-well plate.
Keywords: collagenases, cell fixation, thyroid cancer, in situ zymography

P048
INVESTIGATION OF THE ASSOCIATION OF LEVELS OF SOME CRITICAL IMMUNE CHECKPOINT PROTEINS WITH COLORECTAL CANCER RISK

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OBJECTIVES: Investigation of the immune checkpoint may contribute to the development of new combined therapy approaches targeting tumor cells and may be critical for the discovery of new markers to differentiate subsets of patients susceptible to immune therapy and predict therapeutic outcomes. For this reason, in our study, the levels of CD27, CD28 and galectin 3 molecules, which are known to affect the immune mechanism from immune checkpoints, were investigated and their possible relationships with the parameters that are effective in the risk and progression of colorectal cancer were investigated.
MATERIALS and METHODS: Blood samples were obtained from 57 patients with colorectal cancer (CRC) at different stages and 75 age- and sex-matched control subjects. Concentrations of soluble(s) CD27, CD28, and GAL-3 in plasma were measured by quantitative sandwich enzyme-linked immunoassay.
RESULTS: sCD28($p<0.0001$), sGAL-3($p<0.0001$) and sCD27($p<0.05$) levels were significantly higher in all NSCLC patients compared to control. In addition, a positive correlation was found between galectin-3 and sCD27 levels ($r2 = 0.616$). Based on the ROC curve data, it can be said that sCD27 and sCD28 levels may be a good risk marker between patient and control. Accordingly, the Area Under the Curve (AUC) for sCD27 was 0.867 and for sCD28 0.800. The cut-off value was determined as 99.35 ng/ml with 80% sensitivity for sCD27 and 2.183 with 80% sensitivity for sCD28.
CONCLUSIONS: We think that increased sCD27, sCD28 and sGAL-3 levels in our study may be important factors in identifying patients with CRC risk
Keywords: colorectal cancer, scd27, scd28, sgal3

P049
EFFECT OF ONCOFETAL CYP2W1 GENE ON EPITHELIAL-MESENCHYMAL TRANSITION MARKERS

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Cytochrome P450 2W1 (CYP2W1) is overexpressed in fetal and tumor tissues, but it is undetectable or extremely low in healthy adult tissues. Although CYP2W1 expression is positively correlated with more aggressive tumor phenotype, its possible role in tumorigenesis is still unknown. Since the expression pattern of the CYP2W1 gene exhibits characteristics of oncofetal genes, CYP2W1 research can focus on shared stages in embryonic development and cancer progression. Epithelial-mesenchymal transition (EMT) appears to be a good candidate because it is crucial to both cancer progression and embryonic development. Therefore, in this study, the CYP2W1 gene expression was

silenced in the HepG2 cell line by using small interfering RNAs and gene expressions of epithelial-mesenchymal transition markers were investigated. This gene repression did not cause a significant change in the expression of E-cadherin, N-cadherin, and Vimentin, but significantly decreased the expression of β-Catenin.
Keywords: oncofetal, cyp2w1, epithelial mesenchymal transition, rna interference

P050
INVESTIGATING THE ROLE OF CYP4X1 GENE DURING BRAIN TUMOR ANGIOGENESIS VIA RNAi MEDIATED GENE REPRESSION

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OBJECTIVES: Cytochrome P450 monooxygenases are involved in the tissue-specific processing of multiple endogenous molecules. CYP4X1, a new member of P450 enzyme family, has been postulated to be a major brain P450, with protein localization primarily in brain neurons and vascular endothelial cells. Also participates in the metabolism of arachidonic acid, which is known to influence neurovascular pathways. This situation emphasizes the importance of this gene in neurovascular circuits. Brain tumors exhibit abnormal blood vessel development, indicating that angiogenic endothelial cells may be a possible target for brain tumor therapy. Although there are many treatments targeting the vascular structure, none of them have shown the expected effect. In the related study, it was aimed to examine the effects of the CYP4X1 gene on brain tumor angiogenesis.
MATERIALS and METHODS: CYP4X1 gene expression silenced by using as small-interfering RNAs (siRNAs) in T98-G human glioblastoma multiforme cell line. Gene and protein expressions were validated by using qRT-PCR and Western Blot techniques respectively. To determine the potential relevance of the CYP4X1 gene in brain tumor derived blood vessel formation, in vitro angiogenesis assay was constructed by using human umbilical vein endothelial cells (HUVEC) on Matrigel.
RESULTS: Our study indicates that, CYP4X1 gene regulates blood vessel formation in terms of total tube length, loop numbers and branching points.
CONCLUSIONS: CYP4X1 gene may be a new target gene in brain tumor angiogenesis
Keywords: cyp4x1, rna interference, brain tumor, angiogenesis

P051
INVESTIGATION OF THE CYTOXIC EFFECTS OF HEATHER AND MANUKA HONEY ON GASTRIC CANCER CELLS

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OBJECTIVES: Gastric cancer is one of the most common types of gastrointestinal cancer worldwide and is the second most important cause of cancer-related deaths. Given the limitations in chemotherapy, radiotherapy, and surgical treatment, there is an increasing interest in complementary/alternative medicine approaches for gastric cancer. We aimed to compare the effects of heather honey and manuka honey, on gastric cancer.
MATERIALS and METHODS: The total phenolic and flavonoid content of manuka honeys with different MGO levels and heather honey were measured. Different concentrations of honey were applied to AGS cell line and viability analysis was performed using MTT method.

RESULTS: According to the findings, the total phenolic content was 13.5 for manuka 514MGO, 11.5 for manuka 300MGO, 8.5 for manuka 85MGO, 28.9 mgEqGallicacid/g for heather honey; total flavonoid content was found as 0.13, 0.35, 0.19, and 3.8 mgEqQuercetin/g, respectively. According to the MTT results, at different concentrations (0, 1, 10, 25, 50mg/ml) honey for 24 hours, the viability was determined as 61.9% for manuka 514MGO, 63.2% for manuka 300MGO, 71.2% for manuka 85MGO and 40.7% for heather honey at 50mg/ml concentration, respectively.
CONCLUSION: As a result, it was determined that the treatment of heather honey in gastric cancer cells was more effective than other manuka honeys. This is thought to be due to the fact that the total phenol and flavonoid content in heather honey is higher than manuka honeys. However, the mechanism underlying the cytotoxic effect and related signaling pathways need to be clarified with further studies.
Keywords: gastric cancer, honey, apitherapy

P052
INVESTIGATION OF IN VITRO EFFECTS OF TELOMERE TARGETED NOVEL DRUG CANDIDATE COMPOUNDS ON DIFFERENT CANCER CELL LINES

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Objectives: The relationships between telomerase and telomeres is highly attractive oncology target for selective cancer therapeutics. Although telomerase activity is silenced in most adult somatic cells, the enzyme enables replicative immortality of cancer cells. Hence, inducing DNA damage at telomeric ends with modified nucleoside analogues may offer real promise for removal of cancer cells. The aim of the study was to identify new telomere targeted candidate compounds using in vitro screening in different cancer cell lines.
MATERIALS and METHODS: For this purpose, HT-29 cells were grown in DMEM supplemented with 10% FBS, 1% antibiotic, 1% L-glutamine, and cultured at 37°C in 5% CO_2. All tested compounds were dissolved either in DMSO/PBS (1:2) or in 100% DMSO, stock solutions were kept frozen at −20°C. To run MTT assay, cells ($2x10^3$ cells/well) plated in 96-well plates in DMEM. Following 24hr incubation, the compounds were added to cells at 9 different concentrations (30-0.005uM) and incubated for 96hr. Candidate compounds were determined by MTT assays. TIF (telomeric induced foci) trials were performed using these compounds. Telomeric DNA damage induced by the compounds was demonstrated using the TIF method.
RESULTS: We observed that the cancer cells were highly sensitive to compounds A, B, C (EC50 values of 0.14, 0.18, 0.10 µmol/L, respectively). For another chemical class of compounds D-G, the EC50 values were 0.25, 0.07, 0.26, and 0.20 µmol/L, respectively. For comparison, in this cell lines, the EC50 value for the well-

established telomere-modifying molecule 6-thio-dG was 0.20 µmol/L.
CONCLUSIONS: The obtained results warrant further evaluation of these compounds in vivo models.
Keywords: cancer, telomere, telomerase, mtt, tif

P053
INVESTIGATION OF RADIATION-INDUCED BYSTANDER EFFECT IN CO-CULTURE OF GLIOBLASTOMA-ASTROCYTE CELLS

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OBJECTIVES: In this study, the bystander effect on reactive oxygen derivatives (ROS) production and oxidative damage to DNA molecule in normal astrocytic cells was examined by using a co-culture method mimicking boundary conditions between cancer and normal cells in the GBM tumor.
MATERIALS and METHODS: SVG-p12 astrocytes and U87-MG GBM cells were co-cultured. ROS production and DNA damage were determined using flow cytometer after ionize radiation (IR) treatments of 2Gy and 4Gy doses. The one-way analysis of variance (ANOVA) was used to evaluate differences between means of groups. Spearman's rank correlation coefficient was used for correlation analysis.
RESULTS: Statistically significant differences in the levels of DSB and ROS production were found between direct radiation treatment groups and non-direct radiation treatment groups in which bystander effect was a result of transferring irradiated culture media. We found that the percentages of Reactive Oxygen Species (ROS) productions were increased in all experimental control groups after 2Gy and 4Gy treatments. In addition, the increased radiation dose and prolonged incubation period induced Double Strand Break (DSB) in the U87-MG cells co-cultured with SVG-p12 cells. The transfer of medium irradiated with 4Gy dose increased ROS levels but not DSB in co-culture.
CONCLUSIONS: In our co-culture model shows that RIBE arising from astrocyte cells in the irradiation area may induce ROS production and DSB in GBM cells. Cellular debris of radiation-disrupted astrocytes may cause RIBE altering response of GBM cells to IR. This study was supported by Ege University Research Grants (BAP, Project No: TYL-2018-20105).
Keywords: astrosit, glioblastom, radıatıonınduced bystander effect

P054
INVESTIGATION OF THE APOPTOTIC EFFECT OF CAFFEOYL PHENYLETHANOID GLYCOSIDE IN CHRONIC MYELOID LEUKEMIA CELLS

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OBJECTIVES: Caffeoyl Phenylethanoid Glycoside (CPG) may exert a potential apoptotic effect on leukemia cells. We investigated the effect of Src/Abl kinase inhibitor, which is frequently used in chronic myeloid leukemia, together with CPG.
MATERIALS and METHODS: Cell viability detected by WST-8 analysis. Caspase-3 used to determine apoptosis. DNA damage defined by COMET. Bcr/Abl,p38,JNK and ERK analysed in K562 by the colorimetric method. We used TAS and TOS to determine oxidative stress.

RESULTS: Src/Abl kinase inhibitor caused a 73% decrease in phosphorylation of Abl in chronic myeloid leukemia cells compared to the control group. Co-administration of CPG with Src/Abl kinase inhibitor increased caspase-3 activation by 2.5-fold and inducedapoptosis. The use of CPG with Src/Abl kinase inhibitor caused a 50% decrease(OD: 0.4) in p-ERK compared to the control (OD: 0.8), while p-ERK in the phosphorylated form decreased. 38 levels increased significantly ($P<0.05$) when compared to the control(OD: 0.13)(OD: 0.22). We observed that p-JNK also increased (OD: 0.3). In the control, we determined the TAS level as 0.74 mmolTrolox equiv./l and the TOSlevel as 0.24 µmolH2O2equiv./l. The use of CPG with a Src/Abl kinase inhibitor decreased the TASlevel to 0.20 mmolTrolox equiv./l and increased the TOSlevel to 10.99 µmolH2O2 equiv./l. It was found that the DNAtail length increased from 50µm to120µm when CPG+Src/Abl kinase inhibitor compared to the control ($P<0.01$).
CONCLUSIONS: We determined that CPG exerts its apoptotic effect through the MAPKsignaling pathway in CML cells. Oncoprotein inhibition can be increased by using it together with the Src/Abl kinase inhibitor CPG.
Keywords: Chronic Myeloid Leukemia, SrcAbl kinase inhibitor, Caffeoyl Phenylethanoid Glycoside

P055
THE EFFECT OF PREANALYTICAL AUTOMATION SYSTEM ON TEST RESULT TIMES

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OBJECTIVES: The aim of the study is to show the effect of the Preanalytical Automation System on test output times in the biochemistry laboratory.Before this system was established,sample acceptance,sample centrifugation and sending of samples to autoanalyzers were done by laboratory technicians.
MATERIALS and METHODS: A retrospective analysis of 15-day test output times before and after the Preanalytical Automation System (Roche cobas p 471 cobas512) was installed in the Biochemistry Laboratory of Medipol Mega Hospital.The biochemical paremeters of two biochemistry autoanalyzers (Roche cobas pro c503-e801) connected to the Preanalytical Automation System were examined.
RESULTS: In the 15-day data comparison, despite the 30% increase in the number of tests after the preanaltic system was established, 7% reduction in test output times was detected.

CONCLUSIONS: Preanalytical Automation System significantly reduced the test output time of the biochemical paremeters studied in the biochemistry laboratory (p <0,05).
Keywords: preanalytic, automation

P056
INVESTIGATION OF URSODEOXYCHOLIC AND TAUROURSODEOXYCHOLIC ACIDS AS A THERAPEUTIC CANDIDATE AGAINST ENDOPLASMIC RETICULUM STRESS: AN IN-SILICO APPROACH

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OBJECTIVES: Endoplasmic reticulum (ER) stress occurs due to accumulation of unfolded proteins. In response to disrupted protein processes, the unfolded protein response (UPR) signaling pathway is activated. Alterations in the UPR pathway are thought to be one of underlying mechanisms of many diseases. Two of the three transmembrane sensors that control the UPR response are the Inositol-requiring enzyme 1α/β (IRE1) and Protein kinase R-like ER kinase (PERK) proteins.Therefore, identification of therapeutic molecules that suppress ER stress via targeting IRE1 and PERK seems to be a promising approach for the future of these diseases. On the other hand, ursodeoxycholic acid (UDCA) and tauroursodeoxycholic acid (TUDCA) are naturally occurring hydrophilic forms of bile acids. It has been shown by different studies that UDCA and TUDCA can inhibit ER stress, and its mechanism has not been fully elucidated. Investigation of possible molecular interaction of UDCA and TUDCA with IRE1 and PERK comparatively was aimed.
MATERIALS and METHODS: In order to determine effect of ursodeoxycholic acid derivatives on ER stress, binding potential of UDCA and TUDCA compounds to IRE1 and PERK proteins was determined with Glide module of Shrödinger software. The stability and molecular interactions of hits were studied by Desmond molecular dynamics simulation program.
RESULTS: UDCA and TUDCA have significant hydrogen bonding interactions with IRE-1 and PERK proteins with their oxygen and nitrogen atoms. Both molecules may have a role in modulation of IRE1 and PERK proteins.
CONCLUSIONS: UDCA and TUDCA can be potential candidates in treatment of diseases related to ER stress.
Keywords: endoplasmic reticulum stress, in-silico, tudca, udca

P058
INVESTIGATION OF THE EFFECT OF YM087 ANTAGONIST ON CELL SURFACE EXPRESSIONS OF MUTANT AVPR2S

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OBJECTIVES: Mutations in the AVPR2 gene cause Nephrogenic Diabetes Insipidus (NDI) which is a rare disease. The aim of this study is to investigate the changes on cell surface expressions of R68W, V162A and T273M mutant AVPR2s, which show loss of function due to the mutations, with the treatment of YM087 pharmacological chaperone, by flow cytometry method.
MATERIALS and METHODS: Usage dose of YM087 concentration for COS-1 cells was determined by MTT assay. COS-1 cells were transiently transfected with plasmids containing wild-type and mutant AVPR2 sequences then incubated with YM087 for 16 hours. After incubation, cell surface expressions of mutant receptors were determined by flow cytometry experiments using Alexa 488 Conjugate HA-Tag (6E2) Mouse mAb antibody, and the data were analyzed with GraphPad Prism software. This study was supported by H.Ü. BAP Coordination Unit project number with FBA-2020-18843.
RESULTS: Among the mutant AVPR2s included in the study, an increase on cell surface expression was observed only after YM087 antagonist administration of the T273M mutant receptor.
CONCLUSIONS: YM087 is a V1a/V2 receptor antagonist and it is used in the treatment of hyponatremia. Current studies are in the direction of whether these and similar pharmacological chaperones can rescue individual-specific mutant proteins for the treatment of NDI. In this study, it was observed that YM087 specifically increased the cell surface expression of the T273M mutant receptor. The investigation of PCs with mutation-specific rescue efficacy will contribute to the investigation of treatment strategies for NDI which is a rare hereditary disease.
Keywords: ym087, flow cytometry, nephrogenic diabetes insipidus, avpr2

P061
THE INVESTIGATION OF LEPTIN (LEP) AND LEPTIN RECEPTOR (LEPR) GENE VARIATIONS IN OBESE INDIVIDUALS

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OBJECTIVES: Obesity is defined as a chronic public health problem and leads to deterioration in metabolic homeostasis. In the literature, the Leptin (rs7799039) and Leptin Receptor genes (rs1137101) polymorphisms have been evaluated and shown that could potentially be related to the pathophysiology of obesity and its complications. The aim of this study was to evaluate the role of critical gene polymorphism of the leptin gene in the pathogenesis of obesity in Turkish population.
MATERIALS and METHODS: This study consisted of 4 groups including control (n=49), overweight (n=50), obese (n=50), and morbid obesity (n=49). Real-Time Polymerase Chain Reaction (qRT-PCR) was used for analyzes of genotypes.
RESULTS: We found statistically significant in terms of genotype distribution of LEP gene rs7799039 and LEPR gene rs1137101 polymorphisms in the study groups (p=0,031 value of LEP rs7799039; p<0,001 value of LEPR rs1137101, respectively)

and showed an especially statistically significant relationship between the G allele of the LEPR gene rs1137101 and increased BMI. Moreover, we found GG genotype of LEP gene rs7799039 is statistically significant in terms of BMI in obesity group and morbid obesity group (p<0,001).
CONCLUSIONS: We would say that LEP gene rs7799039 and LEPR gene rs1137101 may be considered remarkable biomarkers in the development of obesity. Further studies in larger samples are thought that will help to enlighten the pathophysiology of obesity and better understand the role of Leptin and Leptin Receptor genes in obese patients.
Keywords: obesıty, leptın, leptın receptor, polymorphism

P062
ANALYSIS OF HYPOXIA TREATMENT, HYPOXIA RESISTANCE AND VIABILITY TO HEART AND LUNG PRIMARY FIBROBLAST CELLS OF THE BLIND MOLE RAT

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OBJECTIVES: Blind mole rats (BMRs) differ from other similar organisms by their longer lifespan (>21 years), and by excellent resistance to aging and cancer. On the other hand, hypoxia which is an important factor that cause cell death, especially in the brain and heart, disrupts the molecular mechanism of organisms. However, unlike most terrestrial mammals, BMRs are able to adapt their homeostasis in the hypoxic environment. Nevertheless, molecular adaptations that protects BMRs from hypoxia remain unknown.
MATERIALS and METHODS: To test the effect of hypoxic conditions by in vitro experiments, primary heart and lung cells are isolated from BMR and mice (C57BL/6). Then, primary cells are exposed %20 and %1 oxygen levels to achieve normoxic and hypoxic environments respectively. In order to determine accurate hypoxic treatment times and to test cell viability , cellular metabolic activity is analyzed by MTT assay. In addition, Western blotting is also performed to test the effect of hypoxia on cell-death associated proteins.
RESULTS: In consequence of the analysis of the cellular metabolic activity, it was determined that the heart and lung primary fibroblast cells of BMRs survived and adapted significantly in the hypoxic environment compared to the cells of the mice.
CONCLUSIONS: In conclusion, in vitro experiments have shown that heart and lung primary cells of BMR have better resistance to hypoxia when compared to similar organism such as mice. Further studies are expected to reveal molecular pathways in hypoxia-tolerant BMR that could offer new targets for the therapeutic approaches to minimize hypoxic damage.
Keywords: blind molerat, hypoxia, primary cells, viability, celldeath
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P064
MOLECULAR STUDY OF THE HOMOZYGOUS DELETION OF EXON 7 OF THE SMN1 GENE IN SPINAL MUSCULAR ATROPHY: ABOUT 6 PATIENTS

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OBJECTIVES: Spinal muscular atrophy (SMA) is an autosomal recessive neuromuscular genetic disease. It is characterized by degeneration of the anterior horn in the spinal cord with progressive muscular atrophy, weakness and paralysis. It results in 95% of cases of SMN1 gene deletion of exon 7 identified by PCR and enzymatic digestion. In this study, we reported 6 patients whose SMA diagnosis was confirmed by this technique.
MATERIALS and METHODS: We report 6 patients from 4 unrelated families referred to our medical genetic laboratory for suspicion of SMA. We extracted patients' DNA from peripheral blood. The analysis consisted of a PCR of the exon 7 of the SMN gene with the creation of an artificial restriction site for the DraI enzyme, followed by enzyme digestion. The amplification products were visualised and interpreted.
RESULTS: The molecular study revealed the deletion of exon 7 of the SMN1 gene in the homozygous state in the 6 patients, thus confirming the diagnosis of SMA.
Discussion: SMA is a common genetic disease that causes significant neonatal and infant morbidity and mortality. PCR with enzymatic digestion is a simple genetic test performed in first intention to confirm the diagnosis of SMA in order to adapt the management of the patient and to provide adequate genetic counselling and to propose a prenatal diagnosis.

CONCLUSIONS: The molecular genetic testing of SMN1 gene deletion of exon 7 is first line investigation and a simple test for the management of the patient and the genetic counseling of the family.
Keywords: SMA PCR Enzymatic digestion

P065
MOLECULAR EXAMINATION OF THE PATHOLOGICAL EFFECTS OF MARMARA SEA MUCILAGE

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OBJECTIVES: Sea pollution is one of the emerging threats that disrupt marine ecosystems. One of the results of sea pollution is the formation of mucilage aggregates. Marine mucilage is a phenomenon that happens repeatedly in the marine life around the world. The sea of Marmara is one of the marine environments where mucilage formation is observed frequently. The structure of Sea is semi-enclosed causing excess eutrophication and therefore provides a favorable setting for mucilage formation. Mucilage consists of a variety organic materials that provides a

good environment for various microbiological species to thrive. Particularly, phytoplanktons are common, and main source that produces mucilage. Some of these species can be harmful to humans but the pathological effect of mucilage on humans is not a well-studied subject. In this study, our aim is to examine the different human gastroenteritis species that are present in mucilage aggregates in the Sea of Marmara.
MATERIALS and METHODS: 4 samples were collected from 2 different regions of Izmit-Bay called as Değirmendere and Karamürsel. Nucleic acids were extracted by modified protocols for mucoid samples. The study was conducted by using RT-qPCR syndromic panels that are widely used for human gastroenteritis pathogen detection.
RESULTS: Out of 24 parameters, 3 pathogens were found as positive Vibrio parahaemolyticus for 4 samples from all regions, Entamoeba histolytica for 2 samples from only Karamürsel and Clostridium difficile toxin A for 1 sample from Değirmendere.
CONCLUSIONS: Through our findings, we can conclude that Marmara Sea mucilage contains gastroenteritis pathogens that are dangerous for human health. Therefore, any human interactions with mucilage aggregates should be carried out with precautions.
Keywords: Marine Mucilage, RT-qPCR, Marmara Sea, Gastroenteritis, Pathogen

P066
A RAPID, PRECISE, AND NEW COLORIMETRIC ASSAY OF IODINE IN CLINICAL BIOCHEMISTRY AUTO ANALYZERS

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OBJECTIVES: Nearly one-third of the global population has insufficient iodine intake and is at risk of developing Iodine Deficiency Disorders (IDD). Current iodine assay methods either require expensive instrumentation with qualified personnel (ICP-MS) or oxidative sample digestion to remove potential interferences before analysis.
In this study, determination of the essential trace element, Iodine, which is a fundamental mineral in human health, by colorimetric assay was assessed in the biochemistry auto-analyzer as a commercial kit for the first time.
MATERIALS and METHODS: A ready-to-use, rapid (without sample preparation), and accurate spectrophotometric method has been developed for the determination of iodine, using trifluoperazine-based chemicals. Also, new iodine binding specific dye which can detect at 410nm sensitizes the reaction procedure. The proposed method has been successfully applied for the determination of iodine comparison with ICP-MS, ICP-OES, and atomic absorption spectrometry (AAS) methods.
All the quality control procedures are done according to CLSI-guidelines EP05-A3 and EP10-A3.
RESULTS: Urinary iodine levels of 115 patients were determined in the Beckman-Coulter AU-series and compared with ICP-MS. Both results were normally distributed after logarithmic transformation (D'Agostino-Pearson test). More than 98% correlation with ICP-MS, rapid results, lower interferences, low degree of personal labor, and economical prices are the hallmarks of this new innovative reagent.
Passing-Bablok regression equations for both methods gave y=3.374+0.873x (y:modified colorimetric assay kit, x:ICP-MS).
CONCLUSION: Related modified colorimetric assay reagent which is easily applicable on biochemistry auto-analyzers compared with the reference method in this study is a very effective option for urinary iodine levels.
Keywords: iodine, colorimetric, autoanalyzer, AAS, ICP-MS

P067
INVESTIGATION OF THE EFFECT OF CERIUM OXIDE ON THE HEART TISSUE OXIDANT/ANTIOXIDANT SYSTEM IN SEVOFLURAN ANESTHETIC APPLIED RATS

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OBJECTIVES: Cerium Oxide (CeO) has gained importance in medical research for the treatment of various pathologies caused by oxidative stress. The aim of this study was to evaluate the antioxidant effects of cerium oxide on sevoflurane-related heart damage in a rat model.
MATERIALS and METHODS: In this study, 24 Wistar albino rats weighing 225-300 gr were used in Gazi University Experimental Animals Laboratory (GÜDAM). The experimental procedure was applied by dividing them into 4 groups. Catalase (CAT), Glutathione-S-transferase (GST), Arylesterase (ARE), Malondialdehyde (TBARS) quantification and total protein analysis are the parameters we work with.
RESULTS: When the control and sevoflurane groups were compared, no statistically significant change was observed in the CAT and ARE parameters ($p>0.05$), while a significant change was observed in the GST and MDA parameters. ($p<0.05$) When the control and CeO groups were compared, no statistically significant change was observed in all parameters except MDA.($p>0.05$) When the control - sevoflurane+CeO groups were compared, no statistically significant change was observed in the CAT and ARE parameters ($p>0.05$), while a significant change was observed in the GST and MDA parameters. ($p<0.05$) When Sevoflurane-CeO groups were compared, a statistically significant change was observed in all parameters except ARE ($p<0.05$). When CeO – Sevoflurane+CeO groups were compared, a statistically significant change was observed in all parameters except ARE. ($p<0.05$)

CONCLUSIONS: In conclusion, our findings show that CeO, as a strong free radical scavenger, has an antioxidative effect by preventing oxidative damage in cardiac cells.
Keywords: Nanoparticle, superoxide, nitric oxide

P068
INVESTIGATION OF THE EFFECT OF OZONE APPLICATION IN DIFFERENT CONCENTRATIONS ON GENOTOXIC, APOPTOTIC AND OXIDATIVE STRESS PARAMETERS

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OBJECTIVES: Ozone causes the production of reactive oxygen species (ROS) such as hydrogen peroxide and hydroxyl radical. Today, low doses of ozone, which is also used for medical purposes, increase the expression of endogenous antioxidant

enzymes by activating the Nrf-2 signaling pathway with moderate ROS production, while high doses activate the NF-kB signaling pathway, causing the expression of inflammatory enzymes and an increase in oxidative stress. The aim of the study is to show the effects of ozone on cytotoxicity, genotoxicity and oxidative stress.
MATERIALS and METHODS: The in vitro cell culture study was performed with L929 cells, and the ex vivo study was performed by applying different doses of ozone to whole blood taken from five different individuals in a closed circuit. Viability determination in cell culture was determined with Triphan blue, Acridine orange/ Ethidium Bromide method was used for apoptosis determination, and Comet Assay method was used for genotoxicity. TAS, TOS and oxidative stress index (OSI) were measured for ex vivo oxidative stress determination.
RESULTS: In vitro study found that apoptotic activity and genotoxic effect increased with increasing ozone concentrations. In the ex vivo study, it was determined that the OSI increased in proportion to the concentration.
CONCLUSIONS: Today, high doses of ozone, which is also used for medical treatment, can cause genotoxic and apoptotic effects by increasing oxidative stress. For this reason, taking into account the toxic effect of high doses, it is very important to adjust the dose according to the antioxidant capacity of the person.
Keynotes: ozone, oxidative stress, genotoxicity, apoptosis

P069
INVESTIGATION OF THIOL/DISULFIDE HOMEOSTASIS ACCORDING TO ROSACEA SUBTYPES

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OBJECTIVES: Rosacea is a common, chronic inflammatory disease characterized by papules, pustules, and telangiectasia, especially on the facial skin. In the literature, there is a study investigating the thiol/disulfide homeostasis and revealing the effects of oxidative stress on protein metabolism in rosacea patients, but there is no similar study considering rosacea subtypes. In this study, it was aimed to compare the thiol/disulfide homeostasis of patients and healthy controls considering rosacea subtypes.
MATERIALS and METHODS: Ninety rosacea patients with different skin types and 40 age- and sex-matched healthy controls were included in this prospective comparative study. Disulfide/native thiol ratio (DNTR), disulfide/total thiol ratio (DTTR) and native/total thiol ratio (NTTR) were calculated by determining the native thiol, total thiol and disulfide serum plasma levels of patients and controls by automatic spectrophotometric method.
RESULTS: Mean DNTR and DTTR values were significantly higher in rosacea patients, while NTTR values were significantly lower compared to controls ($p<0.01$). When patients were divided into subgroups according to rosacea skin types (20 phymatous, 40 erythematotelangiectatic and 30 papulopustular), mean DNTR and DTTR values were significantly higher and NTTR value was significantly lower only in erythematotelangiectatic type compared to other types and controls ($p<0.01$). There was no statistically significant difference in thiol/disulfide homeostasis between phymatous and papulopustular types and controls ($p>0.05$).
CONCLUSIONS: In our study, it was concluded that the thiol/disulfide balance shifted towards disulfides as an indicator of oxidative stress, especially in the erythematotelangiectatic subtype of rosacea patients.
Keywords: rosacea, oxidative stress, thioldisulfide homeostasis

P070
INVESTIGATION OF ARYLESTERASE AND PARAOXONASE ENZYME LEVELS IN MALE SEMEN DIAGNOSED WITH AZOSPERMIA, OLIGOSPERMIA AND NORMOSPERMIA

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OBJECTIVES: Infertility is a health problem that is mostly treatable today. When studies on infertile male patients were examined, it was thought that antioxidant enzymes such as paraoxonase and arylesterase might be effective in sperm count and quality. In our study, it is aimed to investigate whether the activity of these enzymes has a significant value in terms of evaluating sperm quality by analyzing and calculating statistics of paraoxonase and arylesterase enzyme activity levels in the semen of azoospermic, oligospermic, and normospermic infertile patients.
MATERIALS and METHODS: Sixty male patients diagnosed with infertility were included in our study. And these patients were divided into 3 groups as azoospermic, oligospermic, and normospermic based on their sperm counts. Paraoxonase and arylesterase enzyme levels were measured in all patient groups by a spectrophotometric method using a commercial kit.
RESULTS: As a result of statistical analysis on the data obtained, it was determined that paraoxonase and arylesterase enzyme activities were significantly decreased in azoospermic patients compared to normospermic patients. When oligospermic patients were compared with normospermic and azoospermic patients, no significant change was found.
CONCLUSIONS: Our findings showed that enzyme levels were significantly decreased in azoospermic patients. According to the current literature, paraoxonase and arylesterase enzyme levels in oligospermic patients have been reported as significant in some studies and insignificant in others. In our study, no significant change was found in enzyme levels in oligospermic patients. It is thought that paraoxonase and arylesterase enzyme levels will shed light on the in-vitro fertilization treatment process.
Keywords: Infertility, Enzyme, IVF, Semen

P071
INVESTIGATION OF ANTIOXIDANT AND LIPID PEROXIDATION LEVELS IN KIDNEY TISSUE OF MICE EXPOSED TO POSTNATAL ALCOHOL

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OBJECTIVES: The aim of the study is to determine the antioxidant and lipid peroxidation levels in kidney tissue due to postnatal alcohol consumption in male and female mice.

MATERIALS and METHODS: Newborn mice were divided into 3 groups: the control group (C) without any treatment, the alcohol group (A) administered ethanol twice a day via intragastric intubation, and the group administered only intragastric intubation (IIC) to create similar stress without ethanol administration twice a day. Postnatal days in mice correspond to the 3rd trimester in humans. Alcohol group (A) was treated with 3.0 g/kg body weight ethanol in a volume of artificially enriched milk (0.02 ml/g) on postnatal days (PG) 3-20. Kidney tissues were taken from mice. Total antioxidant levels and lipid peroxidation in kidney tissue were measured using Elabscience brand T-AOC kit (Catalog no: E-BC-K801-M) and Sigma brand MDA kit (MAK085), respectively.
RESULTS: When the total antioxidant levels in female and male mice were analyzed, a significant decrease was found in the alcohol group compared to the other groups ($p<0.05$). The lipid peroxidation levels increase significantly in both female and male mice when the alcohol group was compared with the control group ($p<0.05$).
CONCLUSION: Studies have shown that postnatal alcohol consumption mostly affects the brain. However, it is important to show the effects on other tissues as well. Considering the results of our study, it can be thought that alcohol consumption in this period may damage kidney tissue. In addition to our results, molecular changes in kidney tissue will be examined in future studies.
Keywords: prenatal alcohol consumption, fetal alcohol sendrome, oxidative stress, mice

P072
EFFECT OF NANOPARTICLES DERIVED FROM ROYAL JELLY ON CARDIOMYOPATHY IN AN OBESE RAT MODEL INDUCED BY A HIGH-FAT DIET

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OBJECTIVES: This research is carried out to investigate the effect of oral administration of nanoparticles derived proteins from royal jelly on cardiac remodeling among obese rats.
MATERIALS and METHODS: Royal jelly was subjected to ultrasonic irradiation to produce nanoparticles derived proteins and then biological, molecular, and morphological properties were evaluated. The nanoparticles derived proteins from royal jelly were orally administrated to the rats to investigate their cardioprotective roles in obese rats for 8 weeks. After 8 weeks, the blood samples from each group were collected for biochemical analysis including lipid profile, liver enzymes, urea, and creatinine.
RESULTS: Ultrasonic irradiation for RJ produced nanoparticles that were clustered in weak and irregular networks. Our results revealed that oral administration of S-RJ significantly decreased the diastolic blood pressure, triglycerides, alanine aminotransferase, and urea along with an increase in the high density of lipoprotein.
CONCLUSIONS: Administration of S-RJ or NS-RJ may improve the cardiac function in obese rats via improving the lipid profile and lowering the diastolic pressure, suggesting a potential protective role as a functional food in as functional food for prevention of cardiac disease.
Keywords: Nanoparticles, Cardiomyopathy, Lipid profile, Obese rat model

P073
TWO CASES OF IGD MULTIPLE MYELOMA: 1-YEAR EXPERIENCE OF CAPILLARY ELECTROPHORESIS AND IMMUNOFIXATION

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OBJECTIVES: Immunoglobulin D (IgD) type multiple myeloma (MM), a rare isotype characterized by its aggressive clinical course and poor prognosis compared to other isotypes, is seen in 1–2% of all MM cases. Scanning 1-year records of our centralized regional laboratory, we wanted to present cases of IgD type MM.
MATERIALS and METHODS: We reviewed 1,966 patients who had serum immunofixation electrophoresis (IFE), between September-2021 and August-2022 (N=2,378 tests). In 2 cases, a lambda light chain, with a corresponding band of IgD in serum was detected, using anti-IgD sera via IFE. Decreased gamma fraction via capillary electrophoresis (CE) and decreased serum levels of IgA, IgG, IgM via immunoturbidimetric measurements were shown in favor of hypogammaglobulinemia.
RESULTS: Case1: A 52-year-man had been diagnosed IgG-lambda MM since 2018. During the follow-up, diffuse plasma cell infiltration with IgD-lambda monoclonality was detected via histopathological examination of the bone marrow biopsy material, in 2022. Case2: A 54-year-man with no other known disease or drug history, was admitted due to acute kidney injury with serum creatinine 17.9 mg/dL, hemoglobin 8.2 g/dL. Besides a weak IgD-lambda, there was a free lambda band in serum, showing excessive excretion of free lambda light chains in urine IFE.
CONCLUSIONS: Presence of IgD bands were characterized in our laboratory, in a ratio of 0.001 patients (2/1966). Thanks to its higher sensitivity, serum monoclonal proteins were detectable via CE in both cases.
Keywords: multiple myeloma, immunoglobulin d, immunofixation

P074
THE EFFECTS OF MONOSODIUM GLUTAMATE ADDED TO FOODS AS A TASTE ENHANCER ON ERECTILE FUNCTION

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OBJECTIVES: Monosodium glutamate (MSG) is one of the most widely used foodstuffs as a flavor enhancer. MSG causes metabolic syndrome, obesity, and sexual and behavioral dysfunction in animal models. While it has been reported that MSG impairs the function of the reproductive system in men, no study has investigated its effect on the functional responses of the corpus cavernosum (CC). Therefore, we aimed, for the first time, to elucidate the effect of MSG on the contractile and relaxation responses of CC by isolated organ bath experiments.
MATERIALS and METHODS: Contractile responses were obtained with the receptor-independent contraction potassium chloride(KCl, 20-40-80-100-120mM) and the α1 receptor agonist phenylephrine(Phe, 10^{-8}-10^{-4}M) in the presence/absence of MSG(3mM, 10mM, 30mM, 100mM) in the rat CC (RCC). Endothelium-dependent relaxation responses were

obtained with acetylcholine(ACh, 10^{-8}-10^{-3}M) and, receptor-independent relaxation responses were obtained with sodium nitroprusside(SNP,10^{-9}-10^{-4}M) in Phe pre-contracted RCC($3x10^{-6}$M).
RESULTS: 3mM and 10mM MSG had no effect on RCC responses(P>0.001, ANOVA). In the presence of 30mM and 100mM MSG, KCl and Phe-induced contractile responses were inhibited(P<0.001, ANOVA). In the presence of 30mM and 100mM MSG, ACh-induced relaxations were inhibited in RCC(P<0.001, ANOVA), while SNP-induced relaxations were inhibited only by 100mM MSG (P<0.001, ANOVA).
CONCLUSIONS: MSG impairs both contractile and relaxation responses in CC. These results suggest that chronic exposure to MSG may reduce erectile function. This effect of MSG may be related to its oxidative stress-inducing and/or cytotoxic effect on smooth muscle. However, further studies are needed to understand the physiological and pathological role of MSG in CC.
Keywords: Monosodium Glutamate Penile Tissue Erectile Function Erectile Dysfunction

P075
EFFECT OF NEW CKD-EPI(2021) EQUATION ON CHRONIC KIDNEY DISEASE CLASSIFICATION

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OBJECTIVES: Estimated glomerular filtration rate(eGFR) is very important in the evaluation of kidney function. The CKD-EPI(2009) equation is widely used in estimating GFR in Turkey. In2021,American Nephrology societies recommended the use of the race freeCKD-EPI(2021) equation for eGFR.In this study,it was aimed to evaluate the effect of the new CKD-EPI(2021) equation on the classification of KDIGO ChronicKidneyDisease(CKD) in Turkishpopulation.
MATERIALS AND METHODS: Serum creatinine(Jaffe,AU680,BeckmanCoulter)levels,age and gender of patients aged 18 years and over who were reported between January and March 2022 were retrospectively investigated.CKD-EPI(2009)and CKD-EPI(2021)equations were calculated.Patients were grouped according to KDIGO CKDclassification(≥90,60–89,45–59,30–44,15 29,<15mL/min/1.73m^2,G1,G2,G3a,G3b,G4andG5, respectively). Cohen'sKappa analysis and Bland-Altman analysis were performed. MicrosoftExcel,SPSSv23.0andMedCalc programs were used in the analysis of the data.
RESULTS: A total of16247 patients,6831(42%)male and9416(58%) female,were included in the study.According to the CKD-EPI(2009) andCKD-EPI(2021)equations,the median(25-75%) values were85(68-101) and89(72-105)mL/min/1.73m^2,respectively. The mean difference(95%CI)in the Bland-Altman analysis was 5.12%(5.09-5.14).The staging of 12.2%of the patients,10% of those aged 18-65 years and 17.3% of those over 65 years of age, was changed and included in a lower stage(eg,according to CKD-EPI(2009) the patient with G3a was included in the G2 group with the new equation).No patient progressed to an upper(severe) stage.
CONCLUSIONS: With the new CKD-EPI(2021)equation in theTurkish population,12.2%of the patients were found to be reclassified.Similarly,in the study conducted by Fu et al.In Sweden,9.9% of the patients were in a lower stage with the new equation.Both studies show that the new CKD-EPI equation changes the KDIGO CKDclassification of patients by approximately10%.In national regulations,it is thought that it would be appropriate to consider this situation and to manage the process with clinician cooperation.
Keywords: Chronic Kidney Disease, eGFR, CKD-EPI2021

P076
EVALUATİON OF VITAMIN D LEVELS OF GIRLS AND BOYS CHİLDREN IN KONYA REGION İN TURKEY

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OBJECTIVES: Vitamin D;It is among the fat-soluble vitamins and is also a group of sterols that are hormone and hormone precursors since it can be synthesized endogenously in the appropriate biological environment.Its most important effect is on calcium,phosphorus metabolism and bone mineralization.It is necessary for healthy growth and development.Deficiency causes rickets disease in childhood.It is also reported that vitamin D plays a role in the development of autoimmune diseases,inflammatory bowel disease,rheumatoid arthritis,diabetes,many types of cancer and heart diseases.The most important parameter reflecting vitaminD deficiency is 25-hydroxy vitaminD3(25-OH-D3) level. In this study;It was aimed to determine plasma vitaminD levels in girls and boys in Konya region.
MATERIALS and METHODS: We evaluated 80026 cases whose 25-OH-D3 levels were measured with the Roche Cobas e801(Roche Diagnostics,Mannheim, Germany)device between 31 December2018 and 31 December2021 in our laboratory.Of the cases,26240 were boys between the ages of 0 and 3,and 54786 were girls between the ages of 0 and 3.In this study,values of 25-OH-D3 in serum <20 ng/ml were defined as vitaminD deficiency.
RESULTS: In the statistics,the vitaminD values of girls(mean=18.86, sd=12.01)differed significantly compared to boys(mean=20.57, sd=11.51).VitaminD was found to be statistically significantly lower in girls compared to boys(p<0.001).
CONCLUSIONS: Plasma 25-OH-D3 vitamin levels were found to be significantly lower in girls than boys.The reason for this difference may be the indoor style of clothing due to sociocultural reasons and the less time spent outdoors than men.Adopting a preventive lifestyle from vitaminD deficiency in children and evaluating them in the interim periods may be beneficial in terms of preventing possible complications.
Keywords: vitamin D3, Kids, chronic disease

P077
DETERMINATION OF REFERENCE INTERVALS OF ASYMMETRIC DIMETHYL ARGININE AND METABOLITE LEVELS BY LC-MS/MS METHOD

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OBJECTIVES: Asymmetric Dimethylarginine (ADMA) is an intracellular amino acid formed during post-translational methylation of arginine by methyltransferases. ADMA is found in plasma, urine, tissues and many cells under physiological conditions. Our aim in this study was to determine the serum

ADMA reference range in healthy adults.
MATERIALS and METHODS: ADMA, symmetric dimethyl arginine (SDMA), homo-arginine, arginine, LNMA, ornithine and citrulline were analyzed in the serum of 200 healthy men and women aged between 18 and 65 years using the LC-MS/MS method.
RESULTS: ADMA values were similar in women and men, 30 years and older and younger than 30 years old (p=0.322 and p=0.299, respectively). There was no statistically significant difference between ADMA levels of men and women (p=0.664). Homoarginine (p=0.104), arginine (p=0.077), LNMA (p=0.957), ornithine (p=0.209), SDMA (p=0.724) and citrulline (p=0.604) in men aged 30 years and above and below 30 years of age levels were similar. Homoarginine (p=0.162), arginine (p=0.424), LNMA (p=0.855), ornithine (p=0.987), SDMA (p=0.757), and citrulline (p=0.371) in women 30 years and older and under 30 years old levels were similar. Males had significantly higher homoarginine levels than females (0.725 [IQR, 0.593 – 0.969] vs. 0.631 [IQR, 0.480 – 0.800], Z=–3.012, p=0.002). However, arginine (p=0.303), LNMA (p=0.493), ornithine (p=0.511), SDMA (p=0.062) and citrulline (p=0.787) levels were similar between men and women.
CONCLUSIONS: The reference ranges obtained as a result of our analyzes may assist further research. We anticipate that it will provide a basis for comparison of ADMA concentrations in different patient populations in future studies.
Keywords: adma, lcmsms, reference range

P078
DETERMINATION OF REFERENCE RANGE OF TRIMETHYLAMINE-N-OXIDE BY LCMS/MS METHOD

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OBJECTIVES: Trimethylamine-N-oxide(TMAO), a small organic molecule, is produced in a manner bound to the gut microbiota. Serum TMAO levels depend on many factors, including diet, gut microbiome composition, liver function, inflammation, and gut-blood barrier permeability. In this study, it was aimed to investigate TMAO levels in blood serum samples of 185 healthy individuals(99 females,86 males) and to determine the reference range.
MATERIALS and METHODS: TMAO levels in serum samples of 185 healthy individuals aged 18-65 years were determined by LCMS/MS method. Data were classified by gender and age. Lower and upper limits with 90% confidence intervals were estimated using the robust method. Outliers were detected and excluded in the log-transformed data using the Test Tukey criterion. Skewness and kurtosis estimates are based on log-transformed data.
RESULTS: TMAO values of men and women were similar (180-200ng/mL;Z=–0.476,p=0.633). TMAO values of women younger than 30 years and older than 30 years were also similar (178-186ng/mL; Z=–0.739,p=0.460). However, the TMAO value of men aged 30 years and over was statistically significantly higher than those under 30 years of age (215-191ng/mL,Z=–2.225,p=0.026).
CONCLUSIONS: According to these results, the TMAO reference range was 27-974ng/mL for men <30 years old, and 52-942ng/mL for men ≥30 years old. The TMAO reference range is 45-655ng/mL for women <30 years of age, and 33-539ng/mL for women aged ≥30 years. It is seen that there is no study in the literature to determine serum TMAO reference range by LCMS/MS method. This study will make important contributions to the literature.
Keywords: TMAO, LCMSMS, Reference Range

P079
VERIFICATION OF REFERENCE INTERVALS OF COAGULATION PARAMETERS

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OBJECTIVES: Confirmation of reference intervals provided from manufacturers is easier and cheaper. In our laboratory, we use reference intervals of manufacturers. In this study, we aimed to verify compatibility of reference intervals of coagulation parameters (APTT, PT, INR, PT%,D-Dimer) given from manufacturer of our coagulation instrument Stago Compact Max®3(Diagnostica Stago S.A.S, France) which we currently use in our laboratory to reference intervals of our population.
MATERIALS and METHODS: Between 8 March 2022 and 10 March 2022, 20 blood samples collected from 20 healthy male and non-pregnant female individuals who are between 18-40 years of age and do not have any acute or chronic illness or usage of alcohol, tobacco or supplement. Samples were drawn at 9 a.m. after 8-12 hours fasting and studied in 2 hours. Before and after every study, internal quality check results were found within ±2 SD.
RESULTS: 1(5%) result of APTT, 2(10%) results of Fibrinogen, 1(5%) result of PT% were out of reference intervals. PT,INR,D-Dimer results were totally in reference intervals. CV% values of our analytes were found PT% 6.7, APTT 1.6, Fibrinojen 4.8, D-Dimer 6.9, respectively.
CONCLUSION: According to CLSI C28-A3 guide, it is beneficial for every laboratory to verify reference intervals obtained from manufacturers. Verification requires collecting samples from 20 healthy individuals of the population and only 2 results (10%) are allowed to be out of the reference intervals. This is acceptance criteria for manufacturer's referance intervals for laboratories. We verified reference intervals and concluded that they were acceptable for our laboratory.
Keywords: verification, reference interval, coagulation

P080
DETERMINATION OF THE PLASMA REFERENCE INTERVAL OF PHENYLALANINE AMINO ACID BY INDIRECT METHOD

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OBJECTIVES: Hyperphenylalaninemia is an elevated phenylalanine concentration in body fluids and results from defects in the conversion of phenylalanine to tyrosine. Pathological problems associated with hyperphenylalaninemia can be prevented by diets low in phenylalanine. Treatment should be started before the third week of life for optimum results. For this reason, we aimed to analyze the reference range of this amino acid in our laboratory in order to diagnose hyperphenylalaninemia early and to follow up the treatment of the patients.
MATERIALS and METHODS: Phenylalanine results of 1328 patients who applied to Marmara University Pendik Training and Research Hospital Biochemistry Laboratory between 1.07.2018

and 31.12.2021 were retrospectively scanned and included in the study. Analysis of patients' data was performed according to the CLSI EP28-A3c Guidelines for Defining, Establishing, and Verifying Reference Intervals in the Clinical Laboratory. With the Excel program, patients from emergency department, intensive care, hematology, oncology, infectious diseases clinics and outliers of the data were excluded. SSPS-28 and Medcalc-21 programs were used for statistical analysis.
RESULTS: 95% reference limits in µmol/L and their 90% confidence intervals: 39.10(37-41.12)-68.12(64.04-2.13) for 0-1 months; 30.57(29.53-31.64)-80.29(77.76-82.89) for 1-12 months; 34.23(32.43-37.34)-93.32(90.76-95.80) for 1-6 years; 35.42(33.53-37.4)-94.76(90.17-99.55) for 6-12 years; 32.7(30.33-35.17)-85.71(81.37-90.18) µmol/L for 12-18 years was found.
CONCLUSIONS: The phenylalanine reference intervals that we obtained by analyzing hospital data were helpful in the diagnosis and treatment follow-up of patients with hyperphenylalaninemia.
Keywords: reference, interval, phenylalanine, phenylketonuria

P081
DETERMINATION OF REFERENCE TAS/TOS INTERVALS IN INVERTEBRATE MODEL ORGANISMS (Unio terminalis)

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OBJECTIVES: Freshwater mussels are preferred as indicator species in terms of toxicology in pollution investigation studies in aquatic ecosystems due to their physiological characteristics such as long life span and feeding by filtration. The aim of this study is to determine the reference ranges for total antioxidant status (TAS) and total oxidant status (TOS) in the invertebrate model organism Unio terminalis.
MATERIALS and METHODS: The freshwater mussel, Unio terminalis was obtained from Gölbaşı Lake in Kırıkhan District of Hatay. Experiments were carried out in Gazi University Institute of Science Biology Research Laboratory. The mussels were taken into 20 L aquariums and adapted to the laboratory conditions for 15 days. A photoperiod of 12 hours of light and 12 hours of darkness was applied. TAS and TOS leves were measured by spectrophotometric method using Rel Assay Commercial kit (Rel Assay Kit Diagnostics, Gaziantep/Turkey).
RESULTS: The experimental group invertebrate model organism freshwater mussel (Unio terminalis) n=(14) hemolymph samples were used . TAS (mmol/L) mean lower /upper limit values were 0.055-0.164 and TOS (micromol/L) mean lower /upper limit values were determined as 2.074-5.745.
CONCLUSIONS: These results provide the necessary reference antioxidant/oxidative ranges for future studies in Unio terminalis, which will be used as model organism and ecotoxicological indicator species.
Keywords: Total Antioxidant Status, Total Oxidant Status, Unio terminalis

P082
THE EFFECT OF SEAWATER NASAL SPRAY ON THE CARRIAGE OF STAPHYLOCOCCUS AUREUS

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OBJECTIVES: Sea water (nasal spray) is a saline solution used for nasal hygiene and for the relief of several nasal affections. Indeed, this use does not take into consideration the composition of the nasal microbiota which may contain staphylococcus aureus in healthy carriers. The objective of our study was to verify the effect of seawater on the nasal microbiota in general and Staphylococcus aureus in particular.
MATERIALS and METHODS: This is a prospective study, carried out in the laboratory of microbiology of Mohammed VI University Hospital of Oujda. Bacteria from the nasal microbiota were recovered from nasal swabs taken from a group of healthy volunteers. These bacteria were then tested with saline solutions for a period of 7 days.
RESULTS: Among the strains obtained: Staphylococcus aureus tolerated the different concentrations of Sodium chloride, unlike the other bacteria. Our results showed that the nasal colonization of Staphylococcus aureus under the influence of using seawater in nasal spray is unlikely. This would be due to the presence of complex mechanisms of interaction between different bacteria in the nasal microbiota.
CONCLUSIONS: It was found that other mechanisms, could occur, interactions between species could certainly influence the selection of a bacterium, which was the case of Bacillus subtilis and Pseudomonas aeroginosa in a first mixture and Enterbacter aerogenes in a second bacterial mixture.
Keywords: staphylococcus aureus, microbiota, seawater

P083
DETERMINATION OF PACLITAXEL BY LIQUID CHROMATOGRAPHY TANDEM MASS SPECTROMETER

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OBJECTIVES: Paklitaxel is a new group cytostatic known as taxones. Paclitaxel is a microtubule stabilizing drug used in the treatment of various solid tumors such as breast, lung and ovarian. Due to its increasing popularity, monitoring the blood levels of paclitaxel is important both to control the required dose for effective treatment and to prevent overdose in order to drug-related adverse effects. The aim of this study was to develop an analytical method which is rapid and reliable for paclitaxel levels to contribute to therapeutic drug follow-up.
MATERIALS and METHODS: Mass spectrometric analyzes were performed using a Shimadzu LC-20-AD and chromatographic separation was performed on a Phenomenex Luna C18 column (4.6×50 mm, 5 µm) coupled with an ABSCIEX API 3200 triple quadrupole mass spectrometer equipped with an electrospray ion source (ESI) operating in positive mode. Mobile phase A consisting of 0.1% formic acid and %0.1 10 mM Ammonium Hydroxide in water and mobile phase B consisting of 0.1% formic acid and %0.1 10 mM Ammonium Hydroxide in methanol. Total run time was 8 minutes.

RESULTS: Linearity of the standard curves were 4.88-10000 ng/mL. Intra-day and inter-day repeatability were <10%. LOD was 2.44 ng/mL, LOQ value was 4.88 ng/mL. Serum recovery was 96.4% and 105.6%, and matrix effect was <10%. The correlation coefficient (r2) value was 0.9957.
CONCLUSIONS: A practical, simple and reliable method was developed for the measurement of paclitaxel levels. We think that it can be used for routine analysis to determine the toxic levels of paclitaxel.
Keywords: Paclitaxel, LC-MSMS, Therapeutic drug monitoring

P084
Abstract Number : 4041
DEVELOPMENT OF LIQUID CHROMATOGRAPHY TANDEM MASS SPECTROMETRIC METHOD FOR PERINDOPRIL

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OBJECTIVES: Perindopril is a prodrug ester that is converted to perindopril, a potent, long-lasting lipophilic angiotensin converting enzyme (ACE) inhibitor, in the liver and plasma. The recommended dose is between 4-16 mg/day. The most common side effects are nausea, headache, diarrhea and cough. Plasma concentration measurement is important to reduce its toxicological effects. Our aim in this study is to develop a simple, fast, effective and cost-effective LC-MS/MS method for the quantification of perindopril.
MATERIALS and METHODS: Briefly; 250 µl of sample was taken from ependorpha, 100 µl of internal standard and 800 µl of acetonitrile were added. The mixture was vortexed for 30 seconds and centrifuged at 12000 rpm for 10 minutes. Supernatants were taken into clean glass tubes and dried at 40°C under nitrogen gas. The dried residues were dissolved in 200 µl of acetonitrile:water (10:90, v/v%) and 30 µL will be injected into the ABSCIEX API 3200 LC-MS / MS system.
RESULTS: The developed method was linear in the concentration range of 2-1000 ng/ml. The %CV values calculated from intraday and interday reproducibility studies were less than 10%. The limit of determination (LLOQ) was 2 ng/mL. The mean extraction recovery was 93.4%, while matrix effect values were less than 12.5%. Total run time was 5 minutes for a single sample.
CONCLUSIONS: A fast, effective and cost-effective measurement method for the quantification of perindopril has been developed in the LC-MS/MS instrument.
Keywords: ace inhibitor, hypertension, lcmsms, perindopril

P086
CENTRAL NERVOUS SYSTEM TOXICITY OF PRILOCAINE IS ASSOCIATED WITH NUCLEAR FACTOR KAPPA B P65 OVEREXPRESSION AND OXIDATIVE STRESS

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OBJECTIVES: Prilocaine (PRL) is a frequently employed local anesthetic. This study used a rat model to investigate the mechanism of prilocaine toxicity in the central nervous system.
MATERIALS and METHODS: Rats were divided into four experimental groups. 1.Sham; 2. PRL-treated; 3. Antioxidant treated; 4. PRL + Antioxidant treated. Prilocaine infusion was initiated via the cannulated left femoral vein and the antioxidant thymoquinone (TQ) was given by gavage. Sham groups received saline infusion from the cannulated left femoral vein and an equivalent volume of distilled water via gavage. Reactive oxygen/nitrogen species (ROS/RNS) and total antioxidant capacity (TAC) were assayed by spectrophotometry while nuclear factor (NF)κB-p65 and -p50 subunit were evaluated in brain tissue by immunohistochemical staining.
RESULTS: Overdose application of PRL increased levels of ROS/RNS and decreased TAC in brain tissue. Protein expressions of NFκB-p50 and NFκB-p65 were significantly elevated in the thalamic nucleus, choroid plexus, cerebral cortex and cerebellum. Antioxidant treatment of PRL toxicity with TQ decreased ROS/RNS and increased TAC levels in brain tissue. TQ also decreased NFκB-p65 and NFκB-p50 expression in brain tissue of rats treated with PRL.
CONCLUSIONS: Results indicate that prilocaine-induced CNS toxicity is caused by increased oxidative stress and inflammation.
Keywords: prilocaine, oxidative stress, inflammation

P087
RETROSPECTIVE EVALUATION OF THE DISTRIBUTION OF PROHIBITED SUBSTANCES USED IN THE PROVINCE OF MALATYA ACCORDING TO AGE AND GENDER AND USAGE RATES

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OBJECTIVES: Substance abuse of the World Health Organization,11.In the International Classification of Diseases Handbook (ICD-11), which has published its revision, it is classified under the name of substance use-related disorders.Chemical substances that cause behavioral, mental and body changes when ingested, which can be addictive,are called addictive substances (psychoactive substances).
The abuse of narcotic substances is associated with some degree of toxicity in users.The use of addictive substances constitutes one of the leading health problems all over the world, and according to the latest data,it is estimated that more than 275 million people worldwide use these substances.The number of people using these substances in our country is increasing rapidly.
MATERIALS and METHODS: Considering the importance of this issue, patients using banned substances who were admitted to Inönü University Turgut Özal Medical Center Psychiatry Department Substance Abuse Treatment Center were examined.June 2017-June 2022 patients were included in the study.The analyses were performed by LC-MS/MS (liquid chromatography, mass spectrometry) method. Thermo Scientific brand TSQ Quantum Access MAX model device was used for the evaluations. With the decision of the ethics committee, usage rates according to years, age and gender distributions were examined.
RESULTS: As a result,it was seen that the rate of referral was more common in males, with a rate of 91% among users.In the

10-19 age group, the frequency of use was methamphetamine, amphetamine, cannabinoid (bonsai), respectively. Methamphetamine, amphetamine,MDMA (3,4-methylenedioxy-N-methylamphetamine,ecstasy) in the 20-29 age group. Methamphetamine, amphetamine,cannabinoids in the 30-39 age group;for those aged 40 and over, it was determined as methamphetamine, amphetamine and morphine.
Keywords: prohibited substances, methamphetamine, amphetamine

P088
EVALUATION OF DRUG ABUSE PREVALENCE DEPENDING ON LABORATORY BASED URINE ILLICIT DRUG SCREENING RESULTS IN ANKARA

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OBJECTIVES: In this study, it was aimed to to determine the laboratory based drug abuse prevalence of persons who have illicit and/or addictive substance test requests instead of alcohol in the Alcohol-Drug Addiction Research Treatment and Training Center (AMATEM) of Ankara Training and Research Hospital
MATERIALS and METHODS: Laboratory information systems data of whose urine integrity tests are suitable and submitted to Biochemistry Laboratory, between January 2021and June 2022 were retrospectively investigated. In comprehension of illicit drug use Amphetamin, Cannabis, Opiate, Cocaine, Ecstasy, Synthetic Cannabinoid and Benzodiazepin group tests were screened by Homogeneous Enzyme Immunoassays (HEIA) method using Immunalysis kits (Pomona, CA, USA). All analyses were done on Biolis 50i (Tokyo Boeki, Japan) device. Positivity-negativity rates, age-gender distribution and number of multiple substance usage were investigated. Confirmation analysis was performed in Forensic Toxicology Confirmation Laboratory of 153 urine samples that were found to be positive as a result of screening.
RESULTS: Totally 117432 illicit drugs were screened in 25497 urine samples (22992 men and 2525 women). 2.2% of the total population is under the age of 18. At least one parameter was positive in 9551 (8%) of the 117432 test studied. The maximum positivity rate was in Opioid, secondly Amphetamine and third Cannabinoids. The most common and the second most common multiple substance use were Amphetamine+Opiate and Amphetamine+Cannabis respectively. The positivity rate in urine confirmation tests was found to be 67%
CONCLUSIONS: The most frequently detected drugs are Opioid, Amphetamine/Methamphetamine derivatives and Cannabinoids in Ankara.
Keywords: illicit drug, screening test, confirmation test

P089
DETERMINATION OF 96 HOURS LC50 VALUE OF CYFLUTHRIN IN ZEBRA FISH (Danio Rerio)

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OBJECTIVES: In this study, it was aimed to calculate the accumulation values of 0.5, 1, 5, 10, 20, and 50 µg/L dosing solutions of cyfluthrin chemical for 96 hours in zebrafish (Danio rerio), which is a model organism.
MATERIALS and METHODS: After obtaining the zebrafish to be used in the study, they were adapted to the laboratory conditions for two weeks. 5 zebrafish with an average length of 3-5 cm were placed in 6 aquariums of 10 liters filled with spring water. Cyfluthrin dissolved in dimethyl sulfoxide (DMSO) was prepared at concentrations of 0.5, 1, 5, 10, 20, and 50 µg/L and applied for 96 hours. Mortality results were evaluated using EPA Probit Analysis Program V 1.4.
RESULTS: Zebrafish (Danio rerio) have a transparent embryo feature and are a model organism that has been widely studied in recent years. They are preferred because of their features such as being easy to find, simple to maintain, cost-effective, high fertility, and relatively easy collection at the early embryonic stage. Cyfluthrin has a stimulating effect on sodium ion channels affecting both peripheral and central nervous systems, and also inhibits neurotransmitter transmission by inhibition of calcium ion channels and is classified as an endocrine disruptor.
CONCLUSIONS: The 96-hour LC50 value was found to be 3.61 µg/L in the bioassay system used. The study was statistically evaluated according to the Probit analysis method. It is important to carry out more detailed studies in order to examine the toxicity mechanisms of cyfluthrin.
Keywords: Cyfluthrin, Zebrafish, Danio rerio, LC50

P090
APTASENSOR vs. IMMUNOSENSOR FOR DEMYELINATING DISORDERS DIAGNOSTIC APPLICATIONS

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OBJECTIVES: Demyelinating disorder is any condition causing damage to protective covering (myelin sheath) that surrounds nerve fibers in nervous system providing electrical signal between nervous system and body. Myelin basic protein (MBP) makes up to 30% of myelin and is known to be released into body fluids (CSF and serum) as bioindicator of myelin damage. So far, methods used in clinic and biosensors for MBP level monitoring reported in literature are based on antibody-antigen recognition. In this study, three different MBP specific aptamers earlier developed for possible therapeutic purposes in mouse model (LJM-3064, LJM-5708, MBPcl3) were applied as bioreceptors for human MBP recognition. In parallel with that biosensor with antibody-based recognition was also prepared, tested, and results obtained were compared.
MATERIALS and METHODS: Biosensors were developed by using pencil graphite electrodes with integrated graphene oxide and bioreceptors (aptamers and antibody) to create bioactive layer on sensor surface for MBP recognition. The measurements were carried out using electrochemical impedance spectroscopy technique. Selectivity of designed biosensors was evaluated using HAS as non-specific molecule.
RESULTS: LJM-5708 aptasensor and immunosensor showed same LOD 1 ng/mL and detection range 1…128 ng/mL, what covers clinical range.
CONCLUSIONS: Using carbon-based nanomaterial with large surface area aggregated with LJM-5708 aptamer showed high

specificity and affinity to the target molecule and enabled selective and sensitive MBP determination. The biosensing system designed in this study can be implemented for development of user-friendly and cost-effective prototype product for further clinical use in the MBP evaluation in both CSF and blood serum.
Keywords: myelin basic protein, demyelination, aptasensor, ımmunosensor, body fluids

P091
IDENTIFICATION AND VALIDATION OF NOVEL DRUGS TARGETING LONGEVITY AND CELLULAR SENESCENCE BASED ON BARCODE-BASED RNA SEQUENCING

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OBJECTIVES: Cellular senescence (CS), which is characterized by permanent cell-cycle arrest, has recently accepted as a fundamental mechanism in developing aging-related pathologies. Although CS have beneficial roles for cells, during aging process the deleterious effects of CS gets increased. Therefore, senotherapeutic drugs targeting CS have recently emerged as promising candidates for human healthspan and lifespan.
MATERIALS and METHODS: Since aging is a complex and multifactorial process, a wide transcriptome study is performed including well-known genetic, pharmacological and dietary longevity interventions. Based on this data, novel longevity compounds are detected using drug repurposing technique. For the predicted compounds, a special barcode-based RNA-sequencing method is optimized in order to make extensive drug screening in mice. Then, the effect of candidate drugs on CS is tested in human fibroblasts to discover their potential as senotherapeutic drugs. For this aim, human fibroblast and VSMC cells are aged by serial passaging. Followingly, the effect of the drugs on the hallmarks of CS, which are senescence associated secretory phenotype together with senescence-associated beta-galactosidase, are determined by using fluorescence microscopy and Western Blotting.
RESULTS: As a result of the transcriptomics based studies, the top-ranking molecules are found to include novel mTOR inhibitors which is further validated by in-vivo mice studies. In addition, predicted compounds are also shown to effect CS state of the aged human cells.
CONCLUSIONS: Overall, the study describes novel drug candidates that could potentially affect the longevity based on the concept of RNA sequencing and drug repurposing. In addition, their potential to be involved as senotherapeutic drugs is also discussed.
Keywords: Aging, Longevity, Drug repurposing, Transcriptomics, Cellular Senescence, Senotherapeutic
***This study is supported by TUBITAK #121S705 project.

P092
EVALUATION OF HOMA-IR AND TyG, LDL-C/HDL-C, TRIGLYCERIDE/HDL-C AND NLR RATIOS IN PREDIABETIC PATIENTS

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OBJECTIVES: HOMA (Homeostasis Model Assessment) method is used to determine whether there is Insulin Resistance (IR). HOMA is calculated from fasting serum glucose and fasting serum insulin values. However, the method is quite costly and there are various difficulties in it calculation.In our study, we aimed to compare HOMA-IR with different indices: triglyceride glucose index (TyG), LDL-C/HDL-C ratio, Triglyceride/HDL-C ratio and neutrophil-lymphocyte ratio (NLR) in patients without prediabetes and diabetes.
MATERIALS and METHODS: A total of 1433 patients, 673 women and 890 men, between the ages of 18-75, who applied to NOHU Training and Research Hospital between 2019-2021 were included in our study. The patients were divided into two groups according to their HbA1c values as group-I non-diabetic (4.7%-5.6%) and group-II prediabetes (5.7%-6.4%). HOMA-IR, TyG, LDL-C/HDL-C, Triglyceride/HDL-C, NLR measurements and calculations were made.
RESULTS: According to the correlation results of Group I; There was a strong positive correlation between HOMA-IR index and TyG index, LDL-C/HDL-C ratio, Triglyceride/HDL-C ratio and NLR (r=0.311, p<0.001, r=0.181, p<, respectively). 0.001, r=0.219, p<0.001, r=0.150, p=0.002).
According to the correlation results of Group II; While a strong positive correlation was detected between HOMA-IR index, TyG index and Triglyceride/HDL-C ratio (r=0.287, p<0.001, r=0.340, p<0.001, respectively), LDL-C/HDL-C ratio and NLR was not found (r=-0.013, p=0.672, r=0.034, p=0.290, respectively).
CONCLUSIONS: In the light of the data obtained, if the study is planned more comprehensively, less costly and practical IR measurement can be made routinely.
Keywords: NLR, HOMO-IR, TyG Index, LDL-kHDL-k, Trgliserid HDL-K

P093
TATLI SU ISTAKOZLARI ÜZERINE BENZALKOLYUM KLORÜRÜN ETKILERI

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OBJECTIVES: Benzalkonium chloride is a quaternary ammonium antiseptic and disinfectant that is widely used as a bactericide and fungicide, and is also found in pharmaceutical products as an antimicrobial preservative. In this study, it was aimed to investigate the effect of BAC on the narrow-clawed crayfish, which is a non-target species.
MATERIALS and METHODS: The narrow-clawed crayfish (Astacus leptodactylus Eschscholtz, 1823) were obtained from Lake Eğirdir (Isparta, Turkey) and brought to the laboratory and acclimated for 2 weeks. At the end of the adaptation period, crayfish were randomly placed in experimental aquariums (n=10 species/aquarium) and exposed to 10, 25 and 50 mg/L BAC50 for 7 days. There was a control group in the experiment. After the exposure

period, gill and digestive gland tissues were taken from the crayfish and lipid peroxidation (MDA), glutathione and advanced oxidative protein products (AOPP) parameters were examined.
RESULTS: Although the digestive gland tissue MDA and glutathione values were obtained at a higher rate than the gill tissues, no significant difference was obtained between the groups ($p>0.05$). When the AOPP results were examined, it was observed that the digestive gland tissue AOPP values were significantly increased in the BAC applied groups compared to the control group ($p<0.05$).
CONCLUSIONS: These results showed that BAC exposure had effects on oxidative stress parameters of the crayfish. Thus, it has been demonstrated that BAC may have negative effects on the health status of aquatic organisms.
Keywords: BAC, Astacus leptodactylus, oxidative stress parameters
Acknowledgement: Gülsüm Batmaz was supported by TÜBİTAK 2211- National Ph.D. Fellowship Programme 2022/1.

P094
DETERMINATION OF THE TOXIC EFFECTS OF DIFLUBENZURON ON ZEBRA FISH

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OBJECTIVES: Diflubenzuron is an insecticide used as a chitin synthesis inhibitor against insects, especially in agriculture and forestry areas. This pesticide, which has a high probability of mixing with surface waters due to its usage areas, has possible toxic effects on non-target aquatic organisms. In this study, the toxic effects of diflubenzuron in zebrafish, an aquatic vertebrate model organism, were aimed by investigating various biochemical parameters.
MATERIALS and METHODS: Zebra fish (Danio rerio) (mean weight 4.21±0.35 g; mean total length 0.62±0.09 cm) were brought to the laboratory from local breeding units and adapted to laboratory conditions for 15 days. After the adaptation period, the fish were randomly placed in experimental aquariums (n=10 organisms/aquarium) and exposed to diflubenzuron concentrations of 2 and 20 µg/L for 48 and 96 hours. There was a control group in the experiment. At the end of the exposure period, whole body tissues of the fish were sampled and parameters of lipid peroxidation (MDA), glutathione and advanced oxidative protein products (AOPP) were examined.
RESULTS: The MDA, glutathione and AOPP values obtained by the exposure of zebrafish to high concentrations of diflubenzuron for 48 and 96 hours were lower than those of the control and 2 µg/L diflubenzuron groups ($p<0.05$).
CONCLUSIONS: These results showed that diflubenzuron exposure of non-target zebrafish had an effect on lipid peroxidation, glutathione and AOPP biochemical activities. Thus, it has been revealed that diflubenzuron may have undesirable negative effects on aquatic organisms if it mixes with aquatic ecosystems as a result of use.
Keywords: Diflubenzuron, Danio rerio, oxidative stress parameters

P095
CALCULATION OF MEASUREMENT UNCERTAINTY OF HEMOGLOBIN A1C AND ITS EFFECT ON THE DECISION LIMIT OF DIABETES MELLITUS

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OBJECTIVES: Hemoglobin A1c (HbA1c) test certified by the National Glycohemoglobin Standardization Program (NGSP) is used in the diagnosis and follow-up of Diabetes Mellitus (DM). HbA1c >6.5% is used as the decision limit in the diagnosis of DM. The measurement uncertainty indicates the level of the result within a certain confidence interval by taking into account possible errors that is traceable. In this study, it was aimed to calculate the measurement uncertainty of HbA1c and to evaluate its effect on the DM decision limit.
MATERIALS and METHODS: HbA1c was measured on Adams A1c HA-8160 (Arkray, Kyoto, Japan) high performance liquid chromatography. The Nordtest guide was used to calculate the measurement uncertainty. Reproducibility was obtained from the last three months of internal quality control data and u(bias) was obtained from the last 12 months external quality control data. The expanded uncertainty was calculated according to 95% confidence interval by including all components of the uncertainty.
RESULTS: The measurement uncertainty was ±3.84% for HbA1c and DM decision limit range was determined as 6.3%-6.7%. The measurement uncertainty was compared with the total allowable error according to NGSP and it was found that not exceed 6%.
CONCLUSIONS: In the absence of obvious DM symptoms, it is recommended to repeat the test above the decision limit. It is possible for the repeated results to be close to the decision limit. It is thought that giving the measurement uncertainty together with the result in the laboratory reports will be beneficial in the diagnosis of DM and prediabetes.
Keywords: measurement uncertainty, total allowable error

P096
CAN INCREASING EFFEROCYTOSIS BE AN EFFECTIVE STRATEGY AGAINST BEHÇET PATIENTS?

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OBJECTIVES: Behçet disease (BD) is an autoimmune chronic systemic inflammatory disease characterized by a protean clinical spectrum and enigmatic pathogenesis. Recent reports have focused on insufficient apoptosis in BD. Growth arrest specific protein 6 (Gas6) is a vitamin K-dependent protein identified as the ligand of the sAXL receptor. Gas6/sAXL, IL-10 and NO plays an important role during immune modulation, including phagocytosis of apoptotic cells and homeostasis. Therefore, various defects such as autoimmune diseases may occur as a result of the decrease in the Gas6/sAXL, IL-10 and NO levels. The aim of the present study is to investigate the levels of Gas6/sAXL pathway, anti-inflammatory marker IL-10, and inflammatory response regulator nitric oxide (NO) levels in the pathogenesis of BD.
MATERIALS and METHODS: A total of 37 Behçet patients with ocular involvement and 30 healthy control subjects were included in the study. Gas6, sAXL, IL-10, and NO levels were quantified using enzyme- linked immunosorbent assay (ELISA) method.

RESULTS: Serum levels of Gas6, sAXL, NO, and IL-10 were found to be significantly lower in Behçet patients compared to controls (p<0.005, p<0.001, p<0.001, and p<0.001, respectively). The correlation analysis in patients with BD showed moderate positive correlations between Gas6, sAXL, IL-10, and NO (p<0.001, p<0.001, p<0.001, and p<0.001, respectively).
CONCLUSIONS: These markers may have important roles in the processes of efferocytosis and apoptosis during the course of BD and clarification of the roles of this mechanisms in the pathogenesis of BD may provide hope for new treatment approaches.
Keywords: Behcet disease, GAS6, sAXL, IL-10, NO

P097
PANCREATIC ELASTASE AND PREANALYTICAL PHASE ERROR IN 3 CASES

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OBJECTIVES: Evaluation of the preanalytical phase error in terms of sample collection and preparation for pancreatic elastase test
MATERIALS and METHODS: In our laboratory, we perform the pancreatic elastase test on an ETI-Max 3000 fully automatic analyzer with the "Immundiagnostic AG IDK pancreatic elastase ELISA" kit. We found that contact with the diaper during sampling decreased the values in 2 infant patients who were reported to be incompatible with the clinic. We noticed that in one pediatric patient, the low result was due to the sample not being homogenized.
RESULTS: Baby A (29 days old) first result was 98 µgr/gr stool, with non-diaper contact stool sample second result was 221 µgr/gr stool; Baby B(1 month nine days) first result 58 µgr/gr stool and 207 µgr/gr stool with non-contact diaper sample; Child 1 (4 years eight months) first result was 77 µgr/gr stool and 259 and 297 µgr/gr stool in two repeated studies after homogenization. When the test's reference range was evaluated as > 200 µgr/gr stool, the results were found within the reference range with the corrected samples, and our pediatric gastroenterologist confirmed that it was compatible with the clinic.
CONCLUSIONS: The contact of the stool with the diaper may decrease the pancreatic elastase enzyme activity. Evaluating the preliminary study with more significant number of samples is appropriate. In addition, it is not sufficient to take samples from 3 different places as specified in the insert for the sample, and it affects the result if it is thoroughly homogenized.
Keywords: stool analysis, pancreatic elastase, preanalytical phase error

P099
HEMATOLOGICAL AND BIOCHEMICAL FINDINGS İN A HEREDITARY SPHEROCYTOSIS PEDIATRIC PATIENT

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OBJECTIVES: Hereditary Spherocytosis (HS) is a hereditary hemolytic anemia disease. Laboratory main findings are Microspherocytosis, anemia, and bilirubinemia. We examined the course of laboratory findings in our pediatric patient with acute HS.
MATERIALS and METHODS: A 15-year-old girl applied to our emergency department with epigastric pain and an icterus complaint. She was recently diagnosed with hereditary spherocytosis. We studied Biochemical and hematological examinations on Roche Cobas 6000 and Sysmex XN 1000 devices. We analyzed Erythrocyte morphology on the slides stained with May Grünwald Giemsa and a Reticulocyte examination on the preparation stained with Brilliant Cresyl Blue.
RESULTS: Laboratory findings at first presentation: Increased Indirect bilirubin 9.0 mg/dl (<0.85), LDH 341 U/L (90-250), CRP <0.3 mg/L (<3), Leukocytes 11.4 k /µL (4.5-11), Neutrophil/Lymphocyte (N/L) ratio 9.5 (<3), Hemoglobin 11.0 (12-15.5), MCHC 37.2 g/dl (31-37)), MCV 88.4 fL (76-95), RDW CV 17.9% (<15.6), Moderate anisocytosis, spherocytosis and mild polychromasia in peripheral smear, and Reticulocyte 10% (0.5-2.5%) . Indirect bilirubin 5.3 mg/dl and Leukocyte count 7.0 regressed after three days of treatment. However, the most striking change is the N/L ratio falling to 2.3.
CONCLUSION: Hereditary spherocytosis is characterized by anemia, spherocytosis, and indirect bilirubinemia. In this case, we noted the decrease in the Neutrophil/Lymphocyte ratio as the most prominent finding regarding the course of the acute phase of the disease and the remission of clinical findings.
Keywords: NeutrophylLymphocyte ratio, Hereditary spherocytosis, Reticulocyte, Indirect Bilirubin

P100
EVALUATION OF THE CALCIUM BINDING CAPACITY OF ETHYLENDIAMINE TETRAACETIC ACID (EDTA) AND THE OUTCOMES OF THE STUDY SECONDARY TO SPECIAL TRAINING

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OBJECTIVES: EthyleneDiamineTetraceticAcid(EDTA) is an anticoagulant in purple tubes used in many analyzes,especially complete blood count.EDTA prevents coagulation by binding calcium(Ca).In this study, we aimed to evaluate calcium binding capacity of EDTA in 2mL purple tubes(Vacusera)and to discuss its secondary contributions to a Medical Biochemistry assistant who is in the second month of specialty training.
MATERIALS and METHODS: Calcium solutions were prepared at concentrations of 10mg/dL,20mg/dL,50mg/dL,80mg/dL using deionized water with the chemical $CaCl_2.2H_2O$(Sigma-Aldrich,CAS:10035-04-8).The solutions were transferred to purple tubes(K_2EDTA,2ml,Vacusera).Ca levels in the tubes were measured photometrically(AU680,BeckmanCoulter,USA,measuring range4-20mg/dl).In line with the data obtained from the preliminary study,solutions were prepared at concentrations of 25mg/dL,30mg/dL,35mg/dL,40mg/dL.Ca measurements were made by transferring each solution to 5 purple tubes.Microsoft Excel program was used to evaluate the results.
RESULTS: In the measurements made,Ca levels were measured<4mg/dL in tubes containing 10mg/dL and20mg/dL Ca,and>20mg/dL in tubes containing50mg/dLand80mg/dL Ca.In the second series,Ca levels were measured an average of4±0.3mg/dL in a tube containing25mg/dL Ca,an average of10±0.7mg/dL in a tube containing30mg/dL Ca,an average of15±0.7mg/dL in a tube containing35mg/dL Ca, an average of20±0.3mg/dL in a tube containing 40mg/dL Ca.
CONCLUSIONS: EDTA strongly binds ions such as calcium, iron.In this study observed that EDTA in the purple tube(Vacusera,2mL,K2EDTA)chelated approximately 20mg/

dL of calcium.Therewithal,an assistant in the first months of specialization training was provided to reinforce the topics; solution preparation,use of basic laboratory equipment, water used,dilution,properties of anticoagulants,tube types,introduction to simple laboratory statistics(mean,SD,CV).Limitations of the study was that not performed in the serum matrix,therefore,the ability of EDTA to bind metabolites other than calcium couldn't evaluate and readings close to the measurement limits.
Keywords: EDTA, Calcium, specialist training

P101
THE IMPORTANCE OF STANDARDIZATION AND REJECTION CRITERIA FOR DRUG ABUSE ANALYSIS

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OBJECTIVES: Abused drugs and substances are illegal. They have a high potential to cause individual, familial, societal, social and judicial problems. Among the commonly used illegally used substances; amphetamine, methamphetamine, barbiturate, benzodiazepine, tetrahydrocannabinol, methadone, cocaine, opiate, phencyclidine, tricyclic antidepressant, ectasia, and bonsai. Regardless of the way they enter the body, they create negative side effects, especially in the nervous system. It is ensured that the process is managed medically and forensically through the measurement of substances in body fluids and tissues. The most important factor affecting preanalytical standardization is the addition of adulterants to urine samples. Interference of the analysis is targeted by the influence of adulterans.
In this study, our aim is to analyze the application rate and reasons for sample acceptance and rejection criteria.
MATERIALS and METHODS: Meram Medicine Hospital Medical Biochemistry Laboratory was requested to analyze drugs and substances abused for any reason between 01.06.2021 - 31.05.2022.
RESULTS: According to the sample rejection and analysis rejection criteria, 421 of the 2149 samples that came to our laboratory were not analyzed according to the sample rejection criteria. Samples were rejected due to urine creatinine level, urine specific gravity, urine nitrite positivity, urine pH, faulty sample container, incorrect registration and incorrect test request.
CONCLUSION: The quality and standardization of the test processes of abused drug and substance analysis should be ensured in the Medical Biochemistry Laboratory. The education of the health worker should be planned and the medical and judicial process should be managed correctly.
Keywords: Drug and Substance Abuse, Adulteran, Standardization

P102
AN ALTERNATIVE DERIVATIZATION METHOD FOR DETERMINATION OF INTRALEUKOCYTE CYSTINE

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OBJECTIVES: Cystinosis is a rare autosomal recessive disease characterized by the accumulation of cystine in lysosomes. The disease can be treated with high-dose cysteamine. Early diagnosis of the disease prolongs life by preventing organ involvement. Therefore, the measurement of intraleukocyte cystine level is of great importance both for the diagnosis and monitoring the treatment of the disease. The aim of this study is to develop a a new method for the determination of intracellular cystine using propanol as a derivatization agent.
MATERIALS and METHODS: Leukocyte isolation was done according to the literature and N-ethylmaleimide (NEM) was used in the lysis step to prevent the interference effect from cysteine. After lysis and precipitation of proteins, di-propylated cystine was determined by UPLC-MS MS method. The derivatization conditions are optimized. Derivatization was carried out by keeping it at 65◦C for 30 minutes with propanol containing 4.5 M HCl.
RESULTS: While the linear detection range of the developed method is between 24 nM and 50 µM, the intra-day and inter-day reproducibility %CV values were below 15% for the low-medium-high levels. Measured intraleukocyte cystine levels clearly distingushed healthy controls and patients. It was compared with the di-butylated cystine method in the literature and a good correlation was observed.
CONCLUSIONS: An LC-MS/MS method, using derivatization with propanol was developed and validated for measurement of intraleukocyte cystine levels.
Keywords: cystinosis, cystine, derivatization, LC-MSMS, propanol

P103
PREDICTION OF IMPAIRED GLUCOSE TOLERANCE WITH A MACHINE LEARNING MODEL

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OBJECTIVES: Obesity leads to insulin resistance and increased circulating insulin concentrations over time, thereby decreasing insulin sensitivity and impairing pancreatic β-cell function, that both the two main components in the pathogenesis of type 2 diabetes. In adults, Oral Glucose Tolerance Test (OGTT) is a method to identify those with impaired glucose tolerance (IGT), but alternative approaches are still needed. We aimed to predict IGT using machine learning (ML) models in obese and overweight people.
MATERIALS and METHODS: 225 overweight and obese patients who underwent 75 g OGTT were included in the study. The ML models, including logistic regression, linear discriminant analysis, K-nearest neighbor, decision tree, random forest, Gaussian naive Bayes (NB), support vector, and XGBoost employed in Jupyter Notebook 6.4.0 software by using Python Pandas, Numpy, and Scikit-learn libraries. The model performances of classifiers were evaluated with accuracy percentages, and the ROC analysis was performed.
RESULTS: IGT detected in 36% (n=81) of participants. The accuracy performances of the models in the test set were determined as 77%, 68%, 59%, 67%, 68%, 62%, 70%, and 78%, respectively. The area under curve (AUC) value of the XGBoost classification, the model with the highest accuracy, was determined as 81%.
CONCLUSIONS: Although the XGBoost classifier is a successful ML model to estimate IGT in obese and overweight individuals, there is still a need to perform OGTT for determining IGT. However, our ML model might be an alternative approach for individuals who cannot undergo OGTT.

Keywords: Obesity, Impaired glucose tolerance, Oral glucose tolerance test, Machine learning

P104
RANKL LEVELS AS A BIOMARKER IN BONE METABOLISM, EXPERIMENTAL MODEL

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OBJECTIVES: Bone turnover markers(BTM) are of critical importance for diagnosis, treatment and follow-up of Osteoporosis(OP) and Rheumatoid Arthritis(RA),which are widely seen today.Due to its non-invasiveness, its importance is increasing day by day.Receptor activator of nuclear factor κ-B(RANK) and ligand(RANKL), one of the proteins belonging to TNF-superfamily, are expressed in both soluble and membrane-bound forms in different bone cells(osteoblasts,osteoclasts), as well as in different cell subsets of the immune system.RANKL stimulates these cells by binding to its own receptor RANK.
MATERIALS and METHODS: Rabbits were treated with denosumab after development of OP with a combination of ovariectomy and corticosteroid therapy. OVA/FCA was injected into the knee for RA formation, and then NSAID and Corticosteroid were used for treatment.Blood samples were collected throughout the disease and treatment phase.Serum RANkL levels were determined by the ELISA method.
RESULTS: RANkL levels were measured as mean 52.43pg/mL, 56.44pg/mL and 73.11pg/mL at the initial, disease formation and treatment stages, respectively, in the OP group. In the RA group, 77.89pg/mL, 100.11pg/mL and 113.94pg/mL were measured at the initial, disease formation and treatment stages, respectively.
CONCLUSIONS: Increasing RANkL levels with the development of the disease may be indicator of increased osteoclastic activity. Increased RANkL levels during treatment may be associated with increased bone turnover in OP and glucocorticoid used for treatment in RA and also the targeting of RANKL in the treatment of RA can be considered. More data is needed for its use as a biomarker in bone metabolism.
Keywords: RANkL, Bone Turnover Biomarkers, Osteoporosis, Rheumatoid Arthritis
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P105
THE LEVELS Of PHOENIXIN-14 And PHOENIXIN-20 In PATIENTS with TYPE 2 DIABETES MELLITUS

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OBJECTIVES: The incidence of type 2 diabetes mellitus (T2DM) is increasing significantly worldwide. There is a need for new early detection markers related to pathogenesis to prevent T2DM and its complications. We aim to predict phoenixin (PNX)-14 and PNX-20 levels in patients with T2DM.
MATERIALS and METHODS: The study included 36 patients with T2DM (16 males, 20 females and aged 54.6 ± 8.3 years) and 36 healthy controls (18 males, 18 females and aged 51.7± 7.6 years) matched for age and sex. The serum levels of PNX-14 and PNX-20 were measured by using ELISA method.
RESULTS: The serum PNX-14 and PNX-20 levels of the patients were significantly lower than the controls ($p<0.001$). A negative correlation was observed between PNX-14 and BMI, weight. Also, a negative correlation was observed between PNX-20 and BMI, insulin. A positive correlation was observed between PNX-14 and PNX -20 levels. By ROC analyses, PNX-14 did nearly show equally compared to PNX-20 in predicting T2DM. The area under the ROC curve for PNX-14 was 0.874 (cutoff value 413.4 ng/L, sensitivity 89 %, specificity 72 %) and for PNX-20 was 0.858 (cutoff value 228.7 ng/L, sensitivity 80 %, specificity 83 %) in predicting T2DM. The area under the ROC curve for HbA1c was 1.0 (cutoff value 6.0, sensitivity 100 %, specificity 100 %)
CONCLUSIONS: This study provides high-level evidence that T2DM predictions are possible with serum PNX measurements. PNX may be useful not only in the diagnosis of T2DM, but also to provide other information that may be available to support clinical decision making.
Keywords: Type 2 diabetes mellitus, phoenixin-14, phoenixin-20

SATELLITE SYMPOSIUM ABSTRACTS

SS001
LABORATORY EXPERIENCE OF THE FULLY AUTOMATED COAGULATION ANALYZER SF-8200 FOR ROUTINE TEST

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Fully automated coagulation analyzers have become one of the most important components of clinical laboratories. Coagulation tests are particularly difficult to suffer from common preanalytical errors such as hemolysis, lipemia, and insufficient or inappropriate sample volume. High-capacity laboratories need reliable coagulation systems that will not be affected by these common preanalytical variables. Using the mechanical viscosity method, SF-8200 (Beijing Succeeder Technology Inc., China) is a new coagulation analyzer whose test speed and high analytical performance are unaffected by interference variables. It also has specifications for chromogenic and turbidimetric measurements. The system capacity is up to 360 tests per hour, 60 sample tubes can be loaded at any time, and the reaction cuvette capacity is 1,000. The analyzer also features an optional capping module to reduce manual sampling time. It has 2 independent probes, a temperature-controlled reagent chamber, 8 measuring positions, and 42 different reagent slots to increase efficiency. In a study conducted in our country comparing analytical performance between the SF-8200 and Stago Compact Max-3 instruments, the coefficients of variation evaluated were representatively below 5% for the parameters evaluated. Inter-analyzer comparison showed good results. The results obtained by the SF-8200 showed high agreement with the predominantly used reference analyzers with correlation coefficients ranging from 0.953 to 0.976. No interference was observed on the tests for elevated free hemoglobin, bilirubin or triglyceride levels. With its optomechanical measurement features, the SF-8200 can be a good alternative for laboratories working on routine coagulation tests, with significant advantages against known interferences.

SS002
ROLE of BNP in HEART FAILURE DIAGNOSIS and TREATMENT

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Brain natriuretic peptide (BNP) is a cardioc hormone secreting from ventricules under pressure and stress and proven to be a valuable biomarker in diagnosis and treatment for hearth failure. The symposium organized by Beckman Coulter will evaluate the role of BNP in cardiology manuals, the diagnosis of hearth failure and follow-up from a cardiologist perspective and in addition the rutine use of BNP as a laboratory parameter.

SS003
LABORATORY DIAGNOSTICS: MANAGEMENT OF PREANALYTICAL ERRORS

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OBJECTIVES: Most of the diagnostic errors are caused in the preanalytical phase. The preanalytical phase is the most time-consuming phase in the diagnostic pathway and often lacks standardized protocols. We aimed to address the impact of preanalytical errors on laboratory diagnostics and patient care and describe steps to help avoid these errors from taking place.
MATERIALS AND METHODS: We performed a literature search and consulted guidelines on phlebotomy best practices and recommendations and on laboratory quality management systems.
RESULTS: Numerous studies and guidelines indicate the need for standardized processes and procedures on order to minimize preanalytical errors. These standardized processed and procedures should be clearly written down in standard operating procedures. There must be adequate and effective training of healthcare personnel to be competent in following the processes and procedures. Quality indicators should be used for assessment: e.g. fill volume, hemolysis, fibrin-related issues, identification errors, turn-around-time. In order to successfully manage preanalytical errors, the success of any efforts made to reduce the errors should be monitored.
CONCLUSION: Five key aspects are highlighted to avoid preanalytical errors: I) developing clear written procedures, II) enhancing health care professional training, III) automating functions, IV) monitoring quality indicators, and V) improving communication. An additional and evenly important step is to monitor the preanalytical errors in order to assess the efficacy of improvement measures taken.
Keywords: Laboratory diagnostics, Preanalytical phase, Preanalytical errors, Laboratory management

SS004
NEPHELOMETRIC MEASUREMENT OF PLASMA PROTEINS

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Nephelometer systems have an important role in medical laboratories due to the precision measurement technique, workflow advantages, obtaining more reliable patient results, and the ability to study tests that can be vital in diagnosis and treatment. Today, nephelometer systems; It is designed to meet the needs of clinicians and laboratory specialists, based on knowledge and experience, especially in the management of specific diseases.
In terms of the working principle of Atellica Neph, BNII, and BNprospec devices, unlike turbidimeter and photometer, measuring light scattered from the solution at certain angles, obtaining specific monoclonal antibodies with high standards with advanced reactive technologies, increasing the agglutination by expanding the surface area with N-latex particles, more sensitive and faster results. In addition, the built-in reagent storage feature with cooling reduces reagent usage and provides cost-effective operation. Continuous access to the reagent table during measurements, without interruption, saves time. In terms of analytical performance, pre-reaction protocols have been developed to prevent false-negative results in case of antigen excess in tests that cover a wide dynamic range between normal and pathological results. The 'Hook effect', which is one of the important error sources in laboratory measurements, is eliminated with pre-reaction protocols and automatic flexible dilution features; It is ensured that accurate and reliable results are

obtained in a short time without manual intervention. Thanks to its advanced software, it warns laboratory technicians when possible workflow interruptions occur, minimizing operator intervention. The ability to work with plasma, serum, urine, and CSF samples in nephelometric measurements, the ability to give results with low-volume samples, the ability to measure the protein sought even at very low concentrations, and the wide measurement range provides analytical advantages compared to other methods.

Nephelometer devices are used in the evaluation of many complex clinical conditions such as inflammation, rheumatic, and immunological diseases, gammopathies, cardiovascular disease risk, blood-CSF barrier disorder, and renal diseases, with more than 60 test types and a comprehensive test menu. At clinical judgment with innovative testing such as therapeutic drug monitoring for free light chains (FLC), carbohydrate-deficient transferrin (CDT), beta-trace protein (BTP), serum amyloid A (SAA), and TNF-alpha inhibitors (Adalimumab, Infliximab, Etanercept) takes a more active role. Today, TNF-alpha inhibitors are widely used in the treatment of inflammatory and autoimmune diseases such as rheumatoid arthritis (RA), Crohn's disease, ulcerative colitis, and ankylosing spondylitis psoriasis. However, since some of the patients develop biological resistance and some develop secondary resistance to treatment, the optimal blood drug levels required for treatment cannot be achieved. In addition, serious side effects can be seen at high doses. Acute phase reactants and plasma protein were used in the diagnosis and follow-up of treatment in this group of patients.

Among other nephelometric measurements, N-latex FLC kappa and lambda, serum calprotectin, serum amyloid a, cystatin c and beta trace protein tests are widely used.

SS005
ISO 15189 QC REQUIREMENTS AND BIO-RAD SOLUTIONS

Ayman Enayah
Bio-Rad Laboratories

ISO 15189 Medical laboratories — Requirements for quality and competence is an international standard that specifies the quality management system requirements particular to medical laboratories.

Medical laboratories can be accredited to ISO 15189, to demonstrate the quality and reliability of their services. ISO 15189 was developed with the participation of the medical, scientific, and clinical community, and it contains requirements for diagnostic labs to demonstrate competence to deliver timely, accurate, and reliable results.

Several laboratories are seeking to comply with ISO 15189 requirements and ensuring that they are following ISO 15189 guidelines by utilizing the best quality materials and quality services.

The presentation will provide Bio-Rad complete solutions that can help labs achieve their quality goals by monitoring laboratory performance using accredited external quality assurance programs such as Bio-Rad EQAS programs, using third-party internal quality products designed to mimic patient samples, and using Bio-Rad Qc data management software, you will be able to meet regulatory requirements, reduce errors in test results, and improve patient care.