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WELCOME MESSAGE

Dear colleagues,

The continued impacts of COVID-19 pandemic are unabated. In such a period, our main task is to fulfill our responsibilities by adapting to new conditions. Of utmost importance for us is human life... And that is why we have to protect ourselves and our community from the pandemic while fulfilling our duty. Unfortunately, many healthcare workers died since the beginning of the pandemic. We commemorate them all with respect and extend our condolences to their relatives.

As you know, foreseeing the course of the pandemic, we postponed the 31st National Biochemistry Congress // International Biochemistry Congress 2020 which we planned to hold in Gaziantep on October 26-30, 2020 and announced that we will organize a virtual event instead.

In this context, evaluating the opportunities offered by new technology, we decided to hold the 31st National Biochemistry Congress as a virtual congress on December 18-20, 2020. (On October 29, 2020, we planned to hold a one-day virtual event as we mentioned earlier).

The virtual congress is new for all of us… We will do our best to ensure that there is nothing short of a face-to-face congress, and to hold even a stronger scientific event in many respects.

We will allocate sufficient time and place for all oral presentations. All abstracts (in English) will be published in the supplementary issue of the Türk Biyokimya Dergisi // Turkish Journal of Biochemistry, which is included in SCI-E and many other indexes.

Innovations have always excited us. Thus, we started our preparations with this excitement and enthusiasm.

We expect you to join the excitement and enthusiasm we feel and support us. Together, let's bring such a virtual congress to life that will make everyone happy and leave unforgettable memories.

Best regards,

Dogan Yucel
(Chair, TBS and Congress)
on behalf of the Organizing Committee and TBS Board of Directors

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Nazmi Ozer
Serafettin Ozkurt

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Ali Unlu
Sedef Yenice
Fatma Meric Yilmaz
Dogan Yucel
Oguzhan Zengi

SCIENTIFIC PROGRAM

18 December 2020, Friday

HALL A

09:30 - 09:45	**Opening** Dogan Yucel
09:45 - 10:30	**Opening Lecture** **Keynote 1** **Chairperson:** Tomris Ozben
09:45 - 10:30	**SCIENTIFIC ROADMAP TO ENLIGHTEN THE BRAIN** Hande Ozdinler
10:30 - 10:45	**Exhibition & E-Poster Visiting**
10:45 - 12:00	**Main Session 1** **Omics** **Chairpersons:** Oytun Portakal, Gul Guner Akdogan
10:45 - 11:05	**EMERGING OMICS APPROACHES IN CLINICAL RESEARCH** Sureyya Ozcan Kabasakal
11:05 - 11:25	**INTACT TISSUE PROTEOMICS: SUPPORTING DIAGNOSIS WITH MOLECULAR IMAGING** Yasemin Furtun Ucal
11:25 - 11:45	**UNDERSTANDING THE ROLE OF PLASMA MEMBRANE LIPID COMPOSITION IN REGULATION OF WNT/B-CATENIN SIGNALING: COMPARATIVE LIPIDOME ANALYSES IN LIVER CANCER** Gunes Ozhan
11:45 - 12:00	**Q&A**
12:00 - 12:45	**Aplus/Berko Pharmaceuticals Satellite Symposium / Which Vaccine?** **Speakers:** Prof. Wang Zhen **- Zhejiang Provincial People's Hospital** Prof. Dr. Zhang Yan Jun **- Head of Zhejiang Public Health Center "The first person to isolate the COVID 19 virus and develop the Sinovac vaccine"** Professor Dr. Fan Chun Lei **- "The Person Who Developed The Rapid Antigen Test With ACE-2 Protein Method"** **Panelists:** Dr. Mujdat AYTEKIN **On behalf of Aplus/Berko Pharmaceuticals ,** RPh. Baris OZYURTLU **Distributor of Synovac Turkey** Canturk ALAGOZ
12:45 - 13:45	**Lunck Break I Exhibition & E-Poster Visiting**
13:45 - 14:30	**Abbott Satellite Panel / All Aspects of SARS-CoV-2 Laboratory Tests and Contribution to Pandemic Management** **Panelist:** Mustafa Haciahmetoglu – **Abbott Marketing Manager** **Speaker:** Prof. Dr. Aynur Eren Topkaya – **Yeditepe University Hospital, Head of the Department of Medical Microbiology**
14:30 - 15:00	**Keynote 2** **Chairperson:** Ferhan Sagin
14:30 - 15:00	**GENOME ENGINEERING, IMMUNE SYSTEM AND CANCER DEVELOPMENT** Batu Erman
15:00 - 16:15	**Main Session 2** **Immunology** **Chairpersons:** Suleyman Demir, Ozlem Yavuz
15:00 - 15:20	**IRON HOMEOSTASIS IN IMMUNE SYSTEM AND ITS IMPACT ON CYTOKINE STORM** Arzu Aral
15:20 - 15:40	**DETERMINATION OF BIOMARKERS IN CANCER USING PROTEIN-PROTEIN INTERACTIONS** Gizem Dinler Doganay
15:40 - 16:00	**MONOCLONAL ANTIBODY THERAPIES AND CLINICAL LABORATORY TEST INTERFERENCE** Fehime Aksungar
16:00 - 16:15	**Q&A**
16:15 - 16:45	**Exhibition & E-Poster Visiting**

SCIENTIFIC PROGRAM

18 December 2020, Friday

HALL B

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	OP-013 THE EVALUATION OF ANALYTICAL PERFORMANCE OF BIOCHEMICAL URINE TESTS USING SIX SIGMA METHODOLOGY AND QUALITY GOAL INDEX, Yasemin Erdogan Doventas
	OP-001 THE COMPARISON OF SIGMA VALUES CALCULATED ACCORDING TO DIFFERENT %TEA STANDARTS OF URINE BIOCHEMISTRY TESTS AND EVALUATION OF ANALYTICAL STAGE, Ugur Ercin
	OP-003 EVALUATION OF MEASUREMENT UNCERTAINTY FOR TUMOR MARKERS, Ahmet Rifat Balik
	OP-005 HOW SUCCESSFUL ARE LABORATORY TEST COMBINATIONS? A PRELIMINARY STUDY WITH DISCRIMINANT ANALYSIS, Izzet Hamdi Ogus
	OP-007 EVALUATION OF THE PERFORMANCE OF '' TWIN AUTOANALYSERS '' WORKING THE SAME ROUTINE BIOCHEMICAL ANALYZES USING DIFFERENT STATISTICAL METHODS, Selin Onur
	OP-008 EVALUATION OF ETHANOL TEST MEASUREMENT UNCERTAINTY, Hediye Cigdem Simsek
	OP-009 THE RELIABILITY OF PLATELET CLUMPS FLAG GENERATED BY SYSMEX XN-1000 HEMATOLOGY ANALYZER, Serif Ercan
	OP-010 COMPARISON OF THREE DIFFERENT METHODS FOR HBA1C MEASUREMENT, Funda Eren
	OP-011 EVALUATION OF MEASUREMENT UNCERTAINTY OF TOTAL PROSTATE SPECIFIC ANTIGEN TEST, Esra Firat Oguz
	OP-020 THE EFFECT OF URIC ACID LEVEL ON MORTALITY IN PATIENTS WITH FUNGAL INFECTION IN INTENSIVE CARE UNIT, Elif Binboga
	OP-018 THE IMPACT OF THE COVID-19 PANDEMIC ON LABORATORY LOGISTICS MANAGEMENT, Merve Ergin Tuncay
	OP-019 USE OF PROCALCITONIN IN COVID-19 PATIENTS, Fikret Akyurek
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12:45 - 13:45	**Oral Presentation Session 2**
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	OP-012 COMPARISON OF SOME AMINO ACID LEVELS STUDIED WITH LIQUID CHROMATOGRAPHY-MASS SPECTROMETRY METHOD IN PLASMA AND DRIED BLOOD SAMPLES, Ozgur Aslan
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	OP-014 ELUCIDATION OF INTERACTION BETWEEN CTX-M-15 AND QUERCETIN BY MOLECULAR DYNAMICS SIMULATIONS, Aysegul Saral
	OP-016 SERUM ADVANCED GLYCATION END PRODUCTS AND THEIR SOLUBLE RECEPTORS LEVELS IN PATIENTS WITH SICKLE CELL ANEMIA AND THEIR RELATIONSHIP WITH DISEASE SEVERITY, Bagdagul Emlik
	OP-017 LIVER-KIDNEY FUNCTIONS, SPHINGOLIPID LEVELS AND INFLAMMATION IN EXPERIMENTAL ER STRESS MODEL, Mutay Aslan
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	OP-022 COMPARISON OF ANTISTREPTOLYSIN O, NEUTROPHIL, MONOCYTE, AND BASOPHIL COUNTS TO ALBUMIN AND LYMPHOCYTE RATIOS IN PANIC DISORDER WITH HEALTHY CONTROLS, Mehmet Hamdi Orum
	OP-031 GLUCOSE-POTASSIUM RATIO IN THE DIAGNOSIS OF POLYCYSTIC OVARY SYNDROME, Kemal Turker Ulutas
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	OP-033 THE ASSOCIATION OF SERUM 15D-PGJ VE PPAR GAMMA LEVELS WITH METABOLIC SYNDROME IN PATIENTS WITH SCHIZOPHRENIA, Kubranur Unal
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SCIENTIFIC PROGRAM

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HALL B

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16:52 - 17:00	**Q&A**

SCIENTIFIC PROGRAM

19 December 2020, Saturday

HALL A

09:30 - 10:00	**Keynote 3** **Chairperson:** Nazmi Ozer
09:30 - 10:00	**DNA REPAIR-BASED DRUG DEVELOPMENTS IN CANCER THERAPY** Miral Dizdaroglu
10:00 - 10:30	**Exhibition & E-Poster Visiting**
10:30 - 11:45	**Main Session 3** **Cancer** **Chairpersons:** Zeliha Gunnur Dikmen, Mehmet Senes
10:30 - 10:50	**ALTERNATIVE POLYADENYLATION, MRNA ISOFORMS AND CANCER** Ayse Elif Erson Bensan
10:50 - 11:10	**A NEW APPROACH IN CANCER TREATMENT: PHOTODYNAMIC THERAPY AND ITS APPLICATIONS** Burak Barut
11:10 - 11:30	**BIOLOGY OF METASTASIS** Hilal Kocdor
11:30 - 11:45	**Q&A**
11:45 - 12:30	**Becton Dickinson Satellite Symposium / BD COVID-19 Diagnostic Solutions and Importance of POC Antigen Tests** **Chairperson:** Neval Yurttutan Uyar **Speakers:** Ipek Cinaroglu - Bahtiyar Can - Begum Yildiz
12:30 - 13:30	**Lunch Break I Exhibition & E-Poster Visiting**
13:30 - 14:15	**Roche Satellite Symposium / Management of Coagulation Laboratory During Covid 19 Process** **Chairperson:** Dogan Yucel **Speaker:** Oguzhan Zengi
14:15 - 14:45	**Keynote 4** **Chairperson:** Cevat Yazici
14:15 - 14:45	**PERSONALIZED REFERENCE INTERVALS** Abdurrahman Coskun
14:45 - 15:00	**Exhibition & E-Poster Visiting**
15:00 - 16:45	**Main Session 4** **Covid-19 and Its Effect on Biochemistry Laboratories** **Chairpersons:** Aylin Sepici Dincel, Muhittin Serdar
15:00 - 15:20	**INTENSIVE CARE AND LABORATORY IN COVID-19** Hasan Murat Gunduz
15:20 - 15:40	**DIAGNOSTIC OVERVIEW OF LABORATORY TESTS FOR COVID-19** Muhittin Serdar
15:40 - 16:00	**LABORATORY MANAGEMENT IN COVID 19 PANDEMIC: ANKARA CITY HOSPITAL CASE** Fatma Meric Yilmaz
16:00 - 16:30	**IMPACT OF COVID-19 TO EDUCATION AND RESEARCH** Ferhan Girgin Sagin
16:30 - 16:45	**Q&A**
16:45 - 17:00	**Nazmi Ozer Award Ceremony**
17:00 - 17:45	**“Route-Free Traveler” Road Stories** Mehmet Genc **Chairperson:** Murat Cihan

SCIENTIFIC PROGRAM

19 December 2020, Saturday

HALL B

08:00 - 10:00 **Oral Presentation Session 4**

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OP-038 HYPOTHYROIDISM AND BONE REMODELING: CONSTRUCTION OR DESTRUCTION?, Fatih Kar

OP-039 THE ROLE OF ADROPIN AND IRISIN IN NONALCOHOLIC HEPATOSTEATOSIS IN THE PREOBESE AND OBESE INDIVIDUALS, Yaprak Sule Orek

OP-040 MEASUREMENT OF TWEAK LEVELS, WHICH IS AN INDICATOR OF ENDOTHELIAL DYSFUNCTION, BEFORE AND AFTER RADIOACTIVE IODINE TREATMENT, Asena Gokcay Canpolat

OP-041 THIOL/DISULPHIDE HOMEOSTASIS IN PATIENTS WITH HASHIMOTO'S THYROIDITIS, Burcu Baba

OP-051 INVESTIGATION OF GHRELIN HORMONE LEVEL IN ACUTE APPENDICITIS PATIENTS AND COMPARISON OF GHRELIN HORMONE LEVEL WITH C-REACTIVE PROTEIN AND WHITE BLOOD CELL LEVELS, Rifat Peksoz

OP-042 IMPACT OF THE COVID-19 INFECTION ON THE PEOPLE WITH G6PD DEFICIENCY IN RELATION TO THE HEMOGRAM AND BIOCHEMISTRY RESULTS, Duygu Aydemir

OP-043 RETROSPECTIVE COMPARISON OF PATIENTS WITH COVID-19 AND NORMAL INDIVIDUALS IN TERMS OF BIOCHEMISTRY PARAMETERS, Hale Gok Dagidir

OP-044 THE RELATIONSHIP BETWEEN CLINICAL CHARACTERISTICS OF COVID-19 PATIENTS AND HYPOALBUMINEMIA, Abdulkadir Cat

OP-045 HEMOGRAM PARAMETERS IN PREDICTING THE NEED FOR INTENSIVE CARE IN COVID-19, Merve Sena Odabasi

OP-046 THIOL-DISULPHIDE HOMOEOSTASIS IN COVID-19: EVALUATION OF RELATIONSHIP WITH COMPLETE BLOOD COUNT PARAMETERS, Fatima Betul Tuncer

OP-047 EVALUATION OF COAGULATION PARAMETERS ACCORDING TO INFLAMMATION SEVERITY IN COVID-19 PATIENTS, Sema Kardesler

OP-048 LABORATORY PARAMETERS IN EARLY STAGE CORONAVIRUS (COVID-19) PATIENTS, Ayfer Colak

OP-049 EVALUATION OF SARS-COV-2 IGG AND SARS-COV-2 IGM LEVELS IN COVID-19 INFECTION, Ozlem Unay Demirel

OP-050 EVALUATION OF NUCLEATED RED BLOOD CELL (NRBC) LEVELS IN SARS-COV-2 INFECTED PATIENTS, Arif Ataberk Buyukyatikci

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09:52 - 10:00 **Q&A**

10:00 - 11:45 **Oral Presentation Session 5**

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OP-054 EFFECTS OF TOPIRAMATE ON INFLAMMATORY PARAMETERS IN MIGRAINE PROPHYLAXIS, Ahmet Donder

OP-055 EVALUATION OF ADENOSINE DEAMINASE ACTIVITY IN TERMS OF INFLAMMATION IN PATIENTS WITH ROMATOID ARTHRITIS, Humeyra Acikan

OP-056 DYNAMIC THIOL/DISULFIDE BALANCE IN PREGNANT WOMEN WITH PREECLAMPSIA AND ITS RELATIONSHIP WITH INFLAMMATION, Zeynep Akaslan

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SCIENTIFIC PROGRAM

19 December 2020, Saturday

HALL B

11:38 - 11:45	**Q&A**
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13:26 - 13:30	**Q&A**
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	OP-091 THE EFFECT OF RESVERATROL ON HEART IN EXPERIMENTAL HYPERTHYROID RATS, Hacer Merve Gurler
	OP-092 INVESTIGATION OF THE EFFECT OF OLEUROPEIN ON CD36 GENE EXPRESSION IN RAW264.7 CELL LINE, Neslihan Saglam
	OP-093 EVALUATION OF NOVEL MARTIN FORMULA AND FRIEDEWALD FORMULA FOR LDL-C ESTIMATION IN A ADULT POPULATION, Medine Alpdemir
	OP-094 INVESTIGATION OF HERPES VIRIDEA FREQUENCIES IN LYMPHOPENIC MALIGNANT PATIENTS RECEIVING CHEMOTHERAPY, Adil Furkan Kilic
17:05 - 17:15	**Q&A**

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09:30 - 10.00	**Keynote 5** **Chairperson:** Ali Unlu
09:30 - 10.00	**TURKISH MINISTRY OF HEALTH - E-HEALTH APPLICATIONS** Esra Mus
10:00 - 10:30	**Exhibition & E-Poster Visiting**
10:30 - 11:45	**Main Session 5** **Clinical Laboratory Management** **Chairperson:** Diler Aslan
10:30 - 10:50	**CURRENT APPROACH TO POINT OF CARE TESTING** Dogan Yucel
10:50 - 11:10	**MINI LABS (MICROCHIPS)** Devrim Pesen Okvur
11:10 - 11:30	**PURSUITS OF CLSI EXPERT PANEL ON CLINICAL CHEMISTRY AND TOXICOLOGY AT A GLANCE** Sedef Yenice
11:30 - 11:45	**Q&A**
11:45 - 12:30	**Oral Presentation Session 8** **Chairpersons:** Halef Okan Dogan, Sabahattin Muhtaroglu
	OP-095 CHANGING THE PARADIGM OF EQAS THROUGH THE IMPLEMENTATION OF PATIENT-BASED REAL-TIME QUALITY CONTROL MONITORING, Coskun Cavusoglu
	OP-096 EVALUATION OF TOTAL TESTING PROCESS FOR HBA1C WITH RISK ANALYSIS, Canan Karadag
	OP-097 DEVELOPMENT AND VALIDATION AN LC/MSMS METHOD FOR SIMULTANEOUS QUANTIFICATION OF VITAMIN D METABOLITES AND DETERMINATION OF SAMPLE STORAGE CONDITIONS, Ali Yaman
	OP-098 REPEATABILITY OF BIOMERIEUX HIGH SENSITIVITY TROPONIN I IN SERUM IS SIGNIFICANTLY BETTER THAN IN LI-HEPARIN PLASMA SAMPLES, Settar Kosova
	OP-099 THE IMPACT OF AUTOVERIFICATION SYSTEM ON LABORATORY TURNAROUND TIME, Bahar Unlu Gul
	OP-100 COMPARISON OF RESULTS OF DIFFERENT AUTOVERIFICATION ALGORITHMS DEVELOPED FOR LIVER FUNCTION TESTS, Serdar Dogan
12:27 - 12:30	**Q&A**
12:30 - 13:30	**With the contribution of "Algen Diagnostics"** **"Fake News"** Yalin Alpay **Chairperson:** Nilgun Yener
13:30 - 14:15	**Oral Presentation Session 9** **Chairpersons:** Mutay Aslan, Sedat Abusoglu
	OP-101 PRELIMINARY STUDY TO DIAGNOSE COVID-19 AND TO IDENTIFY SEVERE FROM NON-SEVERE CASES USING IMMATURE GRANULOCYTES AND INFLAMMATORY HEMOGRAM INDICES, Said Incir
	OP-102 RETROSPECTIVE ASSESSMENT OF THE DIAGNOSTIC VALUE OF SOME HEMOGRAM PARAMETERS ON MORTALITY IN PATIENTS WITH COVID-19 RT-PCR TEST (+) ADMITTED IN A PANDEMIC HOSPITAL IN ISTANBUL, Bagnu Orhan
	OP-105 THE EFFECT OF DIAGNOSTIC VALUE OF BIOCHEMICAL PARAMETERS ON MORTALITY IN COVID-19 PATIENTS, Levent Deniz
	OP-106 DIAGNOSTIC UTILITY OF C-REACTIVE PROTEIN TO ALBUMIN RATIO AS AN EARLY WARNING SIGN IN HOSPITALIZED SEVERE COVID-19 PATIENTS, Veli Iyilikci
	OP-104 DIFFERENCES AMONG LABORATORY RESULTS FOR D-DIMER TEST, Emis Deniz Akbulut
	OP-103 SITE-SPECIFIC GLYCOSYLATION ANALYSIS OF HUMAN THYROGLOBULIN PROTEIN USING HIGH-THROUGHPUT MASS SPECTROMETRIC APPROACHES, Haci Mehmet Kayili
14:12 - 14:15	**Q&A**
14:15 - 14:30	**Exhibition & E-Poster Visiting**
14:30 - 16:15	**Main Session 6** **Nutrition and Laboratory** **Chairpersons:** Ozlem Gulbahar, Suat Hayri Kucuk
14:30 - 14:50	**METABOLIC SYNDROME AND NUTRITION CURRENT CONTROVERSIES** **Aytekin Oguz** - Kubra Yildiz
14:50 - 15:10	**THE IMPORTANCE OF NUTRITION THERAPY AS A CONTRIBUTOR TO SUCCESS OF CANCER TREATMENT** Ozlem Sonmez
15:10 - 15:30	**DIETARY APPROACHES DURING COVID-19 PANDEMIC** Dilsat Bas

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15:30 - 16:00	**MYTHS ABOUT VITAMIN D** Ali Unlu
16:00 - 16:15	**Q&A**
16:15 - 17:00	**Oral Presentation Session 10** **Chairpersons:** Berrin Inal, Huseyin Kayadibi
	OP-107 MICROBIOLOGICAL ANALYSIS OF FRUIT BASED COMPLEMENTARY INFANT FOODS, Tevhide Ziver Sarp
	OP-108 DEVELOPMENT OF POLYVINYLPYRROLIDONE, SODIUM ALGINATE AND NANOCELLULOSE-BASED COMPOSITE FILMS FOR SMART FOOD PACKAGING APPLICATIONS, Ece Sogut
	OP-109 HIGH-FAT AND HIGH-SUCROSE DIET MODEL: ANATOMICAL, BIOCHEMICAL AND HISTOPATHOLOGICAL EVALUATION OF THE TESTES OF RATS, Merve Ilhan
	OP-110 APPLICATION OF A NEW FORMULA FOR LDL CHOLESTEROL CALCULATION FOR PATIENTS WITH NORMAL OR HIGH TRIGLYCERIDE LEVELS, Ilknur Alkan Kusabbi
	OP-111 THE ROLE OF DECOY RECEPTOR 3 IN INFLAMMATION AND ATHEROSCLEROSIS IN PATIENTS WITH CHRONIC KIDNEY DISEASE AND RENAL TRANSPLANTATION, Saliha Uysal
	OP-112 THE RELATIONSHIP BETWEEN SERUM VITAMIN D AND SERUM ZINC LEVELS IN CHILDREN, Zeynep Adiyaman Kocer
16:47 - 17:00	**Q&A**
17:00 - 17:30	**Closing: Gunes Yuregir Session** **Chairpersons:** Dogan Yucel, Aylin Sepici Dincel, Ali Unlu **Panelists:** Ferhan Girgin Sagin, Gunnur Dikmen, Mehmet Senes,Abdurrahman Coskun, Oytun Portakal, Berrin Bercik Inal, Muhittin Serdar, Murat Cihan

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08:00 - 09:30	**Oral Presentation Session 11**
	Chairpersons: Eray Metin Guler, Mukaddes Gurler
	OP-113 EFFECTS OF COVID-19 PNEUMONIA PATIENT'S SERA ON CANCER CELLS, Aycan Sezan
	OP-114 TRIPLE COMBINATION OF METFORMIN, DICHLOROACETATE, AND CETUXIMAB EXERTS ANTI-TUMORIGENIC ACTIVITY IN UPCI-SCC-131 ORAL SQUAMOUS CARCINOMA CELLS, Seniz Inanc Surer
	OP-115 A PYRROLOPYRIMIDINE DERIVATIVE CONTAINING N-METHYL PIPERAZINE MOIETY SIGNIFICANTLY INDUCED APOPTOSIS OF MCF-7 CELLS THROUGH SUPPRESSION OF MMP 9 ENZYME ACTIVITY, Zuhal Kilic Kurt
	OP-116 THE EFFECTS OF 1,9-DIMETHYL-METHYLENE BLUE ON SECRETASES IN COLON CANCER CELLS, Kevser Biberoglu
	OP-117 FUSARIC ACID DOWNREGULATES MRNA EXPRESSIONS OF HISTONE DEACETYLASES (HDACS) AND TOLL-LIKE RECEPTORS IN HT-29 COLON CANCER CELLS, Mucahit Secme
	OP-118 IN VITRO INVESTIGATION OF THE EFFECTS OF MESENCHYMAL STEM CELLS ON BREAST CANCER, Ilkay Guzel
	OP-119 INVESTIGATION OF THE SYNERGISTIC ANTI-CANCER EFFECT OF A COMBINATION OF ZOLEDRONATE AND QUERCETIN ON GLIOBLASTOMA, Osman Yetkin
	OP-120 DEVELOPMENT OF NEAR INFRARED ACTIVATABLE DUAL PHOTOTHERAPY AGENTS AGAINST CANCER CELLS, Safacan Kolemen
	OP-121 SYNERGISTIC INTERACTIONS BETWEEN GW8510 AND GEMCITABINE IN AN IN VITRO MODEL OF PANCREATIC CANCER, Duygu Gencalp Rustem
	OP-122 DNA REPAIR PROTEINS AS MOLECULAR TARGETS FOR CANCER THERAPY AND ITS MEASUREMENT BY MASS SPECTROMETRY, Gamze Tuna
	OP-123 THE EVALUATION OF METHYLTHIAZOLE DERIVATIVES ANTICANCER AND ANTIINFLAMMATORY ACTIVITIES IN C6 CELL LINES, Dilek Erdas
09:17 - 09:30	**Q&A**
10:00 - 11:15	**Oral Presentation Session 12**
	Chairpersons: Hafize Uzun, Huseyin Fatih Gul
	OP-125 DESIGN, SYNTHESIS AND ANTICANCER ACTIVITIES OF NOVEL OXADIAZOLE-AZCETAMID COMPOUNDS, Gulsen Akalin Ciftci
	OP-126 NOVEL THIOSEMICARBAZIDE DERIVATIVES: ANTICANCER AND MATRIX METALOPROTEINASE ENZYME INHIBITION EFFECTS, Halide Edip Temel
	OP-128 IN VITRO METHODOLOGY FOR DETERMINING POTENTIAL ANTICANCER ACTIVITY IN PLANTS, Basak Kocdor
	OP-129 THE ANTIOXIDANT EFFECT OF OLEASTER FRUIT ON SACCHAROMYCES CEREVISIAE SOME MOLECULAR AND BIOCHEMICAL PARAMETERS, Ozlem Gok
	OP-130 PROGRAMMED CELL DEATH SUBROUTINES INDUCED BY TEMOZOLOMIDE IN SCHIZOSACCHAROMYCES POMBE, Hizlan Hincal Agus
	OP-131 INVESTIGATION OF GPER-1 LEVELS IN ISCHEMIC HEART TISSUE OF OVERECTOMIZED RATSsi, Mahmut Ay
	OP-132 DEVELOPMENT OF METHAMPHETAMINE SPECIFIC DNA APTAMER, Ezgi Man
	OP-133 RECOMBINANT PRODUCTION OF THE VIRULANCE ENZYME FROM STREPTOCOCCUS PYOGENES AND DEVELOPMENT OF SPECIFIC DNA APTAMERS, Merve Gultan
	OP-134 DIAGNOSTIC VALUE OF SERUM GALECTIN-3 IN ENDOMETRIOSIS, Sema Misir
	OP-177 DETERMINATION OF THE TARGET PROTEINS IN CHEMOTHERAPY RESISTANT BREAST CANCER STEM CELL-LIKE CELLS BY PROTEIN ARRAY, Meltem Demirel Kars
11:10 - 11:15	**Q&A**
11:25 - 12:40	**Oral Presentation Session 13**
	Chairpersons: Halide Edip Temel, Ali Burak Ozkaya
	OP-135 PRODUCTION OF RNA-BASED SARS-COV-2 VIRUS REFERENCE MATERIAL FOR RT-QPCR TESTS, Muslum Akgoz
	OP-136 DETERMINATION OF SALIVARY LEVELS OF ALKALINE PHOSPHATASE (ALP), C-TERMINAL TELOPEPTIDE (CTX), OSTEOCALCIN AND SCLEROSTIN GEN EXPRESSIONS IN DIFFERENT AGE GROUPS BY REAL TIME PCR, Aslihan Coban
	OP-137 INVESTIGATION OF THE EFFECT OF GONADOTROPIN TREATMENT FOR SUPEROVULATION ON THE EXPRESSION OF PROTEINS THAT HAVE A ROLE IN THE PIRNA PATHWAY IN A MOUSE MODEL, Ismail Sari
	OP-138 INVESTIGATION OF THE EFFECT OF R381Q IL-23 GENE VARIANT ON DISEASE OCCURRENCE IN CORONARY ARTERY DISEASE, Aysegul Basak Teker

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	OP-139 DETERMINATION OF CANDIDA SPECIES BY REAL TIME PCR, Erkan Oguz
	OP-140 LONG-TERM STABILIZATION OF RNU6 USED IN NORMALIZATION IN MICRORNA MEASUREMENTS, Yakup Dulgeroglu
	OP-141 ERYTHROCYTE REDUCED/OXIDIZED GLUTATHIONE AND SERUM THIOL/DISULFIDE HOMEOSTASIS IN PATIENTS WITH AGE-RELATED MACULAR DEGENERATION, Mehmed Ugur Isik
	OP-142 RELATIONSHIP AMONG LIPID PEROXIDATION, ANTIOXIDANT ENZYMES AND TUMOR MARKERS IN VARIOUS CANCER TYPES, Ahmet Alpay Koylu
	OP-143 ASSOCIATION BETWEEN OXIDATIVE DNA DAMAGE AND IRON STATUS IN WOMEN WITH GESTATIONAL DIABETES MELLITUS, Merve Akis
	OP-144 THE RELATIONSHIP BETWEEN SERUM APELIN LEVELS, THIOL-DISULFIDE BALANCE AND ALBUMINURIA IN PATIENTS WITH DIABETIC NEPHROPATHY, Umran Gezici Gunes
12:35 - 12:40	**Q&A**
12:50 - 14:05	**Oral Presentation Session 14**
	Chairpersons: Aysun Pabuccuoglu, Serkan Bolat
	OP-145 THE PROTECTIVE EFFECT OF CARDAMOM AND BROCCOLI ON HEART ISCHEMIA-REPERFUSION INJURY OF RATS UNDERGOING OVARIECTOMY, Mehmet Ozyurt
	OP-146 THE EFFECTS OF OXIDATIVE DAMAGE INDUCED BY BLADDER ISCHEMIA REPERFUSION DAMAGE ON FAR TISSUES AND THE PROTECTIVE ROLE OF CARDAMOM EXTRACT, Mujde Aksimsek
	OP-147 THE EFFECT OF S-ADENOSYLMETHIONINE ON LIVER LESIONS AND OXIDATIVE STRESS INDUCED BY A HIGH FAT AND HIGH CHOLESTEROL DIET, Ilknur Bingul
	OP-148 ION-BEAM RADIATION DAMAGE TO DNA BY INVESTIGATION OF FREE RADICAL FORMATION AND BASE DAMAGE, Melis Kant
	OP-149 APOPTOTIC CELL INJURY IN BRAIN ISCHEMIA REPERFUSION MODEL INDUCED BY COPPER OXIDE NANOPARTICLE IN RATS, Hadi Karimkhani
	OP-150 EFFECTS OF BROMELAIN ON OXIDATIVE STRESS PARAMETERS IN METHOTREXATE-INDUCED CARDIAC OXIDATIVE DAMAGE, Kursat Kaya
	OP-151 THIOL AND DISULFID LEVELS IN PATIENTS WITH METABOLIC SYNDROME IN THE POSTPRANDIAL PERIOD, Serap Ozer Yaman
	OP-152 A RARE INHERITED METABOLIC DISEASE: COMBINED MALONIC AND METHYLMALONIC ACIDURIA, Sebnem Tekin Neijmann
	OP-153 A RARE VARIANT IN THE ALPHA GLOBIN GENE, Ozlem Ozbas Demirel
	OP-154 POSTMORTEM DIAGNOSIS, ALKAPTONURIA: CASE REPORT, Toygun Anil Ozesen
14:00 - 14:05	**Q&A**
14:15 - 15:30	**Oral Presentation Session 15**
	Chairpersons: Nurzen Sezgin, Abdullah Sivrikaya
	OP-156 INVESTIGATION OF SERUM APELIN, ELEBELA, ENDOGLIN AND METRNL LEVELS IN EXPERIMENTALLY APAP-INDUCED LIVER DAMAGE, Huseyin Fatih Gul
	OP-157 EVALUATION OF NEWBORNSCANRESULTSWITH TANDEM MS, Cemile Topcu
	OP-158 DETERMINATION OF REFERENCE RANGE OF CREATININE VALUES OF CHILDREN IN THE 0-1 AGE RANGE AT KARAPINAR STATE HOSPITAL, Saadet Kader
	OP-160 DETERMINATION OF SERUM ATORVASTATIN AND ROSUVASTATIN LEVELS BY TANDEM MASS SPECTROMETERY, Havva Yaglioglu
	OP-161 DEVELOPMENT OF A TANDEM MASS SPECTROMETRIC MEASUREMENT METHOD FOR DETERMINATION OF HYDROXYCHLOROQUINE LEVELS, Duygu Eryavuz Onmaz
	OP-162 DETERMINATION OF METHOTREXATE LEVELS BY LIQUID CHROMATOGRAPHY MASS SPECTROMETRY METHOD, Firdevs Sak
	OP-163 EVALUATION OF DRUG USE HABITS IN USAK PROVINCE, Ali Volkan Ozdemir
	OP-164 RETROSPECTIVE DETERMINATION OF THE DISTRIBUTION OF ILLEGAL SUBSTANCE USE ACCORDING TO LABORATORY DATA, Cemal Polat
	OP-175 LABORATORY WATER AND INSTALLATION CONSIDERATIONS ON WATER PURIFICATION SYSTEMS, Oguzhan Zengi
	OP-176 THE PROCESS OF ESTABLISHING A NATIONAL STANDARD FOR THE PREPARATION, DISTRIBUTION AND TESTING OF PURIFIED WATER FOR CLINICAL LABORATORIES, Suat Hayri Kucuk
15:25 - 15:30	**Q&A**

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15:40 - 16:55	**Oral Presentation Session 16**
	Chairpersons: Kubra Dogan, Elmas Ogus
	OP-165 INVESTIGATION OF THE EFFECT OF HIGH DOSE NEONICOTINOID EXPOSURE ON THE BRAIN GLYMPHATIC SYSTEM, Velid Unsal
	OP-166 INTERACTIVE TOXICITY ASSESTMENT FOR MN(II), CO(II), AND ZN(II) HEAVY METALS ON PHOTOBACTERIUM KISHINATII, Ayca Ata
	OP-167 EFFECTS OF FUMONISIN B1 ON EPIGENETIC MODIFICATIONS, Ecem Fatma Karaman
	OP-168 EVALUATION OF ECSTASY TEST RESULTS IN URINE DRUG ANALYSIS, Raziye Yildiz
	OP-169 A BDNF AGONIST 7,8-DIHYDROXYFLAVONE REDUCES OXIDATIVE STRESS IN LIVER OF ELDERLY MICE, Elif Sahin
	OP-170 SERUM ALBUMIN LEVEL AND MORTALITY IN ELDERLY CHRONIC HEART FAILURE PATIENTS, Gulsum Meral Yilmaz Oztekin
	OP-171 ANALYSIS OF MTOR INHIBITORS AS SENOTHERAPETICS IN AGED LUNG FIBROBLAST CELLS, Perinur Bozaykut
	OP-172 SERUM LDL CHOLESTEROL SIZES IN ELDERLY SUBJECTS, Murat Cihan
	OP-173 INCREASED PUFA LEVELS IN KIDNEY EPITHELIAL CELLS IN THE COURSE OF DICLOFENACTOXICITY, Cagatay Yilmaz
	OP-174 EFFECT OF ENDOPLASMIC RETICULUM STRESS ON SPHINGOLIPID LEVELS AND APOPTOTIC PATHWAYS IN RETINAL PIGMENT EPITHELIAL CELLS, Tugce Ceker
16:50 - 16:55	**Q&A**

INVITED SPEAKERS ABSTRACTS

IS-001
SCIENTIFIC ROADMAP TO ENLIGHTEN THE BRAIN

Hande Ozdinler
Department of Neurology
Northwestern University, Feinberg School of Medicine, Chicago, USA

Brain is a complex system. There are thousands of different neuron and cell types in the brain, all with different function and connectivity pattern. Interestingly, in neurodegenerative diseases not all neurons and cells degenerate to the same degree and extent. There is cell-type specific vulnerability, affecting primarily a distinct neuron and/or cell population.
The focus of the Ozdinler Lab is to understand the cellular and molecular basis of selective vulnerability, with a special emphasis on the motor neuron circuitry and the upper motor neurons located in the brain. As we develop a better understanding for the causes of their degeneration, we also build effective and long-term treatment strategies for the diseases of the upper motor neurons, such as Amyotrophic Lateral Sclerosis (ALS), Hereditary Spastic Paraplegia (HSP) and Primary Lateral Sclerosis (PLS).

IS-002
EMERGING OMICS APPROACHES IN CLINICAL RESEARCH

Sureyya Ozcan Kabasakal
METU Faculty of Arts and Science, Department of Chemistry, Ankara, Turkey

Emerging omics technologies enable high-throughput measurement for thousands of biologically relevant molecules. Among those, mass spectrometry (MS) based protein and post-translation-modification (PTM) analysis offer an accurate and reliable quantitation in complex biological samples and hold a great promise in clinical research. Development of standardized protocols along with the open data sources have the potential to identify novel disease targets. Through this combinational approach, it becomes much easier to validate the candidate biomarkers using large scale sample sets.
Integration of different omics approaches is also emerging as a future gear and provide multidimensional insights into biological processes. It is challenging to converge diverse omics aspects into a single dimension due to differences in analytical platforms used. However, outcomes can help to explore unseen relationships that have never been observed previously using a single platform. Combination of multidimensional omics data and the developments on data processing and assessment tools aided in-depth understanding of mechanisms involved in disease occurrence and progression.

IS-003
INTACT TISSUE PROTEOMICS: SUPPORTING DIAGNOSIS WITH MOLECULAR IMAGING

Yasemin Furtun Ucal
Acibadem Mehmet Ali Aydinlar University, Istanbul, Turkey

Proteins are responsible for biochemical complexity in the human body due to their dynamic structure and interactions with other proteins. The development of proteomic technologies enabled the identification and characterization of proteins from human cell and tissue samples. Additionally, high-throughput proteomic technologies play an important role in defining biomarkers for diagnosis, prognosis, and treatment approaches for many diseases.
MALDI (matrix-assisted laser desorption/ionization) imaging, one of the intact tissue proteomic approaches, is a relatively new tool emerging for the analysis of biological and clinical tissue samples. This method allows the detection of various analytes including proteins, peptides, lipids, and small molecules on clinical intact tissue samples. Since the tissues are not homogenized, the spatial information of the analytes of interest is preserved. In this way, analytes can be analysed in their natural environment and new perspectives on relevant biological processes are provided.
Histopathological examination of tissue sections allows confirmation of the diagnosis and enables tumor classification. For example, antibodies are used for antigen detection by immunohistochemistry (IHC). Additionally, in the intact tissue-based spatial proteomics approach, the peptide / protein spectrum in tissue sections can be scanned extensively without using any labels. This data provide clinically valuable and complementary information to traditional approaches beyond the current limitations of histopathological techniques.
Identification of disease-specific molecular biomarkers in tissue samples is needed to improve diagnostic, prognostic, and treatment methodologies. MALDI Imaging method has been used successfully to identify proteins in changes in disease outcome. The studies published in the literature assessed the differences in proteomic profiles of healthy and cancer tissues and proposed potential biomarkers that can be used for diagnostic purposes for various diseases. For example, our research group aimed to find a protein biomarker for the differential diagnosis of the follicular variant of papillary thyroid cancer (FV PTC), one of the subtypes of thyroid cancer with difficulties in the diagnosis with fine needle aspiration biopsy (FNAB) method. Our research group used an intact proteomic approach, MALDI imaging method, and compared the protein profiles of FV-PTC with the other papillary thyroid cancer subtypes. This method allowed us to gain in-depth information about the protein profiles of FV-PTC, which would cause difficulties obtaining with the classical proteomic approaches.
In conclusion, intact tissue proteomics approaches provide great analytical depth about the structure and function of tissues and molecular systems. However, in intact proteomic studies, a valuable tool for the diagnosis of various diseases and a common approach used in biomarker research, quality parameters such as reliability of the data, reproducibility of methods and monitorization of studies should be prioritized in order to adapt the method in clinical settings, specifically for biomarker discovery studies.

IS-004
UNDERSTANDING THE ROLE OF PLASMA MEMBRANE LIPID COMPOSITION IN REGULATION OF WNT/β-CATENIN SIGNALING: COMPARATIVE LIPIDOME ANALYSES IN LIVER CANCER

Gunes Ozhan
Dokuz Eylul University, Izmir;
Izmir International Biomedicine and Genome Institute, Izmir, Turkey

Wnt/β-catenin signaling (canonical Wnt pathway) has essential roles in embryonic development, maintenance of adult tissue homeostasis and tissue regeneration. Consequently, misregulation of Wnt signaling pathway has been associated with genetic disorders, cancer and degenerative diseases. Development of new therapeutic approaches for these diseases requires elucidation of the molecular mechanisms underlying pathway activation and regulation. Therapeutic agents targeting the Wnt/β-catenin pathway have only recently entered clinical trials and none of them has yet been approved. Although the cytoplasmic events of the Wnt signaling pathway have been widely studied at the molecular level, many questions related to regulation of Wnt-receptor interactions at the plasma membrane remain unanswered. Here, we aimed to reveal the role of plasma membrane organization and dynamics in activation of Wnt/β-catenin signalling. First, using model membrane systems, we revealed the nanodomains that the canonical Wnt ligand and its receptors prefer in the plasma membrane. Our results have demonstrated that the canonical Wnt ligand had “domain” type diffusion in the plasma membrane, and this was controlled by lipids of the ordered membrane domains. Our analyses with a modified version of Wnt3, where the acylation site is mutated, revealed that the modified protein was secreted from cells and bound to its receptor, but could not activate Wnt signaling. Next, we performed lipid profiling using shotgun lipidomics on giant plasma membrane vesicles isolated from healthy and cancer cell lines. For cancer cells, we used hepatocellular carcinoma (HCC) cell lines that contain various mutations in the genes of Wnt/ß-catenin signaling pathway and comparatively analysed the lipid contents in the nano-environment where the Wnt-receptor complex forms. Plasma membrane lipid profiles in HCC cells significantly differed from each other and revealed several lipids that varied between the lipidome profiles. We believe that by examining the effects of these lipids on proliferation, apoptosis and metastasis in relationship with the Wnt pathway in liver cancer, our findings will shed light on the development of new anticancer drugs based on lipid-specific targeting of the cell membrane.

IS-005
GENOME ENGINEERING, IMMUNE SYSTEM AND CANCER DEVELOPMENT

Batu Erman
Bogazici University, The Department of Molecular Biology and Genetics,
Istanbul, Turkey

Genome Engineering is a technology that has proven its importance with the award of the 2020 Chemistry Nobel Prize to two scientists who co-discovered CRISPR/Cas9. The foundations of this technology were set more than twenty years ago with the generation of zinc finger nucleases (ZFN), which are hybrid transcription factor nuclease enzymes. After ZFN’s came TALENs, derived from plant pathogenic transcription factors. The ease of use of CRISPR/Cas9 made it hugely popular among molecular biology laboratories and made ZFNs and TALENs relatively obsolete. Using this technology, we have generated mutant tissue culture cell lines deficient in the transcription factor PATZ1, which is involved in translocations observed in Ewing’s Sarcoma. We will summarize our studies on the crystal structure of the PATZ1 protein, molecular dynamics simulations that yield clues about its function and its role in the development of cancer, as well as the immune system.

IS-006
IRON HOMEOSTASIS IN IMMUNE SYSTEM AND ITS IMPACT ON CYTOKINE STORM

L. Arzu Aral
Izmir Democracy University Medical School, Izmir, Turkey

Because of its ability to easily gain and lose electrons, iron is considered as an important part of metabolism. At the cellular level, iron is necessary for cell growth, and on the other hand, when present in excess amounts, it causes oxidant stress and cell death. In addition to the increase and decrease of iron in circulation and body fluids, the change of the stored iron between the cellular compartments of the cell triggers degenerative pathologies regulated by sterile inflammation. A balanced iron homeostasis is of great importance in immune system's coping mechanisms with microorganisms. Activation of the iron uptake systems of microorganisms is important in terms of determining their pathogenicity. On the other hand, iron plays important roles in antimicrobial host responses, both by synergistic effects against antimicrobial radical formation and by directly altering immune cell proliferation and immune pathways. Therefore, the host immune system regulates iron homeostasis via cytokines, cellular proteins, and hormones to control pathogen proliferation and strengthen the effector pathways of specific immunity. COVID-19 is a process with uncontrollable excessive inflammation caused by the contribution of the cytokine storm. Concomitant ferritin elevation is correlated with disease severity and prognosis. This relationship raises the question of whether there is a similarity between the pathogenesis of COVID-19 and 'hyperferritinemia syndromes' resulting in multi-organ failure triggered by cytokine storm which is induced by high ferritin and excessive inflammation. Answering the question of whether hyperferritinemia is an early marker or a result of the developing cytokine storm will make a valuable contribution to see the big picture of COVID-19 with many unknowns.

IS-007
DETERMINATION OF BIOMARKERS IN CANCER USING PROTEIN-PROTEIN INTERACTIONS

Gizem Dinler Doganay
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BAG-1 is a multifunctional protein and frequently overexpressed in breast carcinoma. BAG-1 is involved in a wide variety of cellular processes through direct interaction with Hsp70, Raf-1 kinase, the anti-apoptotic Bcl-2, nuclear hormone receptors and ubiquitylation/proteasome machinery components. Three major isoforms of BAG-1, each with a distinct N-termini, include BAG-1S (33 kDa), BAG-1M (46 kDa) and BAG-1L (52 kDa). All BAG-1 isoforms exist with an integrated ubiquitin-like domain (ULD) to contact with proteasome components for degradation of specific target proteins and a COOH-terminal evolutionarily conserved BAG domain to interact and modulate the activity of Hsp70. We, in our previous studies, showed that BAG-1 has a potential role in various protein quality control machines by acting together with a AAA+ ATPase, VCP/p97. Here, we explored the interaction details of BAG-1S with its partners using a combination of various conventional molecular biology techniques and further investigated the interaction surface of BAG-1 with VCP/p97 by hydrogen deuterium exchange mass-spectrometry (HDX-MS). We believe targeting the interaction surfaces of adaptor proteins like BAG-1 with its target partners in cancer signaling pathways will offer potential druggable sites for therapeutic intervention.
Our previous BAG-1S interactome results of affinity purification revealed critical protein quality control proteins being in contact with BAG-1S, like Hsp70, VCP/p97, Rad23B. To understand the interaction details of these proteins with BAG-1S, we first predicted putative surfaces for interaction using a protein-protein interaction surface identification program called PRISM. We found that BAG-1S and VCP/p97 can interact with a low energy score, suggesting that these proteins can be in direct contact. To study the interaction surface in detail, we cloned BAG-1S and VCP/p97 to mammalian expression vectors and purified the gene product from MCF-7 breast cancer cells separately. Further we analyzed the secondary structures of the purified proteins using circular dichroism and determined that the protein samples were fully folded. BAG-1S and VCP/p97 in vitro reconstitution experiments were performed in the presence and absence of ATP, and showed that these proteins can interact in the test tube. We analyzed BAG-1S and BAG-1S in combination with VCP/P97 using HDX-MS and showed that rapid incorporation of deuterium at the earlier time points in the majority of peptides for BAG-1S were, and the H/D exchange levels stayed constant throughout the time course of the experiment. Peptide-specific deuterium uptake rates were projected onto the modelled structure of BAG-1S and VCP/p97 and deuterium incorporation was evaluated on the overall structure with respect to BAG-1S alone HDX-MS model. BAG domain exhibited more solvent-protection and upon binding of VCP/p97 compared to UBL domain.
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IS-008
MONOCLONAL ANTIBODY THERAPIES AND CLINICAL LABORATORY TEST INTERFERENCE

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Monoclonal antibody (MAB) therapies represent a rapidly expanding class of biologically engineered drugs used to treat mostly cancer (immunotherapy) and auto-immune diseases. Currently widespread use of MABs in a variety of diseases bring a huge burden to clinical laboratory medicine. This presentation provides an overview of MABs currently approved for clinical use, pharmacokinetic and pharmacodynamic properties, nomenclature, immunogenicity, production of antidrug antibodies (ADAs) and human anti mouse antibodies.
Increased use of MABs affects clinical laboratory testing by interference with laboratory tests including histocompatibility, blood bank, and monoclonal protein detection and follow-up. There are also reports showing interferences with routine immunoassays, nephelometric and spectrophotometric assays with the emerging MABs.
The most important mechanism of action in serum protein electrophoresis (SPE) and immunofixation electrophoresis (IFE) is that the test systems cannot distinguish between endogenous monoclonal protein and exogenous (given for treatment) monoclonal proteins and cause erroneous reporting. Here, we come across, as a solution, to measure endogenous monoclonal protein (M-protein) with mass spectrometers.
Apart from this, exogenous MABs can affect immunoassays like heterophilic antibodies directly or through antibodies formed against themselves. Exogenous MAB source is of great importance in this kind of interferences. Clinical laboratories must be aware of the potential for questionable results in order to avoid incorrect management of patients with unnecessary treatments which may put the patient at risk for harm. Communicating with the clinic and clinician, recording the biological structure, dosage and time of ingestion is essential. Action must be taken in the suspected results, if necessary, test should be repeated with another method and the clinic must be informed. It is for certain that as the number of patients treated with exogenous MABs increases in the future, laboratories will encounter more interferences, however, as fully humanized MABs are put into the field, it is still unknown how far their effects will be due to the differences in immunoglobulin allotypes.

IS-009
DNA REPAIR-BASED DRUG DEVELOPMENTS IN CANCER THERAPY

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DNA of living organisms is constantly damaged by endogenous and exogenous sources. Many resulting DNA lesions are cytotoxic and/or mutagenic leading to genetic instability, which is a hallmark of cancer. DNA repair mechanisms evolved during millions of years of evolution and natural selection repair DNA damage leading to the survival of living organisms. Mutations and polymorphisms occur in DNA repair genes and adversely affect the efficacy of DNA repair proteins, leading to disease processes, most notably to carcinogenesis. Rapidly developing tumors overexpress DNA repair proteins and thus may have an evolutionary advantage for survival, developing greater DNA repair capacity than normal tissues. Increased DNA repair capacity removes therapy-generated DNA lesions before they become toxic in tumors, thus causes resistance to therapy affecting patient survival. Accumulated evidence suggests that DNA repair capacity may be a predictive biomarker for patient response to therapy. Therefore, knowledge of DNA repair protein expressions in normal and cancerous tissues may help predict and guide development of treatments and yield the best therapeutic response. There is a variety of DNA repair pathways in living cells, which include base excision repair (BER), nucleotide excision repair, mismatch repair and others. These pathways constitute targets for inhibitors to overcome the resistance of tumors to therapy. Inhibitors of DNA repair for combination therapy or as single agents for monotherapy may help selectively kill tumors, potentially leading to personalized therapy. The concept of the synthetic lethality that targets tumors with genetic instability offers potential advantages such as greater tumor selectivity, lower dose requirements, etc. Various types of inhibitors have been developed, mainly targeting the proteins of the BER pathway. A number of small molecule inhibitors have been approved as anticancer drugs and are in clinical use, whereas some others are presently being tested worldwide in clinical trials.

IS-010
ALTERNATIVE POLYADENYLATION, mRNA ISOFORMS AND CANCER

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Processing of pre-mRNAs into mature mRNAs involves endonucleolytic cleavage of mRNAs based on poly(A) signals recognized by a complex protein machinery. Hence the position of the poly(A) signal determines the 3'UTR (untranslated region) length of mRNAs. It has become clear that majority of human genes harbor multiple poly(A) signals and their selection by the poly(A) machinery can be tissue specific and/or regulated during developmental stages. Given that a single gene locus can generate multiple isoforms with alternate 3'UTRs, these isoforms may differ in their stabilities and translation rates. Mounting evidence show deregulation of alternative splicing and/or polyadenylation to generate a cancer specific 3'-end diversity of isoforms in cancer cells. This talk will focus on our findings on mRNA 3'-end isoforms, reasons and consequences of this novel complexity of cancer transcriptome.

IS-011
A NEW APPROACH IN CANCER TREATMENT: PHOTODYNAMIC THERAPY AND ITS APPLICATIONS

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According to the reports of the World Health Organization, approximately 10 million deaths occurred in 2018 due to cancer. Every year, 300 thousand new cancer cases are diagnosed in the 0-19 age range. To date, surgery, radiotherapy, and chemotherapy are used most frequently in the treatment of cancer. Since these methods have serious side effects such as swallowing problems, alopecia, nausea, gastrointestinal problems, and weakening of the immune system, studies are being carried out on alternative treatment approaches. One of these alternative treatment approaches is photodynamic therapy (PDT). PDT has emerged as a new method in the treatment of cancer types in recent years and has become a preferred approach because it causes less damage to healthy cells in the patient's body. PubMed has 16.171 scientific studies on PDT between 2010-2021. The efficacy of PDT depends on three components- photosensitizers, light, and the amount of oxygen in the tissue. The principle of PDT is that photosensitizer with low toxic effect in the dark produce reactive oxygen species in the presence of light and oxygen and destroy the cancer cell or tissue. PDT has several advantages such as having a low side effect profile in the dark, being used against tumors resistant to chemo and radiotherapy, accumulating more in tumorous tissues than healthy tissues, being able to be combined with other treatment methods, their effect can be seen in a short time, and the recurrence rate of cancer is low. The anticancer effect of PDT is caused by direct cell death, vascular and immunological mechanisms. Today, about 600 clinical studies are ongoing in the area of PDT. This suggests that PDT will be a frequently used cancer treatment method in the future.

IS-012
BIOLOGY OF METASTASIS

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Metastasis is responsible for over 90% of mortality in cancer patients. Today, there are significant paradigm changes regarding this process. Especially the last two decades' observations show that the metastatic process is very well programmed; however, it revealed that the molecular mechanisms of this program are extremely complex. What is clear is that tumors consist of very heterogeneous cell groups, that there are constant genetic changes in the formation of these groups and that these groups act in a hierarchical order. According to the view that has been adopted more recently, it is the activation of tumor stem cells (CSC) and the development of different differentiation cell groups derived from these cells. Accordingly, the metastatic phenotype of the heterogeneous cancer cell population is driven by the CSC groups, and in one view the metastatic phenotype constitutes a subgroup of CSC (CSC-MP). The beginning is the development of the metastasic phenotype and this phenotype has 4 properties accepted today: 1) Cells are highly motile, easily deformable and capable of invasion, there are contractile elements within the cell. With the foot protrusions, it can easily replace the tumor and native tissue. 2) It can change the microenvironment. 3) It has plasticity feature. Its differentiation can oscillate between two different species. 4) It has colonization ability. They can be reorganized in regions selected for metastasis. Basically, these features are also found in the CSC phenotype.
The invasion and motility ability emerges with the loss of the epithelial character and the acquisition of the mesenchymal character. In other words, the epithelial cell transforms into a mesenchymal cell. The apicobasal polarity of epithelial cells is lost. Cell-cell connection structures such as tight junction, gap junction, desmosome that provide cell-environment connections are eliminated. Cells become disconnected. While the receptors belonging to the epithelial cell disappear, the receptors belonging to the mesenchyme cell are expressed. Cells gain high mobility progress by gaining the ability to break down and organize some extracellular structures. This event is called eEpithelial-mesenchymal-transition (EMT). In a sense, distant organ metastasis does not develop without EMT. Observations revealed strong links between EMT and CSC development. Massive EMT is also a measure of tumor aggression, and aggressive tumor-associated factors such as hypoxia and angiogenic factor release also induce EMT. Possible CSC cells that are seen in blood rather than tumor angiogenesis after EMT are called CTC cells (Circulating tumor cells) and these cells are previously extravasated in the programmed regions. This time, the same CSC clone gains epithelial character with mesenchymal-epithelial-transition (MET) and colonizes in distant regions with emerging adhesion molecules. Characteristic CSC properties are located in the period of plasticity between EMT and MET (Intermediate EMT states). This last concept of hematogenous spread is called the metastasis cascade. Recently, it has been understood that tumor angiogenesis is aimed at increasing the nutrition of the tumor rather than the spread. It has been observed that solid tumor cells form vascular structures just like the vascular endothelium and provide connection with vascular structures without basement membrane. This phenomenon is called vasculogenic mimicry (VM) and in some way the phenomenon is directly linked to EMT and CSC formation. Interesting observations emerge regarding lymphatic metastasis. For example, tumor cells subjected to EMT join the systemic circulation through the lymph node by intranodal lymphangiogenesis or reach the extranoid tissue. In conclusion, the critical role of cancer stem cell functions in the management of metastasis is highly likely.

IS-013
PERSONALIZED REFERENCE INTERVALS

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Reference values are the most fundamental element of all disciplines, especially metrology. The data obtained in both research and clinical laboratories should be compared with the reference values in order to gain the meaning. Correct interpretation of test results obtained in clinical laboratories is only possible by comparing with reliable reference intervals. Currently, the reference intervals used in clinical laboratories are not specific to the individuals; they are obtained from the population of the region where the laboratory serves and represent the population rather than the individuals. Studies conducted in the last half century have shown that individuality is predominant in most of the tests used in the diagnosis and monitoring of patients and therefore the reference intervals based on population do not fully represent the individuals. Furthermore, recent developments of personalized medicine have revealed that reference intervals representing the individuals are extremely important and progress in personalized medicine without personalized reference intervals is not easy. Although the existence of the problem is well known, almost no progress has been made in determining the personalized reference intervals. The main reason for this is that there are marked variations among individuals and therefore it is not known how to develop a suitable model for all individuals to overcome this variability. The main way to overcome this problem is to first determine how the analytes used in the diagnosis and monitoring of the patients are physiologically regulated and then statistically modelling them.
The concentrations of analytes in the living systems are not constant and vary around a certain homeostatic point and the level of this variability is known as "within-subject biological variation". There are many studies in the literature on within-subject biological variations of analytes that are widely requested by clinicians, and new studies are ongoing on this subject. However, knowing solely the biological variation within the individuals cannot solve the problem. This is because the homeostatic set point of the analytes must be known in order to determine the personalized reference intervals. Otherwise, it is not possible to accurately position the personalized reference intervals. To solve this problem, it is necessary to develop a statistical model that shows how the homeostatic points of the analytes change within a given probability. This can be based on the measurements when the individual is apparently healthy or does not have known diseases related to the analytes.
Our simulations and real data studies showed that at least 3 measurement results at different times may be sufficient to calculate the homeostatic set point within a given probability. The interesting point is that increasing the number of measurements does not have as many positive effects as expected.
Once the position of the homeostatic set point has been calculated within a given probability, the personalized reference intervals can be easily calculated using the analytical and within-subject biological variation of the analyte. Our simulation and numerous retrospective analysis show that the model we have developed gives reliable results and can be easily applied to analytes in clinical laboratories.

IS-014
INTENSIVE CARE AND LABORATORY IN COVID-19

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COVID-19 disease is a respiratory and systemic syndrome that mainly presents clinical symptoms of dry cough, shortness of breath, and fever, and in some cases requires intensive care treatment.
Diagnostic Value of Laboratory Findings: The main routine tests requested for COVID-19 patients include complete blood count (CBC), tests that investigate coagulation and fibrinolysis steps (PT, aPTT, and D-dimer), and inflammation-related parameters (ESR, CRP, ferritin, and procalcitonin).
Diagnostic Value of CBC, Coagulation Tests, and Inflammation Related Parameters: Taken together, reduced lymphocytes accompanied by mild thrombocytopenia are among the most common abnormal findings noticeable in CBC of COVID-19 patients. In addition, it has been reported that prolonged activated partial thromboplastin time (aPTT) and prothrombin time (PT) increased in some COVID-19 patients. In addition to these abnormalities, the elevated D-dimer further supports the formation of coagulopathy. Erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) and procalcitonin values may increase in the sera of COVID-19 patients.
Diagnostic Value of Biochemical Parameters: The most common abnormal laboratory findings in COVID-19 patients include increased levels of lactate dehydrogenase (LDH), alanine aminotransferase (ALT), aspartate aminotransferase (AST), and total bilirubin, and decreased albumin levels. The indicator of damage to the lung, which is the primary site affected by COVID 19, may be increased LDH.
Prognostic Value of CBC, Coagulation Tests, and Inflammation Related Parameters: The lymphocyte count is an important parameter to directly distinguish between COVID-19 patients with and without severe disease. Increased PT and D-dimer values may indicate a worse prognosis.
Prognostic Value of Biochemical Parameters: Metanalyses revealed higher ALT, AST, and total bilirubin values in critically ill patients compared to non-severe patients, while the albumin value was significantly lower.
Conclusion: Laboratory medicine can provide the necessary assistance to distinguish between severe and non-severe COVID-19.

IS-015
DIAGNOSTIC OVERVIEW OF LABORATORY TESTS FOR COVID-19

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Diagnosis is the most important process influencing the selection of appropriate treatment regimes. Unfortunately, diagnosis of COVID-19 is neither possible simply via clinical evaluation, nor by simple laboratory tests.
The diagnosis of COVID-19 can be examined under two main headings: “Possible COVID-19” cases and “definite COVID-19” cases. Possible COVID-19 cases are either those where no other cause has been identified for the symptoms of COVID-19 (fever, cough, shortness of breath, sore throat, headache, muscle aches, loss of taste and smell or diarrhea), or those who have been in contact with a diagnosed case.
However, definitive diagnosis is made by detecting the SARS-CoV-2 virus by “molecular methods” in possible COVID-19 cases. The tests used for the diagnosis of COVID-19 play a key role in the rapid detection and isolation of newly infected individuals and the implementation of necessary precautions. However, the fact that molecular diagnostic tests give false negative results at a rate of 5-40% and the test analysis time is long, makes it significantly difficult to diagnose COVID-19 positive cases effectively and on time. In addition, the presence of asymptomatic cases (17-51%) and specimens collected too early or too late for molecular tests further complicates the diagnostic process.
In addition to the requirement that a test tool used for diagnosis have adequate analytical and diagnostic performance, it is very important to apply it in line with the guidance after appropriate clinical evaluation and to evaluate the results with clinical data for accurate diagnosis.
The most critical determinant in the evaluation of a diagnostic test is whether there is a reference method for verification. While the methods used as reference should have significant diagnostic efficiency, the “molecular tests” used as a reference in COVID-19 diagnosis contain significant limitations mentioned above. Since “molecular methods” are used as a reference method so far, despite their limitations, there are significant shortcomings in our current understanding of COVID-19 pandemic.
Sensitivity and specificity data alone are not sufficient to evaluate the performance of a diagnostic test; NPV, PPV, LR (+) and (-) and DOR values are also required. Studies on COVID-19 diagnostic tests include significant limitations such as methodological shortcoming and bias. Some of the developed test kits contain significantly insufficient validation data due to the rapid mass-production requirements. Therefore, laboratory end-users, must be aware of these shortcomings in detail and take appropriate precautions. Since rapid action was indispensable worldwide during the pandemic; even the minimum sample size required by the FDA for clinical validation of the developed diagnostic kits, has been reduced to 30 positive and 30 negative patient samples for COVID-19 diagnostic kits.
Significant levels of false negative results occur even with the molecular diagnostic tests due to preanalytical problems, analytical inadequacies, and inter-product and inter-lot differences, causing delay in the test results and leading to significant impediment in the filiation process.
IgM and IgG levels which are mostly undetectable by the current diagnostic kits until ~14th day of the SARS-CoV-2 infections, increase in parallel during the initial phase of infection. These pose significant limitations on the early diagnosis for the current serological tests and hinder the detection of the contagious period of the disease. In addition, the range of available antigen tests is very limited, and available data is insufficient to confirm the validation of the methods.
The use and evaluation of diagnostic tests are much more critical in pandemic periods and require significant attention. For all these reasons, laboratory experts have an important role in the verification of COVID-19 diagnostic tests and appropriate evaluation of the test results.

IS-016
LABORATORY MANAGEMENT IN COVID 19 PANDEMIC: ANKARA CITY HOSPITAL CASE

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With the COVID-19 pandemic affecting the whole world beginning at the end of 2019, the whole environment from social life to economy has entered a difficult period that still continues. In this process, health systems continue to give a serious test. Hospitals and medical laboratories also played a very important role in this process and faced many challenges. These difficulties can be grouped as occupational safety and health, problems with material supply, logistic difficulties caused by increasing and decreasing test numbers, meeting new test demands related to the pandemic etc. In this session, it will be emphasized how the problems were defined, approached and resolved in the City Hospitals Management Model.
In the City Hospital Management Model, a quantity-dependent service contract is signed with the construction firm and the firm delegates the defined services to subcontractors through the SPV firm. In the contracts made, there are provisions that all tests within the scope of SUT are performed within the time stipulated in the approved test guide, tests above 200 per month have to be studied within the hospital, and tests below 200 can be directed to an accredited external laboratory. Again, there is a provision that all equipments related to personnel safety will be met by the subcontractor laboratory firm.
Ankara City Hospital as one of the largest hospitals in the world, is managed by the defined City Hospitals Management model. The subcontractor laboratory firm is Siemens Healthineers. Throughout the pandemic, under the coordination and control of the Ministry of Health Medical Laboratory Experts, trainings on occupational safety in the pandemics were organized, the use of personal protective equipment was provided, the necessary physical arrangements for workplace safety were made, and in-hospital contamination was tried to be prevented with the flexible working model when necessary. Ankara City Hospital has established its COVID PCR laboratory as of March 2020 and is still providing 7/24 service. The problems in the logistics area were tried to be compensated by increasing the stock amounts at the expense of inventory costs and by placing the material orders early. For increased tests, two coagulation and one hemogram device were added to the device park and additional personnel were employed in the required areas. When the decreasing tests fell below 200 per month, they were studied in the external laboratory from time to time as agreed in the contract. As a result, the pandemic period reminded the importance of the sustainability of health systems to all of the world. In this process, Medical Laboratories has once again observed how risky it is to depend on foreign materials, especially in material procurement. As in all areas of the Health System, it is important to be prepared for crisis situations and to have emergency action plans ready in Medical Laboratories.

IS-017
IMPACT OF COVID-19 ON EDUCATION AND RESEARCH

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For the past year, the World is going through a challenging period with unprecedented effects on education and research. Not being able to continue with face-to-face education, educators, in a matter of weeks, had to use alternative teaching and learning tools, almost all of which were online. This period, which is called the ‘emergency remote education’ was replaced with online education in the new academic year of 2020-2021. By the end of 2020, it is clear that educators see their ability to use educational technology improving however it is also the reality that technology-equity issues continue for students and could get worse. The COVID-19 pandemic will change how we deliver undergraduate and graduate education in the short term, and possibly forever. With learning management systems and online meeting softwares, it is likely that most of the information will be shared through screens rather than lecture theatres and tutorial rooms crammed with students. Use of simulation technology and virtual labs

will be our important tools in the training of skills. COVID-19 is forcing us to embrace the plethora of technology however we all need to consider educational (safe learning environment, flexibility, being present, communication, valid and secure assessment, etc.) and ethical principles in this new education era.
COVID-19's impact on the world of research and science is striking as well. Majority of health scientists have focused on the treatment of people infected with coronavirus, while trying to better understand the spread of this unknown new virus, its effects on humans and methods of protection from infection. The shift of research to COVID-19 area (COVIDisation) due to the emerging urgency, rapid publication pressure and its' unfortunate results (retractions), and the decrease in the number and variety of studies in other fields, delayed/paused projects and thesis, etc. are the hall marks of this period.
All these issues will be discussed with suggestions and extrapolations for the future.

IS-018
TURKISH MINISTRY OF HEALTH - E-HEALTH APPLICATIONS

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Participants will be provided with detailed information on informatics applications which are developed for healthcare professionals and citizens within the scope of combatting against COVID-19 pandemic such as Filiation and Isolation Tracking System (FITAS), Life Fits Into Home (HES), Mental Health Support System (RUHSAD), Special Children Support System (OZDES) etc.; also on informatics applications developed for decision-makers such as Health Statistics and Causative Analysis (SINA) platform, Saglik Pano, Spatial BI (MIZ) etc. and on standards developed by Turkish Ministry of Health for Healthcare Information Management System companies providing service within healthcare facilities and on Recording and Registration System (KTS) used for the accreditation process of these companies.

IS-019
CURRENT APPROACH TO POINT OF CARE TESTING

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Point of care testing (POCT) can be defined as a testing service using smaller analytical devices provided near to the patient, outside the traditional clinical laboratory environment. Rapid developments in technology give rise to the increasing use of POCT. POCT can also be evaluated under the "Disruptive Innovation" for the clinical laboratory. The main advantage of POCT is based on improved turnaround time. Other advantages are based on decreased preanalytical errors, the need for less sample volume, the stability of sample constituents, to work with different biological materials by user-friendly devices, and performing in different environments. On the contrary, POCT has several disadvantages such as lower accuracy and reproducibility, higher possibility of interferences, more narrow analytical range, difficulties in the application of standard quality control procedures, and lack of connectivity. The major risks are stemmed from poor operator competency, lack of proper training for users, lack of sufficient supervision, and relatively high possibility of an erroneous result. POCT should be managed and audited carefully. In this connection, interdisciplinary POCT steering committees should be established in health institutions and these committees should be coordinated by laboratorians. In general, if the central laboratory gives timely laboratory results for clinical expectations, there is no need for POCT. Results of POCT and conventional laboratory must be concordant. These tests cannot substitute for the central laboratory, they are only complementary to the traditional laboratory. In conclusion, POCT is an important service. In certain circumstances, POCT can add a significant benefit to the early diagnosis and treatment of diseases. However, POCT should not be carried out independently from the clinical laboratory.

IS-020
MINI LABS (MICROCHIPS)

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Classical cancer research and drug discovery use 2D cell culture coupled with animal testing for preclinical studies. Neither 2D cell culture nor animal testing truly recapitulate the in vivo microenvironments of cells in a human body. Using 3D cell culture in lab-on-a-chip (LOC) devices that can faithfully mimic the in vivo conditions, costs can be reduced ten-fold, results can be achieved ten times faster, animal testing can be significantly reduced and personalized medicine can be realized. Being the leading cause of cancer related deaths, it is essential to understand the complex metastasis phenomenon of cancer to develop new diagnostic and therapeutic strategies.
In this context, cell-to-cell communication between breast cancer cells and macrophages was investigated. Results showed that the EGF (epidermal growth factor) – CSF-1 (colony stimulating factor 1) loop is a paracrine – juxtacrine loop contrary to the generally accepted double paracrine loop.
In addition, tissue specific invasion/chemotaxis and extravasation of breast and liver cancer cells was investigated. Results showed that normal and cancer cells can be quantitatively differentiated based on their invasion/chemotaxis and extravasation phenotypes as determined by confocal fluorescence microscopy imaging.
Finally, a novel anti-cancer drug candidate was tested with 3D tri-culture in LOC devices comprising breast cancer cells, normal epithelial cells and macrophages. Results showed that the novel drug caused 56% less cell death in normal cells compared to the widely used drug doxorubicin in 3D tri-culture whereas both drugs had a similar effect on cell death in 3D mono-culture.
Taken together, these results demonstrate the importance of 3D cell culture in LOC devices for physiologically relevant results that can be translated to the clinic.

IS-021
PURSUITS OF CLSI EXPERT PANEL ON CLINICAL CHEMISTRY AND TOXICOLOGY AT A GLANCE

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CLSI ExP on Clinical Chemistry and Toxicology (CHEM)

Clinical and Laboratory Standards Institute (CLSI) consensus standards and guidelines, supplements, and derivative products are used to improve medical laboratory examinations and health care services in diverse testing settings, including:
• Manufacturers' laboratories
• Large teaching and research institution laboratories
• Hospital-based laboratories
• Physicians' offices
• Referral laboratories
• Reference laboratories
CLSI documents and products are also frequently used in other laboratory settings, such as public health, environmental monitoring, and veterinary laboratories. To develop its standards and guidelines, CLSI uses a document development process based on the consensus of viewpoints from its identified constituencies who are health care professions, government, and industry. CLSI assembles volunteer experts from the three constituencies to develop these documents in an open discussion forum to fulfill specific needs and resolve problems through consensus (CLSI Document #/Version #: S-001/4.0, 2018).
Various groups are involved in developing and approving CLSI consensus standards and guidelines, supplements, and derivative products. Those are identified as Consensus Council (CC), Expert panel (ExP), Document development committee (DDC), Subcommittee (SC), and Working Groups (WG). The ExP serves as technical advisor to the CC regarding new documents and products ready for publication, works as advisor and subject matter expert for DDCs/SCs/WGs in its technical area, reviews Proposed Draft documents in its respective technical area, and provides comments and performs additional activities as requested by the CC.
This presentation outlines the specific roles and responsibilities of the ExP on Clinical Chemistry and Toxicology and the projects in progress.

IS-022
METABOLIC SYNDROME AND NUTRITION CURRENT CONTROVERSIES

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Metabolic syndrome is a cluster of disorders that develop on a common basis of certain risk factors. Major risk factors are sedentary lifestyle, excessive and unhealthy diet, and genetics. The disorders that arise based on these common risk factors are abdominal obesity, dyslipidemia (increase in triglycerides, decrease in HDL cholesterol), hyperglycemia and hypertension.
Various names have been given to metabolic syndrome such as the deadly quartet, civilization syndrome, cardio-metabolic syndrome. One of these most popular names is "insulin resistance syndrome". Unfortunately, the perception that insulin resistance is the main pathology in the development of metabolic syndrome has been falsely evoked. Insulin resistance is a biological adaptation mechanism created by irregular lifestyle and diet rich in refined carbohydrates and sedentary life on genetically susceptible conditions. Insulin resistance is not a primary pathology in the development of metabolic syndrome. Rather, it is a secondary, adaptive condition and even calling it a disorder is due to a misinterpretation of insulin resistance. Decreasing insulin resistance is the right approach. However, the right way to do this is to eliminate the causes that lead to insulin resistance.
While nutritional mistakes are one of the main causes of metabolic syndrome, healthy nutrition is one of the most important factors in the prevention

and treatment of metabolic syndrome. Nevertheless, there are different recommendations on what the right nutrition approach is. Here we will to seek answers for the questions that come to mind.
Should carbohydrate or fat be restricted in the diet of the patient with metabolic syndrome?
Fat has been the first to be eliminated from the diet in the past decades. For this reason, "light" products that do not contain fat but contain more carbohydrates have started to be used in kitchens. The results of the Prospective Urban and Rural Epidemiology (PURE) study show that cardio-metabolic mortality is minimal when 35% of daily energy comes from fat, while a positive correlation exists between carbohydrate intake rate and mortality. The source of fat and carbohydrates is also important. While trans-fat is still a type to avoid, it is unnecessary to limit saturated and unsaturated fats excessively. In terms of carbohydrates, consumption of refined products should be restricted as much as possible, while the consumption of fruits, vegetables and legumes should be encouraged in moderation.
How many meals a day should the patient with metabolic syndrome have? Do intermittent fasting and chrono-nutrition work in metabolic syndrome?
The distribution of nutrients is discussed, as well as the timing of this distribution. During intermittent fasting, it is recommended to fast at approximately 16 hours of the day with late breakfast and early dinner. Chrono-nutrition aims to set the mealtime on the circadian rhythm of the person. More research is needed for these two approaches to come to the level of strong recommendations.
How to arrange the protein intake of patients with metabolic syndrome?
Protein consumption is generally increased in diets where weight loss is targeted due to the higher thermal effect and satiety period. Studies have been published showing a relationship between inadequate protein consumption and increased mortality. Guidelines recommend approximately 1.2-1.5 g/kg/day protein consumption. This amount may vary depending on the age of the person and the presence of acute or chronic diseases.
Do dietary supplements (vitamins, minerals, and others) have a place in the prevention or treatment of metabolic syndrome?
Supplements are commonly used with the thought that the diet will be healthier. They have no place in the prevention or treatment of metabolic syndrome. The positive effects of vitamins or minerals present in foods on healthy life have been shown in many studies. No benefit was found in studies in which vitamin or mineral supplements were used in addition to those without vitamin-mineral deficiency.
In conclusion, as individuals living in a Mediterranean country, we believe that the Mediterranean diet approach which has been shown to be the most suitable diet for metabolic syndrome, is appropriate.

IS-023
THE IMPORTANCE OF NUTRITION THERAPY AS A CONTRIBUTOR TO SUCCESS OF CANCER TREATMENT

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Cancer is ranked as one of the most important health problems. Many cancer patients experience malnutrition and weight loss as a result of low nutritional intake, emotional distress and metabolic factors related to tumors and treatments. Nutritional status is a strong predictor of cancer prognosis. The treatment response rates and survival are lower when there is accompanying malnutrition. Nutrition risk assessment at the beginning allows for early recognition of malnutrition.
Cachexia is a catabolic state characterized with severe weight loss. The incidence of cachexia among cancer patients is about 50%, and it is the major cause of mortality in 10-20% of patients. Main mechanisms of cachexia are systemic inflammation, reduced nutrition intake, decreased physical activity, fatigue and metabolic changes secondary to disease.
Malnutrition should be suspected when BMI <20 kg/m2 for individuals younger than 70 years old and < 22 kg/m2 for individuals older than 70 years old. Sarcopenia is a condition of muscle mass and function loss without weight loss. There are several tools for nutritional status assessment. Nutrition therapy for cancer patients is recommended according to the tumor stage, location and grading of malnutrition. Depending on the severity, the nutritional therapy starts with healthy diet, continues with oral enteral nutrition, tube feeding and parenteral nutrition.
ASPEN and ESPEN guidelines recommend all cancer patients to be screened for malnutrition risk. The nutrition therapy should start as soon as possible and should be personalized. Nutritional assessment includes anorexia, body composition, inflammatory markers, resting energy expenditure and physical activity. Daily intake of 1.0-1.5 g/kg/day protein and 25-30 kcal/kg/day is recommended.

IS-024
DIETARY APPROACHES DURING COVID-19 PANDEMIC

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The COVID-19 pandemic imposed many new challenges for individuals to follow and maintain a healthy diet. The 'stay at home order' applied in many countries all over the world has serious effects on both food access and food utilization. Quarantine is associated with changes in eating patterns and physical activity behaviours. Spending more time at home and sedentary behaviours could lead to lower physical activity levels, larger meal sizes and increased snack frequency and size. All of these factors are associated with higher caloric intake and increased risk of obesity.Studies show that eating habits are affected by stress, distress, and emotional state, and therefore high stress levels are associated with irregular eating patterns. In a recent study, while describing a five-way emotion and diet model, it has been shown that changes in food intake may be a natural response to increased stress and emotional states through both psychological and physiological mechanisms. Therefore, the responsibility of individuals during the COVID-19 pandemic is:
1) Making an effort to choose a healthy lifestyle,
2) Maintaining a healthy diet,
3) Doing exercise in spare time,
4) Maintaining a healthy weight and,
5) Getting enough sleep
At the community level, food access and availability are vulnerable to the implications of the COVID-19 outbreak, primarily because of difficulties in transportation, distribution, and delivery. This has led to 'food stockpiling'. The pandemic has indirectly affected the food supply chain due to changes in consumer behaviour. Pandemics create uncertainty and fluctuation in consumer demand, and this buying behaviour can lead to a shortage in the supply chain. In a study that investigates the impacts of COVID-19 pandemic on buying behaviour, it states that the most frequently stocked materials are dietary supplements, food and water.
Often missing part of health discussions around immunity and infection are nutritional strategies to support optimal function of the immune system. Nutrition plays an important role in immune function. Vitamins A, B6, B12, C, D, E, and folate; and trace elements, including zinc, iron, selenium, magnesium, and copper, play important and complementary roles in supporting both the innate and adaptive immune systems. Deficiencies or suboptimal status in micronutrients adversely affect immune function and can reduce resistance to infections. Other nutrients such as omega-3 fatty acids also support the immune system with their anti-inflammatory effects.
Malnutrition and nutritional deficiency before diagnosis of infection is associated with longer lengths of hospital and ICU stay, in COVID19-positive patients.
Recent ESPEN published guidelines for the assessment, management and follow-up of the nutritional status of COVID-19 patients.
ESPEN Nutritional management in individuals at risk for severe COVID-19, in subjects suffering from COVID-19, and in COVID-19 ICU patients requiring ventilation:
1-Patients at risk for poor outcomes and higher mortality following infection with SARS-COV-2, namely older adults and polymorbid individuals, should be checked for malnutrition through screening and assessment.
2-Subjects with malnutrition should try to optimize their nutritional status, ideally by diet counselling from an experienced professionals (registered dieticians, experienced nutritional scientists, clinical nutritionists and specialized physicians).
3-Subjects with malnutrition should ensure sufficient supplementation with vitamins and minerals.
4-Patients in quarantine should continue regular physical activity while taking precautions.
5-Oral nutritional supplements (ONS) should be used whenever possible to meet patient's needs, when dietary counselling and food fortification are not sufficient to increase dietary intake and reach nutritional goals.
6-In polymorbid medical inpatients and in older persons with reasonable prognosis, whose nutritional requirements cannot be met orally, enteral nutrition (EN) should be administered. Parenteral nutrition (PN) should be considered when EN is not indicated or unable to reach targets.
7-In COVID-19 non-intubated ICU patients not reaching the energy target with an oral diet, oral nutritional supplements (ONS) should be considered first and then enteral nutrition treatment.
8-In COVID-19 intubated and ventilated ICU patients, enteral nutrition (EN) should be started through a nasogastric tube; post-pyloric feeding should be performed in patients with gastric intolerance after prokinetic treatment or in patients at high-risk for aspiration; the prone position per se does not represent a limitation or contraindication for EN.
9-In ICU patients who do not tolerate full dose enteral nutrition (EN) during the first week in the ICU, initiating parenteral nutrition (PN) should be weighed on a case-by-case basis. PN should not be started until all strategies to maximize EN tolerance have been attempted.
10-In ICU patients with dysphagia, texture-adapted food can be considered after extubation. If swallowing is proven unsafe, EN should be administered. In cases with a very high aspiration risk, postpyloric EN or, if not possible, temporary PN during swallowing training with removed nasoenteral tube can be performed.
Optimal nutrient intake supports optimal immune function and helps control the impact of infections. Therefore, expansion and improvement of nutritional strategies should be supported to improve health and reduce the impact of viral infections.

IS-025
MYTHS ABOUT VITAMIN D

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Rickets became a serious health problem for children in cities with the air pollution that came with the increasing industrialization in the 19th century. The relationships between rickets-sunlight, vitamin D-sunlight, UVB-vitamin D, parathyroid hormone-vitamin D were clarified until 1960. The health effects of vitamin D supplementation were determined on bone health and calcium phosphate metabolism. The rediscovery of vitamin D began in 1941, based on the inverse relationship between the latitude and cancer. There has been a serious increase in scientific publications on vitamin D and diseases since the 2000s, and in 2007 the 1-year vitamin D publication approached 15 000 in Pubmed records. Although the decline in scientific publications started later, an average of 4 000-5 000 articles about vitamin D can be seen in Pubmed records every year. With frequent emphasis on vitamin D levels, the importance of analysis is increased and commercial companies have started to offer 25 OH vitamin D immunoassay kits that are easy to use routinely since 2010. 25 OH vitamin D is mainly analyzed in routine laboratories by immunoassay, HPLC and LCMS-MS methods. Vitamin D analysis, which is increasingly emphasized with both scientific and media approaches, seriously occupies routine biochemistry laboratories.
Although serious promising results have been published in molecular studies in cancer, which is a disease other than bone health related with vitamin D, the results of epidemiological studies do not support basic laboratory studies. The relationship between vitamin D and vascular health by type U and splayed N type relationship with cancer, and splayed U type relationship on total mortality have been published by WHO.
In 2009, it was emphasized that vitamin D reduced mortality in the 1918-1919 influenza pandemic, and while the publications on the role of vitamin D in the SARS-COV2 pandemic in 2020 were first published in a protective manner, then they started to shift towards question marks and no effect. In a study conducted on 350 000 people with COVID-19 disease in England, it is stated that there is no relationship between illness, hospitalization and vitamin D level. The protective efficacy of vitamin D supplementation in COVID-19 has been mentioned on 96 people in France in the only randomized clinical trial completed. Studies are ongoing on cytokine storm, ACE2 receptor and endothelial dysfunction as a possible mechanism of action of vitamin D on Covid-19 disease. In clinical studies, there are deficiencies in the information about other preventive treatments that patients receive, whether they have received corticosteroid treatment, the way of taking vitamin D and the dosage. The results of randomized clinical trials should be seen in order to determine the effectiveness / ineffectiveness of vitamin D on COVID-19 more clearly. The data up to now is of no serious contribution.

SATELLITE SYMPOSIUMS ABSTRACTS

ROCHE SATELLITE SYMPOSIUM

MANAGEMENT OF A COAGULATION LABORATORY IN COVID-19 PANDEMIC

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The COVID-19 virus causes coagulation-related disorders in affected patients in a way that has not been seen before. Coagulation laboratories, which are of particular importance due to their pre-analytical, analytical, and post-analytical vulnerabilities, executed high test numbers during the pandemic period and became even more vulnerable to pre-analytical and post-analytical errors. Scientific requirements in the management of the coagulation laboratory under pandemic conditions will be discussed in this symposium. The experiences of Istanbul Basaksehir Cam and Sakura City Hospital Center Laboratory, in which Roche Diagnostics Preanalytical solution systems and T711 coagulation analyzer are installed, will be shared .

BECTON DICKINSON SATELLITE SYMPOSIUM

BD COVID-19 SOLUTIONS AND POC ANTIGEN TESTING

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OBJECTIVES: COVID-19 assays categorized as molecular assays used for diagnosis, rapid antigen tests (RAT) used for diagnosis and screening, and antibody assays determining the previous infection.
RATs are included in the guidelines of WHO, CDC, and ECDC. POC tests increase the possibility of testing and shorten the time to result. The clinical performance of RATs depends on the conditions in which they are used.1,2,3
MATERIALS AND METHODS: The accuracy increased when tested in the early stages of infection with SARS-CoV-2, when viral load and the prevalence is high2. RATs can be used for screening in high risk environments; quickly identify patients with active infections. Thus, can prevent contamination.1,2,3
Where rapid results are required, RATs are valuable to provide instant results even sensitivity lower than RT-PCR.
RESULTS: The parameters affecting accuracy in RATs can be summarized as correct sampling, prevalence, presence of symptoms, sampling period, and accuracy and sensitivity of the assay.
CONCLUSION: BD Veritor ™ Plus RATs stands out with easy sample processing capability, 15 minutes resulting-time and reliable performance. Studies show %84 Positive and %100 Negative Agreement, and these values are higher with the increased prevalence.4
It is important to evaluate the immune system for the follow-up of COVID-19. Studies have shown that individuals with COVID-19 have a decrease in T cell subgroups CD4 and/or CD8+T cell counts with increasing disease severity. The correct T cell subsets count by flow cytometry is important in treatment follow-up. With the flow cytometry method, it is possible to examine all immune system subgroups and to conduct cytokine storm research. 5,6,7
Key-words: COVID-19, SARS-CoV-2, Rapid Antigen Testing, RT-PCR, Flow Cytometry

ORAL PRESENTATIONS ABSTRACTS

OP-001
THE COMPARISON OF SIGMA VALUES CALCULATED ACCORDING TO DIFFERENT %TEA STANDARDS OF URINE BIOCHEMISTRY TESTS AND EVALUATION OF ANALYTICAL STAGE

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OBJECTIVES: The aim of this study was to compare the sigma values calculated according to different %TEa (Total allowable error) standards of urine biochemistry tests consisting of Creatinine-U and Protein-U and to improve IQC (Internal quality control) measurements using Westgard's sigma rules.
MATERIALS and METHODS: The IQC data of urine biochemistry tests analyzed in the biochemistry autoanalyzer at Ufuk University Faculty of Medicine Hospital, Biochemistry Laboratory between 01.01.2020 and 31.03.2020 were obtained from the laboratory information management system and examined.
RESULTS: 75% of the sigma values calculated according to RILIBAK (German Guidelines for Quality) and BV (Based on biological variability) % TEa standards from the two level IQC data were > 6 and 25% were in the group between 4-6. Of the sigma values calculated according to CAP (College of American Pathologists), 50% were > 6 and 50% were between 4-6. Of the sigma values calculated according to WLSH (Wisconsin State Laboratory of Hygiene), 25% were > 6, 25% were between 4-6, and 50% were < 4. Since the QTI (Quality Target Index) of the tests, whose sigma values were calculated according to RILIBAK, were > 1.2, improvements in terms of accuracy were required for both tests.
CONCLUSIONS: When the sigma values of the tests calculated according to RILIBAK were evaluated based on Westgard's sigma rules, it was found that creatinine-U (normal and pathological) and protein-U (normal) control results should be evaluated according to 1-3s and protein-U (pathological) control results should be evaluated according to 1-3s/2-2s/R-4s/4-1s/8x multiple rules.
Keywords: Analytical Stage, Six Sigma, Total Allowable Error, Westgard Rules

OP-002
VOLTAMMETRIC DETERMINATION OF CYSTEINE BY FLUORESCEIN BASED DYE

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OBJECTIVES: Cysteine is a sulfur-containing amino acid that has some important features such as being powerful antioxidant and skin-whitening agent. It is widely used as a component of cosmetics and foods.Therefore, cysteine determination is very important. The main purpose of this study is to suggest a simple, cheap and disposable electrode material contrary to the voltammetric methods for the determination of cysteine in the literature. In addition, it was aimed to develop a sensitive and accurate method.
MATERIALS and METHODS: Fluorescein based dye was synthesized by the reaction between fluorescein derivative molecule and propiolic acid in the presence of dicyclohexylcarbodiimide (DCC). Three electrode system consisting of disposable pencil graphite as a working electrode, platinum wire as a counter electrode and Ag/AgCl (sat. NaCl) as a reference electrode was operated by Metrohm Autolab PGSTAT 128N potentiostat/galvanostat. The measurements were performed in pH 7.5 phosphate buffer and acetonitrile solution (4:6, v/v).
RESULTS: The cathodic peak belongs to the fluorescein based dye at -770 mV decreases with the increasing amounts of cysteine. This signal change was used for the determination of cysteine.
CONCLUSIONS: A novel, simple, cheap and sensitive voltammetric method for the determination of cysteine is proposed as an alternative to the methods in the literature. The developed method does not require additional operations such as preparation and modification of the electrode material since the pencil graphite is used, and thus has an important advantage.
Keywords: Fluorescein Based Dye, Cysteine, Disposable Pencil Graphite Electrode, Voltammetry

OP-003
EVALUATION OF MEASUREMENT UNCERTAINTY FOR TUMOR MARKERS

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OBJECTIVES: Measurement uncertainty is an indication of the quality and reliability of the measurement result. Measurement uncertainty has been used for many years in clinical laboratories to "Define the range of values at which the actual value of the measurement result can be found". Therefore, we aimed to evaluate the measurement uncertainty of tumor markers, which have an important place in the follow-up of diseases and help the clinician in the diagnosis and prognosis stages.
MATERIALS and METHODS: Measurement uncertainty was determined for CEA, CA15-3, CA19-9, CA125, AFP, B-HCG, Total PSA and Free PSA parameters measured in the laboratory of our hospital. For the study, the internal quality control results for the dates 01.03.2020-31.08.2020 and the six-month external quality control results (RIQAS) obtained within the said date range were used. AFP test was analyzed with Beckman Coulter DXI 800 device and other tests were analyzed with Roche Cobas 8000 device. Nordtest method was used to determine the measurement uncertainty.
RESULTS: As a result of our analysis, expanded measurement uncertainty values for first and second level control values were found to be 11.81 and 10.92 for CEA, 23.39 and 23.17 for CA125, 17.30 and 15.79 for CA15-3, 21.50 and 21.02 for CA19-9, 21.02 and 19.13 for B-HCG, 23.58 and 23.60 for Total PSA, 11.92 and 12.12 for Free PSA, 21.62 ve 20.53 for AFP respectively.
CONCLUSIONS: Calculation of the measurement uncertainty of tumor markers, many of which are low-sensitivity tests, will provide valuable information regarding test quality.
Keywords: Measurement Uncertainty, Tumor Markers

OP-004
COMPARISON OF TWO ANALYTICAL PLATFORMS FOR QUANTIFICATION OF THE NEUROFILAMENT LIGHT CHAIN IN MULTIPLE SCLEROSIS PATIENTS' BLOOD AND CSF SAMPLES: ELISA AND SIMOA

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OBJECTIVES: Neurofilaments including the light chain subtype are the main components of the axonal cytoskeleton.Thus,their release into the extracellular area is a direct measure of neuronal injury.Hereby,we aimed to compare the commercial ELISA and Single Molecule Array (SIMOA) method for neurofilament light chain (NfL) in cerebrospinal fluid (CSF) and serum samples of Multiple Sclerosis (MS) patients.
MATERIALS and METHODS: We used pairs of serum (n=55) and CSF (n=20) samples.For CSF samples,a previously validated and recommended ELISA assay from Uman Diagnostic® was used. Serum NfL levels was performed with ELISA assay (Abbexa Ltd.). In addition, NfL analysis was done by SIMOA HD-X analyzer that has a greater sensitivity in terms of NfL detection in serum and CSF samples. For SIMOA, Limit of Detection (LOD) and Limit of Quantification (LOQ) was determined as 0.038 pg/mL and 0.174 pg/mL,respectively for serum sample. Intra-assay CVs were assessed between the concentrations of duplicates of the measured all samples. LOD was measured as 33 pg/mL for CSF and 6.2 pg/mL for serum samples for ELISA analysis.
RESULTS: Mean values of CSF ELISA and SIMOA values have been found as; 1239,5±693,0 pg/mL and 1269,9±852,8 pg/mL, respectively. Also, we have found the mean values of serum ELISA and SIMOA values as 97,3 ±71,5 pg/mL and 16,8 ±10,0 pg/mL, respectively. Besides, there was a strong positive correlation between SIMOA CSF and ELISA CSF ($p<0,001$, $r=0,924$). We have found a strong positive correlation between serum and CSF SIMOA ($p<0,05$, $r=0,703$).
CONCLUSIONS: We concluded that SIMOA is a reliable method for serum NfL determinations.We can suggest to use this exclusive method for different neurodegenerative diseases together with clinical findings for future studies.
Keywords: Multiple Sclerosis, SIMOA, ELISA

OP-005
HOW SUCCESSFUL ARE LABORATORY TEST COMBINATIONS? A PRELIMINARY STUDY WITH DISCRIMINANT ANALYSIS

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OBJECTIVES: Many laboratory tests generally have low success in classifying cases as "healthy" or "patients". Appropriate test combinations have been developed to overcome this obstacle. In this preliminary study, two hypothetical diagnostic tests were evaluated together using the Discriminant Analysis (DA) method. The aim of the study is to investigate and discuss the level of classification success achieved with DA application by using routine test analysis.
MATERIALS and METHODS: In this study, results obtained by two hypothetical tests in two groups (control and patient), each consisting of 30 cases were used. For each test, the degrees of overlapping of the groups and the AUC values were calculated. Hypothetical analysis results were evaluated by discriminant analysis method using SPSS program.

RESULTS: The degrees of overlapping of the groups were 32% and 40% for the tests A and B, respectively. AUC values calculated by ROC analysis were 0.949 and 0.933 for the tests A and B, respectively. The two groups were classified completely and accurately using the DA method. The result was confirmed by ROC analysis using discriminant coefficients (AUC = 1.00).
CONCLUSIONS: DA provides a better group separation by using tests with insufficient classification success. It is an indispensable requirement to have a healthy database containing sufficient number of cases in DA applications, which are also used to select the most appropriate test combination from the test list. The continuity of the study and the cumulative feature of the database increase the success level gradually.
Keywords: Discriminant Analysis, ROC Analysis

OP-006
DEVELOPMENT AND VALIDATION OF A SELECTIVE TANDEM MASS SPECTROMETRIC METHOD FOR SIMULTANEOUS MEASUREMENT OF D- AND L-2-HYDROXYGLUTARIC ACID IN BIOLOGICAL FLUIDS AND APPLICATION TO A GLIOMA STUDY

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OBJECTIVES: Isocitrate dehydrogenase (IDH) mutations that may mostly be seen in certain malignancies can result in excessive production of 2-hydroxyglutaric acid (2-HG) that can be referred to as an oncometabolite. Since 2-HG has the chiral carbon, there are two enantiomers named as D- and L-2-HG. Especially D- enantiomer of 2-HG is increased in glioma, acute myeloid leukemia, myelodysplastic syndromes, and intrahepatic cholangiocarcinoma. On the other hand, excessive production of L-2-HG has been reported in some other brain tumors, renal cell carcinoma and in a rare neurological disorder called 2-Hydroxyaciduria. Therefore, it has great importance to measure these enantiomers separately and simultaneously for diagnosis and follow-up of different pathologies.
MATERIALS and METHODS: Here, we present a fully optimized stable isotope dilution multiple reaction monitoring method for absolute quantification of D- and L-2-HG selectively, using a liquid chromatography tandem mass spectrometry system. The analytical method validation studies have been performed utilizing Clinical&Laboratory Standards Institute (CLSI) and European Medicines Agency (EMA) guidelines.
RESULTS: This is the first analytical method validation study that has been performed for different matrices namely cerebrospinal fluid, urine, and plasma for selective measurement of D- and L-2-HG in addition to demonstrating the clinical applicability of the method with samples from glioma patients in different stages. The results of the method validation study have shown high accuracy and precision with considerably low LOD and LOQ values.
CONCLUSIONS: We believe that the presented comprehensive approach for absolute quantification of D- and L-2-HG simultaneously is highly suitable for basic and clinical research on related pathologies.
Keywords: Biomarker, D-2-Hydroxyglutaric Acid, Glioma, L-2-Hydroxyglutaric Acid, Tandem Mass Spectrometry

OP-007
EVALUATION OF THE PERFORMANCE OF ''TWIN AUTOANALYSERS" WORKING THE SAME ROUTINE BIOCHEMICAL ANALYTES USING DIFFERENT STATISTICAL METHODS

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OBJECTIVES: Due to the increasing number and variety of test orders, it is required to have two or more identical autoanalyzers that analyze the same biochemical parameters in laboratories. Although it assumed that there are no/minor analytical differences between those in routine, there is a lack of evidence. We aim to compare the tests produced by twin-analyzers and if there is a clinical difference to visualize it.
MATERIALS and METHODS: In the study, we compared the following test results of twin analyzers (AU5800;Beckman Coulter Inc.,USA): glucose, urea, creatinine, uric acid, AST, ALP, GGT, LDH, direct and total bilirubin, total protein, albumin, triglyceride, cholesterol, high-density lipoprotein, amylase, lipase, calcium, magnesium, phosphorus, C-reactive protein, iron, unsaturated iron-binding capacity, creatine kinase, ferritin, sodium, potassium, and chlorine. These parameters were measured by using liquid-stable third-party internal quality control (IQC) samples (Bio-Rad Lab.,USA) for consecutive 31 days. Results were analyzed with several statistical techniques for statistical and clinical evaluation. The difference between twin-analyzers visualized by exponential weighted moving average (EWMA) charts.
RESULTS: Statistically, but not clinically significant differences observed for the parameters: glucose, creatinine, LDH, total protein, albumin, cholesterol, calcium, magnesium, phosphorus, sodium, and chlorine. A critical difference observed on the 11th day at the second level of the IQC sample was presented on the EWMA chart.
CONCLUSIONS: The critical error in calcium is observed as a value above the upper limit on the EWMA chart. The difference shown on the EWMA chart without using complex mathematical calculations promises that EWMA charts can be useful in continuously monitoring of twin-analyzers.
Keywords: Autoanalyzer, Twin-Analyzer, Instrument Comparison, Exponentially Weighted Moving Average (EWMA)

OP-008
EVALUATION OF ETHANOL TEST MEASUREMENT UNCERTAINTY

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OBJECTIVES: It is now known that patient test results given in clinical laboratories do not accurately reflect the true value and are an approximate value attributed to the measured size. Measurement uncertainty is a quantitative indicator of the extent to which the obtained test result represents the true value. Total permissible error (TEa) is now widely used to assess the compliance of measurement uncertainty with analytical quality objectives. Clinical laboratories awaiting accreditation under the ISO 15189 standard must determine the measurement uncertainty for each measurement procedure, define the relevant performance requirements and check regularly. In our study, we aimed to evaluate the measurement uncertainty, measurement uncertainty limits according to the Nordtest guideline in analytical performance evaluation and evaluate them together with the Total Permissible Error (TEa).
MATERIALS and METHODS: For ethanol test, expanded uncertainty was calculated using two levels of internal quality results for May, June, July, August, September 2020 and the results of the 18-month Randox Riqas external quality control program between 03/2019 - 08/2020. Expanded measurement uncertainty (U) was calculated by the formula (U) = 2Ö EQA2+ %CV2. CV% obtained from internal quality control data and the uncertainty obtained from external quality control (UEQA) data was calculated by the formula (UEQA)= Ö% bias2 /n (n: number of laboratories involved). The uncertainty value we found was evaluated with the TEa% value determined by CLIA 88 for ethanol.
RESULTS: The expanded measurement uncertainty for ethanol test normal and pathological quality control was found to be 10.15 and 9.36, at 95% confidence interval, respectively. The TEa % value determined by CLIA 88 for ethanol is ± 25%.
CONCLUSIONS: The measurement uncertainty calculated for the ethanol test in our laboratory is below the targeted % TEa. We think that reporting patient test results with calculated measurement uncertainty in laboratories will make a significant contribution to increase the reliability of the results. It is within acceptable limits within the 95% confidence interval. Ethanol test results close to legal limits should be reported with a 95% confidence interval.
Keywords: Measurement Uncertainty, Ethanol, Total Allowable Error

OP-009
THE RELIABILITY OF PLATELET CLUMPS FLAG GENERATED BY SYSMEX XN-1000 HEMATOLOGY ANALYZER

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OBJECTIVES: Platelet (PLT) count is important parameter to evaluate the hemostasis. There are many factors that may cause falsely decreased PLT counts. PLT clumps (PC), which are arisen from either a peculiar pathology in the patient or the mistakes during blood collection, is one of the most common causes. Hematology analyzers are capable to generate PC flag. This present study was aimed to determine the agreement of PC flag produced by hematology analyzer with the findings of peripheral blood smear (PBS).
MATERIALS and METHODS: Hemogram analysis was performed on Sysmex XN-1000 analyzer. The PBSs prepared from 151 whole blood samples with PC flag and 270 without flag were reviewed for PC. PBSs were prepared by May-Grunwald-Giemsa method. Based on the findings of PBS, sensitivity, specificity, positive and negative predictive values were estimated for PC flag produced by hematology analyzer.
RESULTS: For PC flag, sensitivity, specificity, positive and negative predictive values were calculated as 77.9%, 74.9%, 44.4% and 93%, respectively. In addition, only taking into account the samples with PLT counts of <150x10^9/L, sensitivity, specificity, positive and negative predictive values were computed as 78.5%, 86.2%, 72.1% and 89.8%, respectively.
CONCLUSIONS: The falsely PC flags are frequently encountered on Sysmex

XN-1000 hematology analyzer. However, specificity and positive predictivity was higher in the samples with PLT count of <150x10^9/L. Therefore, when encountered trombocytopenia accompanying with PC flag, if available, PBS should be reviewed for PC before approve the results, otherwise PLT clumps should be referred in the result report and re-counting of PLT should be recommended in fresh sample.
Keywords: Automated Platelet Counting, Hemogram, Peripheral Blood Smear, Platelet Clumps

OP-010
COMPARISON OF THREE DIFFERENT METHODS FOR HBA1C MEASUREMENT

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OBJECTIVES: HbA1c levels are included in the diagnostic criteria as well as being used in the follow-up of patients with Diabetes Mellitus. Therefore, it is important to produce reliable HbA1c results. Different methods are used for HbA1c measurements. In this study, it was aimed to compare the results of 3 different HbA1c methods.
MATERIALS and METHODS: Thirty samples with different levels of HbA1c were included in the study. HbA1c tests were performed using immunturbidimetric method in Siemens Atellica Solutions device, high performance liquid chromatography (HPLC) method in Variant II Turbo device and capillary electrophoresis method in Capillarys 3 Tera device. Wilcoxon signed ranks test, Bland-Altman and Passing-Bablok regression analyzes were used to compare the difference between reference method and other methods. The level of correlation between the methods was evaluated using Spearman correlation analysis.
RESULTS: HbA1c results obtained from different devices were compared based on chromatographic method. Strong correlation was found between methods. No significant difference was found with the results of the Capillarys 3 Tera device ($p = 0.763$). On the other hand, higher results were obtained from the Atellica Solutions device and the difference was found to be statistically significant ($p <0.001$).
CONCLUSIONS: When the HbA1c results measured with three different devices were evaluated, it was observed that the results of the chromatographic method and capillary electrophoresis method were consistent, but the results obtained from the immunturbidimetric method were higher than the other two methods.
Keywords: Capillary Electrophoresis, Hba1c, HPLC, Immunoturbidimetry

OP-011
EVALUATION OF MEASUREMENT UNCERTAINTY OF TOTAL PROSTATE SPECIFIC ANTIGEN TEST

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OBJECTIVES: Laboratory results are critical to clinical decision making. Therefore, it is extremely important for laboratories to produce reliable results. Measurement uncertainty is the quantitative expression of the quality of test results by evaluating the effect of possible sources of error. In this study, it is aimed to present the measurement uncertainty of total prostate specific antigen (PSA) test, one of the screening tests.
MATERIALS and METHODS: Total prostate specific antigen test was studied in Atellica Solutions device (Siemens Healthineers, Erlangen, Germany). Measurement uncertainty of the test was calculated according to CLSI EP29A guideline. Two levels of internal quality control data and external quality control bias uncertainty data were obtained.
RESULTS: For the total prostate specific antigen test, the internal quality control uncertainty value was 7.35%, the external quality control uncertainty value was 0.20%, and the expanded uncertainty value was 12.1% (coverage factor: 1.65).
CONCLUSIONS: The level of 4 µg/L for total PSA is the threshold value for making a prostate biopsy decision. When measurement uncertainty is included, the threshold value for total PSA in our laboratory was determined as 4±0.5 µg/L. Calculation of measurement uncertainty is even more important for tests using clinical decision limits in diagnosis and treatment processes.
Keywords: Atellica Solutions, Measurement Uncertainty, Prostate Specific Antigen

OP-012
COMPARISON OF SOME AMINO ACID LEVELS STUDIED WITH LIQUID CHROMATOGRAPHY-MASS SPECTROMETRY METHOD IN PLASMA AND DRIED BLOOD SAMPLES

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OBJECTIVES: In the study, it was aimed to evaluate the amino acid levels of Phenylalanine (Phe), Tyrosine (Tyr), Valine (Val), Leu + Isoleucine (Leu + ILeu) in samples taken from simultaneously dried blood and plasma.
MATERIALS and METHODS: The results of 123 patients (46 female, 77 male) whose plasma amino acid and dried blood samples were taken simultaneously were included in the study. Samples were studied and analyzed in liquid chromatography-mass spectrometry/mass spectrometry (LC-MS/MS) device after extraction and derivatization processes.
RESULTS: For Phe, Tyr, Val, Leu + ILeu, plasma amino acid levels median (minimum - maximum) were found 57.90 (3.80 -747.10), 58.90 (22.70 – 860.0), 176.80 (35.70 -512.40), 156.90 (42.0 - 516.50) µmol/L, dried blood amino acid levels median (minimum - maximum) were found 67.0 (32.20 - 963.40), 75.70 (35.90 - 950.10), 176.60 (66.90 - 413.0), 141.10 (62.70 - 342.0) µmol/L, respectively. There were significant differences between dried blood samples and plasma amino acid levels for Phe, Tyr and Leu + ILeu ($p <0.001$, $p <0.001$, $p = 0.02$, respectively), but was no significant difference for Val. ($p = 0.66$). The mean differences between plasma and dried samples by Bland-Altman analysis were found at Val (-0.4), Tyr (-15.0), Phe (-9.5), Leu + Ileu (22.9), respectively.
CONCLUSIONS: Method and sample differences affect the level of amino acids. For this reason, clinicians and laboratories should consider the fact that deviations in the samples and systems studied may be important for the diagnosis and follow-up of metabolic diseases.
Keywords: Amino Acids, Tandem Mass Spectrometry, Phenylalanine, Tyrosine, Branched Chain Amino Acids

OP-013
THE EVALUATION OF ANALYTICAL PERFORMANCE OF BIOCHEMICAL URINE TESTS USING SIX SIGMA METHODOLOGY AND QUALITY GOAL INDEX

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OBJECTIVES: In clinical laboratories, sigma metric analysis is used to assess the performance of the laboratory process system. The aim of this study was to evaluate the analytical process performances of the biochemistry urine tests in the Beckman Coulter-Olympus AU5800 by using the six-sigma methodology.
MATERIALS and METHODS: The analytical performances of Beckman Coulter-Olympus AU5800 running 11 Biochemical Urine tests (Microalbumin, Protein, Creatinine, Calcium, Phosphorus, Sodium, Potassium, Chlor, Magnesium, Urea, Uric Acid) were evaluated. The six months internal (level1-2) and external quality control programs were extracted for these parameters. As external quality control, we used external quality assessment schemes (EQAS) data. CV% was obtained from internal quality control programs. The percentage bias for these parameters was calculated from external quality control programs. Quality goal index (QGI) analysis) was used to discover potential problems for the analytes.
RESULTS: For parameters, Mikroalbumin, Calcium, Phosphor, Sodium, Klor, Magnesium, uric Acid (level 1 and 2), the sigma values were found to be between 3 to 6. The sigma values were found to be less than 3 for parameters creatinine, potassium, urea (levels 1 and 2). Microalbumin,calcium and uric acid the sigma values were found to be more than 6.
CONCLUSIONS: It was decided that sigma values of urine parameters at “low quality” levels and improvement studies should be done for these parameters. By evaluating Sigma levels, it is possible to identify tests with a high probability of failure, and these tests should undergo a rigorous quality control audit. In clinical biochemistry laboratories, appropriate quality control planning should be made for each test using the Six Sigma Methodology.
Keywords: Six Sigma, Analytical Performance, Quality Goal Index, Biochemical Urine Tests

OP-014
ELUCIDATION OF INTERACTION BETWEEN CTX-M-15 AND QUERCETIN BY MOLECULAR DYNAMICS SIMULATIONS

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OBJECTIVES: Global dissemination of CTX-M ESBLs and the limited options for treating infections caused by CTX-M-producing bacteria pose major challenges in clinical settings. In order to overcome CTX-M-mediated antibiotic resistance, phytochemicals which inhibits this enzyme can be used. The quercetin is a heterocyclic flavonoid and known to have anti-beta lactamase activity.
MATERIALS and METHODS: Avibactam, sulbactam, clavulanic acid, tazobactam, and quercetin were docked to target protein CTX-M-15 in the previous study. In this study, the complexes were simulated for 100 ns by molecular dynamics methods to reveal information about whether the ligands docked at the target molecule remained stable at the initial binding position.
RESULTS: The average RMSD of avibactam, sulbactam, clavulanic acid, tazobactam and quercetin with CTX-M-15 were calculated as 1.04, 1.16, 1.23, 1.05 and 1.10 during 100 ns, respectively. Clavulanic acid was moved away

from binding cavity about 10 ns and the interaction with CTX-M-15 completely disappeared at the end of simulation. But avibactam, sulbactam, tazobactam and quercetin remained binding-pocket along MD simulation. The effects of ligands on the secondary or primary structures of the CTX-M-15 were analyzed considering the fluctuation of each residue Cα. Since the position of the clavulanic acid was most changing, the highest RMSD value and fluctuation were calculated in the clavulanic-acid with CTX-M-15 complex.
CONCLUSIONS: According to these results, quercetin was suggested to remain in the catalytic pocket of CTX-M-15 like other β-lactamases inhibitors. The results obtained in silico studies are predicted to be preliminary study for in vitro studies to discover natural compounds quercetin and similar bioactive compounds.
Keywords: B-Lactamases, Antibiotic Resistance, Quercetin, Molecular Dynamics Simulations

OP-016
SERUM ADVANCED GLYCATION END PRODUCTS AND THEIR SOLUBLE RECEPTORS LEVELS IN PATIENTS WITH SICKLE CELL ANEMIA AND THEIR RELATIONSHIP WITH DISEASE SEVERITY

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OBJECTIVES: Sickle cell anemia (SCA) is an inherited blood disease and causes oxidative stress. Advanced glycation end products (AGEs) are formed non-enzymatically by Maillard reaction of protein structures and carbohydrates within the cell. We aimed to investigate serum AGE and their soluble receptors sRAGE levels in patients with SCA.
MATERIALS and METHODS: Patients with SCA at crisis (n=30) and non-crisis period (n=30) and gender and age-matched healthy controls (n=30) were included in the study. Blood samples were obtained from all patients and healthy controls. After centrifugation at 1500 x g for 30 min., serum samples were portioned and stored at -80° C. Serum MDA, TAS and TOS levels were measured by spectrophotometric method and OSI values were calculated. Serum IL-6, TNF-α, AGE, and sRAGE levels were measured by ELISA method.
RESULTS: Serum MDA, AGE and IL-6 levels were found to be significantly higher and sRAGE levels lower in patients with SCA at both crisis and non-crisis period compared to controls ($p < 0.016$). Serum TNF-α, TOS and calculated OSI values were found to be significantly higher in patients with crisis compared to both controls and patients at non-crisis period ($p < 0.016$). There was a weak positive correlation between TNF-α and IL-6 ($r = 0.325$, $p = 0.011$).
CONCLUSIONS: We found that serum AGE and sRAGE levels are associated with the pathogenesis of SCA and may have a potential as markers for disease severity.
Acknowledgements: This work was supported by Hatay Mustafa Kemal University Scientific Research Projects Coordination Unit (project no, 18YL021).
Keywords: Sickle Cell Anemia, Oxidative Stress, Advanced Glycation end Products

OP-017
LIVER-KIDNEY FUNCTIONS, SPHINGOLIPID LEVELS AND INFLAMMATION IN EXPERIMENTAL ER STRESS MODEL

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OBJECTIVES: Disorders of the endoplasmic reticulum (ER) lead to cellular damage but can cause cell death if ER dysfunction is prolonged. We aimed to examine liver/kidney functions, neutral sphingomyelinase (N-SMase) activity, sphingolipid levels, cytosolic phospholipase A2 (cPLA2) and cyclooxygenase-2 (COX-2) protein expression in rats under ER stress.
MATERIALS and METHODS: ER stress was induced by tunicamycin (TM) and the ER stress inhibitor taurodeoxycholic acid (TUDCA) was injected before induction of ER stress. ER stress was confirmed by increased tissue levels of GRP78. Hematological and biochemical profiles were measured by autoanalyzers while hepatic and renal injury was evaluated via microscopy and histopathological scoring. Tissue levels of C16-C24 sphingomyelins (SM), C16-C24 ceramides (CERs) and sphingosine-1-phosphate (S1P) were determined by LC-MS/MS. Tissue cPLA2 and COX-2 were measured by western blot and activity assays.
RESULTS: Tunicamycin treatment caused kidney and liver function test abnormalities, increased hematocrit and hemoglobin levels but decreased white blood cell counts. Histopathological findings showed hepatic necroinflammation and renal tubular damage in rats treated with TM. TUDCA administration attenuated WBC abnormalities and TM- induced hepatic/renal functional impairment in ER stress, as evident by significantly restored serum ALT, AST, creatinine, and total bilirubin levels. A significant increase was observed in N-SMase activity, tissue levels of C16-C24 CERs, cPLA2 and COX-2 expression in liver and kidney tissue under ER stress. TUDCA administration decreased tissue CER levels, cPLA2 and COX-2 expression as well as prostaglandin E2 (PGE2) formation.
CONCLUSIONS: These results signify that ER stress causes hepatic and renal toxicity as well as CER-induced PGE2 formation in liver and kidney.
Keywords: Endoplasmic Reticulum Stress, Ceramide, Cytosolic Phospholipase A2, Cyclooxygenase-2

OP-018
THE IMPACT OF THE COVID-19 PANDEMIC ON LABORATORY LOGISTICS MANAGEMENT

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OBJECTIVES: The aim of the study was to investigate the impact of COVID-19 outbreak on laboratory logistics management.
MATERIALS and METHODS: The impact of the pandemic on logistics management was mainly evaluated by number of biochemical parameters affected.The 6 months before and after pandemic were compared.The effect of increasing and decreasing test numbers on logistics management will be evaluated under the headings of additional equipment and personnel requirement, problems encountered in kit and material supply.
RESULTS: The number of tests of catecholamines and its metabolites decreased from 233.83± 61.21 and 326.17±67.16 months before the pandemic to 93.83±67.3 and 123.17±103.7 after the pandemic($p<0.05$).While the number of protein C and S tests was 202.17±10.42 and 194.16±9.64 before the pandemic, it decreased to 114.83±61.54 and 118.17±64.85 after the pandemic ($p<0.05$). According to the contract, catecholamines and their metabolites and Proteins C and S, whose monthly test number is below 200 started to be sent to the contracted accredited external laboratory.In contrast to the decreasing test numbers, the number of D-dimer tests increased from 3670.5±583.14 in the 6 months before the pandemic to 29910.17±16627.82 after the pandemic ($p<0.05$).Due to the increasing number of tests in parameters such as D-dimer and the inadequate capacity of the device, additional devices were required.
CONCLUSIONS: This study reflects how logistics management of Central Laboratory of Ankara City Hospital, which is Turkey's largest pandemic hospital, is affected by the pandemic.Faced with environmental factors such as pandemics and natural disasters, it will guide us and laboratory logistics managements about what may be encountered in the laboratory and how to take measures.
Keywords: COVID-19, Laboratory, Laboratory Parameters, Outbreak, Service Procurement

OP-019
USE OF PROCALCITONIN IN COVID-19 PATIENTS

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OBJECTIVES: The coronavirus (COVID-19) infection is a life threatening disease. It has been reported that there is a relationship between various biomarkers and disease severity. Procalcitonin (PCT) is secreted by many tissues in the body in response to sepsis. PCT is usually not affected in viral infections. PCT is considered as a prognostic marker in patients with sepsis. PCT testing is an efficient but costly marker. In this study, we aimed to evaluate the effectiveness of the use of PCT in COVID-19 patients.
MATERIALS and METHODS: This study was performed by cross-sectional evaluation of the PCT test requested from our laborator, in the same period, from COVID-19 patients and patients other than COVID-19. In this study, 1598 COVID patient and 1604 patients results without COVID-19 were included.The
RESULTS: In COVID-19 patients, 85% of PCT levels were <0.5, 8% were 0.5-2 and 7% were> 2, while in other patients, 69% of PCT levels were <0.5, 16% were 0.5- and 15% were> 2. In the COVID-19 positive group, the low PCT percentage was higher than the other group.
CONCLUSIONS: There are studies reporting an increase in PCT levels in COVID-19 patients. This increase may be due to secondary infections. It is necessary to act rationally in the use of PCT. We think that early in the period PCT requests are high in COVID-19 patients. PCT should not be the first test to be requested in patients who are not considered for sepsis and whose general condition is good.
Keywords: COVID-19, Laboratory, Procalcitonin

OP-020
THE EFFECT OF URIC ACID LEVEL ON MORTALITY IN PATIENTS WITH FUNGAL INFECTION IN INTENSIVE CARE UNIT

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OBJECTIVES: Uric acid is synthesized from xanthine by the xanthine oxidase enzyme as the end product of purine metabolism. Uric acid is an important non-enzymatic antioxidant in the blood and exerts a protective effect on vitamin C. This study aimed to evaluate the use of uric acid level as a biomarker in predicting mortality outcomes in intensive care patients with fungal infections.
MATERIALS and METHODS: The data of 144 patients who were treated in the ICU for surgical or non-surgical reasons between 2018 and 2019 at the Dokuz Eylul University and who were found to have fungal infection were retrospectively analyzed. Patients older than 18 years of age who were hospitalized for the first time and stayed in the hospital for at least 24 hours, and the presence of fungal infection was included in the study. Demographic data, hospitalization diagnoses, comorbid diseases, inflammatory markers (crp, wbc, neu, serum uric acid levels, type of fungal infection, localization, hospitalization time and mortality results of the patients were evaluated.
RESULTS: 46% of the patients were women and 54% were men. Arrhythmia increases mortality 3.2 times ($p = 0.034$) and malignancy increases 3.7 times ($p = 0.009$). Increasing the Apache score increases mortality. Increased uric acid level increased survival 1.28 times ($p = 0.017$), while uric acid ≤ 2.3 mg/dl may be associated with high mortality ($p = 0.002$).
CONCLUSIONS: Fungal infections are common conditions in icu, increasing the length of stay and mortality. High uric acid level is a significant parameter in predicting mortality due to its antioxidant properties.
Keywords: Intensive Care, Mortality, Uric Acid

OP-021
THE ROLE OF HEMATOLOGICAL PARAMETERS IN PATIENTS WITH COVID-19 DIAGNOSIS

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OBJECTIVES: SARS-CoV-2 is a viral infection that is transmitted mainly through the respiratory tract and has a multisystemic effect, with high morbidity and mortality. We aimed to contribute to the use of SARS-CoV-2 in this disease by examining its effect on hematological parameters.
MATERIALS and METHODS: In the study, the complete blood count (CBC) data of 118 COVID-19 patients diagnosed with COVID 19 by PCR test and 206 trauma patients as the control group were used in the study. The data were taken from the hospital automation system. CBC analyzes were performed on Beckman Coulter DXH 800 device using laser method.
RESULTS: The tests showing parametric distribution were expressed as mean ± SD in the patient and control groups, respectively. For hemoglobin [13.23 ± 2.19; 2.29 ± 2.08; $p < 0.001$] for RBC [4.68 ± 0.74; 4.32 ± 0.66; $p < 0.001$]. The tests showing nonparametric distribution were expressed as median (min-max) in patient and control groups. Accordingly, WBC [6.9 (2.5-32.1); 9.25 (3.6-30.2); $p < 0.001$], neutrophil count [4.4 (0.2-29.6); 6.29 (2.38-27.24); $p < 0.01$)], Lymphocyte [1.5 (0-4.2); 1.66 (0.4-8); $p = 0.010$]. Eosinophil [0 (0.10.9); 0.10-1); $p < 0.001$], basophil [0.0 (0.0.2; 0.041 (0-0.21); $p < 0.001$] and monocyte 0.6 (0-2.4): 0.61 (0.2-1.6); $p = 0.06$) found as. Units Hgb (g/dL), Rbc (1012/L), WBC; neutrophil; Lymphocyte; Eosinophil, basophil, Monocytes (K/uL)
CONCLUSIONS: Among the hematological parameters in COVID-19 patients, WBC, neutrophil count, lymphocyte count, eosinophil count, basophil count were significantly lower, hemoglobin was significantly higher. Increased hemoglobin level may be a prognostic marker in patients diagnosed with COVID-19.
Keywords: COVID-19, SARS-CoV-2, Hematological Parameters

OP-022
COMPARISON OF ANTISTREPTOLYSIN O, NEUTROPHIL, MONOCYTE, AND BASOPHIL COUNTS TO ALBUMIN AND LYMPHOCYTE RATIOS IN PANIC DISORDER WITH HEALTHY CONTROLS

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OBJECTIVES: Although various hemogram and biochemistry parameters in panic disorder (PD) have been studied, the relationship of antistreptolysin O (ASO) and albumin with immune blood cells has not been investigated yet. PD causes various physiological symptoms such as palpitations, tremors, sweating, shortness of breath, numbness, and tingling. PB creates a general arousal-activity increase in the body. Considering that physiological changes may affect blood parameters, it was hypothesized that the hemogram and biochemistry parameters of PD patients will also differ compared to healthy people. In this study, we aimed to compare PD and healthy controls in terms of the ratios of the above mentioned parameters to each other.
MATERIALS and METHODS: In this retrospective study, the hemogram and biochemistry parameters of the PD and control groups measured with the "CELL-DYN 3700 SL Analyzer" and the "UniCel® DxI 800 Immunoassay System" were compared. Chi-square and independent samples t test were used. PD patients were selected from those who applied to the psychiatry outpatient clinic and had not used any medical drugs for at least the last six month. The healthy control group was selected from people who did not have any medical illness or medication. Forty-eight subjects with psychiatric or organic disorders other than PD were excluded from the patient group and 35 subjects from the control group.
RESULTS: The PD group consisted of 100 subjects (57 females, 43 males) and the control group consisted of 81 subjects (43 females, 38 males). The groups were similar in terms of mean age ($p=0.356$) and gender ($p=0.599$). While there were no significant differences between PD and control groups in terms of albumin ($p=0.452$), lymphocyte count ($p=0.960$), eosinophil count ($p=0.866$), lymphocyte to albumin ratio ($p=0.327$), eosinophil to lymphocyte ratio ($p=0.224$); there were significant differences between PD and control groups in terms of neutrophil ($p=0.002$), monocyte ($p=0.046$), basophil count ($p=0.003$), ASO to albumin ratio (AAR) ($p<0.001$), neutrophil to albumin ratio (NAR) ($p=0.002$), neutrophil to lymphocyte ratio (NLR) ($p=0.003$), monocyte to lymphocyte ratio ($p=0.032$) and basophil to lymphocyte ratio (BLR) ($p=0.008$).
CONCLUSIONS: Like many psychiatric disorders, PD is known to be associated with inflammation. ASO and such hemogram parameters are also reliable inflammation biomarkers. This study is the first study investigating the ratios of ASO, albumin and hemogram parameters. According to our study, biomarkers such as AAR, NAR, NLR, and BLR can be used to reflect the increased inflammatory status in PD.
Keywords: Antistreptolysin O, Panic Disorder, Albumin, Hemogram, Neutrophil to Lymphocyte Ratio

OP-023
EVALUATION OF ANTIOXIDANT AND ANTICANCER EFFECTS OF MALVA VERTICILLATA PLANT GROWING IN NORTH CYPRUS

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OBJECTIVES: The extractions of certain plant species such as *Malvaceae* had been a subject of interest because of their varying levels of antioxidant and anticancer activities, as well as being used as a remedy for a set of diseases. In this study, the leaves of *Malva verticillata* (*M. verticillata*) which is an edible plant growing in North Cyprus and known as "mallow" in public, are used to assess potential in-vitro antioxidant or anticancer effects. Currently any study demonstrating those potential activities of *M. Verticillata* plant that is growing in North Cyprus, has not been found in the literature.
MATERIALS and METHODS: The experimental study was carried out by using standard chemical assay procedures. The antioxidant effects of the methanol extract of *M.Verticillata* was measured by using standard chemical assay procedures: α-diphenyl-β-picrylhydrazyl (DPPH) free radical scavenging method, total phenolic content (TPC) and total flavonoid content (TFC) and anticancer activity was investigated on MCF-7 breast cancer cell line via MTT assay.
RESULTS: The highest antioxidant activity of *M. verticillata* methanol extract at the specified concentrations was found as 69.35% ± 3.3% at 70 mg / ml. At the same concentration (70 mg / ml), TPC was measured as 499 ± 7.5 µg/mg extract and TFC was calculated as 502 ± 1.8 µg/ml extract.
CONCLUSIONS: The conducted study serves evidence regarding the significant antioxidant and anticancer activities of *M. Verticillata* methanol extract.
Keywords: Anti-Cancer, Antioxidant, Malva Verticillata, MCF-7, North Cyprus

OP-024
DISCORDANCE BETWEEN THE CLAIMS AND THE EVIDENCE PROVIDED BY HIGH-IMPACT CELL CULTURE STUDIES

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OBJECTIVES: There is a robustness and reproducibility crisis in preclinical studies leading to decreased success rate in clinical trials, waste of resources and workforce. Cell culture studies dominating preclinical phase suffer from the crisis most severely and many approaches including cell line authentication, procedural standardization and design changes are suggested for improvement. In the current study we focused on another aspect of the problem and investigated if the evidence provided by preclinical studies is justified for their claims.

MATERIALS and METHODS: We retrieved cell culture studies published in 2017 or 2018 containing at least one preclinical claim via Web of Science. We selected the articles cited the most and created an online spreadsheet in which we included each preclinical claim of these articles as well as the evidence provided by the authors to support these claims. Then we investigated validity of 282 claims asserted by 121 high-impact articles.
RESULTS: We determined that the 110 of 282 claims (39%) lacks proper evidence, including 3 claims of apoptosis evidenced by tetrazolium reduction assay results. These claims without proper evidence were asserted by 68 unique articles each of which received 136 citations in average as of October 2020.
CONCLUSIONS: According to our findings there is an undeniable discordance between the claims and the evidence provided by high-impact cell culture studies. Researchers must be meticulous about the terminology as well as the sufficiency of the evidence provided by the chosen methods to support claims while designing or evaluating scientific work.
Keywords: Pre-Clinical, Cell Culture, Robustness, Reproducibility

OP-025
AN EXPERIMENTAL STUDY THAT INVESTIGATE EFFECTS OF ATRELEUTON IN METABOLIC SYNDROME

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OBJECTIVES: The inflammation, LDL oxidation, and insulin resistance play an important role in the development of metabolic syndrome (MetS). It was aimed to investigate the effects of atreleuton on serum lectin-like oxidized low-density lipoprotein receptor-1 (LOX-1), leukotriene B4 (LTB-4), insulin and glucose transporter 4 (GLUT-4) levels in fat tissue in rats modeled on Mets.
MATERIALS and METHODS: For this aim, MetS was induced in rats by a high-fructose and fat fed diet for 10 weeks. The rats were randomly divided into 3 groups: normal control (group 1, n=7), MetS control group treated with saline (group 2, n=8), MetS groups treated with atreleuton (1,25 mg/kg/day) orally for the last 4 weeks (group 3, n=8). The measurements of test parameters were performed by ELISA method.
RESULTS: The atreleuton caused to significantly decrease on levels of serum LTB-4 ($p<0.001$), LOX-1 ($p<0.01$), insulin ($p<0.01$), and homeostatic model assessment for insulin resistance (HOMA-IR) ($p<0.001$), while significantly increase on quantitative insulin sensitivity check index (QUICKI) ($p<0.01$). However, no significant difference in tissue GLUT-4 level was found ($p>0.05$).
CONCLUSIONS: In conclusion, the present study suggests that atreleuton might be a protect agent that improves the complications of MetS via decreased LTB-4 and LOX-1. The effects of atreleuton on tissue GLUT-4 pathway are also limited.
Keywords: Atreleuton, GLUT-4, Insulin Resistancei, LOX-1,LTB-4

OP-026
BENZIMIDAZOLIUM SALT AND BIOLOGICAL PROPERTIES

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OBJECTIVES: Imidazolium salts can be classified as ionic liquids (ILs). Imidazolium salts (IMSs) are best known for their application in organic synthesis in ionic liquids at room temperature or as precursors of stable carbens, but they also show important biological properties. A wide range of these salts have been used as anti-inflammatory, antibacterial, antifungal and thromboxane synthetase enzyme inhibitors. We aim to use the benzimidazolium salt we synthesized in the treatment of various diseases in medicine and in the pharmaceutical industry
MATERIALS and METHODS: The new benzimidazolium salt 1- (4- (tert-butyl) benzyl) -3- (2,2-diethoxyethyl) -5,6-dimethylbenzimidazolium bromide was synthesized according to the literature with alkyl halide in DMF [3] and 1-alkylbenzimidazole. Characterization of azolium salts was explained by 1H NMR, 13C NMR and microanalysis techniques. In the next step, biological activity (such as antibacterial, antifungal) properties were investigated according to the EUCAST method.
RESULTS: Antifungal and antimicrobial test results; Candida Albicans 50µg / ml, Candida Glabrata 200 µg / ml from yeast species with antifungal and antimicrobial activities subgroup of fungi, and Staphylococcus Aureus 12.5 µg / ml, Pseudomonas Aeruginosa 800 µg / ml, Escherichia Eoli 400 µg/ml bacteria species - MIC (µg / mL) 1) their values were calculated.
CONCLUSIONS: The compounds were characterized by NMR spectroscopy (1H- and 13C-NMR). When MIC values were examined, it was found that the most active activity showed activity against S. aureus bacteria. Activities at various intervals have also been observed in other bacteria and yeasts.
Keywords: Bezimidazolium Salts, Antimicrobial, Antibacterial

OP-027
OXIDATIVE STRESS AND PARAOXONASE ACTIVITY IN PREMATURE RETINOPATHY

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OBJECTIVES: The sharp transition from an intrauterine environment with low oxygen content to an environment with higher oxygen content after birth in premature babies exposes the baby to oxidative stress due to the low effectiveness of antioxidant protection. Autoregulation of the blood network of the retina is sufficient in a narrow perfusion pressure range in premature babies. Lack of autoregulation leads to retinal hyperoxia. The disruption in the balance of pro-oxidants and antioxidants initiates the inflammatory process in the retinal tissue that leads to the development of retinopathy of prematurity. Paroxonase 1 (PON 1) has antioxidant properties as it prevents the increase in the amount of reactive oxygen species by hydrolyzing lipid peroxidation products. It also protects the cell from damage caused by oxidative stress. Arylesterase (ARE)enzyme is accepted as the indicator of the main protein that is not affected by changes in PON 1. Assessment of total antioxidative stress (TAS) and total oxidative stress (TOS) in body fluid has been used as one of the biomarkers to monitor oxidative stress in humans. Our aim in this study is to investigate the effect of the development of retinopathy of prematurity on oxidant antioxidant balance and PON 1 serum level in preterm babies.
MATERIALS and METHODS: TAS, TOS, ARE and PON 1 at postmenstrual week 36 in preterm retinopathy (ROP) screening in babies born between August2018 and August2019 at 32 weeks and before blood serum levels were checked. The control group consisted of 16 patients, 11 babies with ROP were determined as the patient group. Results were compared between both groups.
RESULTS: There was no significant difference between the groups in terms of gender, birth weight and gestational week. When the TAS, TOS and ARE results were examined, no significant difference was found between the groups. PON was found statistically higher ($p=0.029$) in the group with retinopathy (62±48 U/L) compared to the control group (31 ± 18 U/L).
CONCLUSIONS: Newborns, especially preterm babies, are at an increased risk of injury mediated by oxidative stress. Vascular dysregulation of the retina and reduced ocular perfusion result in hypoxia. When hypoxia continues for a long time, the regulation mechanisms of the cell are disrupted.As a result, reactive oxygen derivatives and free radicals and Vascular endothelial growth factor (VEGF) increase. It is known that VEGF is responsible for normal retinal vascularization, stops retinal vasoproliferation by decreasing at high oxygen levels and then is released from endothelial cells in response to hypoxia and causes neovascularization. In our study, possible compensatory increase in PON1 in preterm babies made the baby think of a protective factor from oxidative stress. We thought that PON could be a more reliable marker in terms of antioxidant protection in premature retinopathy. Further studies with more patients are needed to determine this.
Keywords: Premature Retinopathy, TAS, TOS, Arylesterase, Paraoxonase

OP-028
DETERMINATION OF ANTIOXIDANT EFFECTS OF SILYBUM MARIANUM (THISTLE) AND ARTEMISIA ABSINTHIUM (WORMWOOD) PLANTS

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OBJECTIVES: Beacause of growing anxiety on synthetic antioxidants. Plants which has antioxidant structre, it is started to concern. As a result of metabolic activity in all cell reactiving oxidation, free radicals are formed, antioxidants press to free radicals, it has very important functions about press to oxidative stress. Purpose of this study, being searched of antioxidan activitive to harbs extraction for Silybum Marianum (Milk thistle) and Artemisia Absmthium(wormwood).
MATERIALS and METHODS: Silybum marianum and Artemisia Absmthium gathered around Kahramanmaras country between June 2020-October 2020 dates. After dived plants specimens are pulverized with a mechanical grinder, getting 10 gr as sample extracded with 100 ml %70 methanole and then fixed in herbs extraction same methods like catalase (CAT), superoxcid dismutase (SOD) enzym activites oxidative stress, indicator of oxidative stress malondialdehyde.
RESULTS: It was found SOD;679,06±0,98 U/g CAT;121,1±0,21 U/g and MDA;52,45±0,12 nmol/g for Silybum marianum plants and it was found SOD;592,3±0,65 U/g, CAT;98±0,33 U/g and MDA;69,8±0,11 nmol/g for Artemisia absthium plant. Compering the results of Silybum marianum and Artemisia absthium plants, it was found to have higher antioxidant capacity of silybum marianum plants.
CONCLUSIONS: Silybum marianum and Artemisa absthium plants have antioxidant capacity. Silybum marianum plants is more effective than artemisia

absthium plant. It is thought that herbs which we used in this study, will lead complementery medicine studies.
Keywords: Silybum Marianum, Artemisia Absinthium, Antioxidant

OP-029
EVALUATION OF SUITABLE ANTICOAGULANT AND DIFFERENT ENVIRONMENTAL CONDITIONS FOR ADRENOCORTICOTROPIC HORMONE MEASUREMENT

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OBJECTIVES: Adrenocorticotropic hormone (ACTH) is unstable in whole blood due to proteolytic degradation. Therefore, the samples must be stored on ice until centrifuged, centrifuged in a cooled centrifuge and analyzed within one hour. In this study; it was aimed to evaluate and compare how different anticoagulants, stored blood at different temperatures and times affect values in ACTH measurement.
MATERIALS and METHODS: Blood was drawn into EDTA, citrate, heparin and serum tubes from 8 healthy volunteers. Samples were centrifuged for 10 minutes in a cooled centrifuge at 4000 rpm. Samples were analyzed on Roche Cobas®8000. ACTH values of samples taken to other tubes were compared with routine EDTA tube. In addition, 8 plasma samples into EDTA tubes were stored taken at +4°C for 2, 8 and 24h; stored at the room temperature for 60, 90, 120 and 240 minutes. The results were compared with the values measured without waiting at +4 °C and room temperature (standard conditions). A change of more than 10% in ACTH concentration was considered clinically significant.
RESULTS: Statistical analysis was performed with SPSS version 23.0 software Normality of the data repeated measurements were evaluated with the ANOVA test. ACTH concentrations were 5.6- 73 pg/mL. When compared with the standard conditions, a statistically significant difference ($p<0.05$) was determined in the ACTH values of the samples using different anticoagulants, stored at room temperature and +4°C. ACTH values measured in only serum tube didn't differ clinically significant. Bias% was observed as 7.23 for serum. Clinically significant difference wasn't showed in samples stored at room temperature for up to 120 minutes. A clinically significant difference was observed in the samples stored at +4°C for 24h (-15.77%).
CONCLUSIONS: Since there is no clinically significant difference, it has been suggested that a more practical and widely used serum tube may be preferred as an alternative to EDTA tube. In addition, plasma samples whose ACTH values are compared store at different temperatures; It has been determined that it may store for 2 hours at room temperature and 8 hours at + 4°C.
Keywords: ACTH, Anticoagulant, Temperature

OP-030
THE EFFECTS OF VARIOUS PLANT GROWTH REGULATORS ON OVARY CULTURE IN PHASEOLUS VULGARIS L

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OBJECTIVES: This research aims to understand whether obtaining the entire plant from the ovary culture of *Phaseolus vulgaris* L. is possible using different concentrations and combinations of kinetin, 2,4-D, and activated charcoal in this study. Totally 40 different media were tested on 10 bean genotypes. This study›s second aim addresses another area that has received any attention in the literature: ovary culture in Turkish bean genotypes.
MATERIALS and METHODS: Unfertilizated ovaries of bean genotypes were picked on the day of anthesis, sliced in sterile conditions, and then cultured on MS medium supplemented with different concentrations of kinetin (0, 0.5, 1.0, 2.0 mg L^{-1}), 2,4-D (0, 0.5, 1.0, 2.0 mg L^{-1}), and activated charcoal (0, 0.5, 1.0 mg L^{-1}). Ovary explants were incubated at 26°C, having 4000 lux light density, possessing a 16/8 h light/ dark photoperiod for 2 months. The polyploidy level of the samples cultured was analyzed by flow cytometry analysis. The reaction rate of samples was determined by applying variance analysis in the MSTAT-C statistical package program.
RESULTS: As a consequence of ovary culture, callus formation occurred in all samples cultured, and the highest callus induction rate was 15.8% and obtained from MS, including Kinetin (2.0 mg L^{-1}) and 2,4-D (0.5 mg L^{-1}). All samples were diploid. No regeneration existed on the samples cultured in media, including activated charcoal.
CONCLUSIONS: Although ovary culture has been widely conducted in various plant species, to date there is no consideration has been given to the ovary culture of local genotypes of *P. vulgaris* L.
Acknowledgments: The study described here was carried out within the Project (No. 119O003) funded by the Scientific and Technological Research Council of Turkey (TUBITAK)
Keywords: 2,4-D, Activated Charcoal, Kinetin, Phaseolus Vulgaris L.

OP-031
GLUCOSE-POTASSIUM RATIO IN THE DIAGNOSIS OF POLYCYSTIC OVARY SYNDROME

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OBJECTIVES: Screening in individuals with polycystic ovary syndrome (PCOS) is necessary to minimize long-term risks and metabolic morbidity. In the study, the biochemical analysis value of glucose-potassium (Gp) ratio in individuals with PCOS was investigated.
MATERIALS and METHODS: The research was designed as a retrospective laboratory analysis study. According to the study criteria, 44 PCOS patients and 38 healthy individuals participated in the study. The Gp ratio was calculated by dividing venous blood fasting glucose by the potassium value.
RESULTS: Compared to the control group, the Gp value was significantly higher in PCOS ($p<0.0001$). The area under the ROC curve for Gp ratio was 0.811 ($p<0.001$). According to the ROC analysis, the cut-off value of the Gp ratio for PCOS diagnosis was calculated as 19.7 at 79% sensitivity and 83% specificity.
CONCLUSIONS: The Gp ratio showed strong sensitivity and specificity for PCOS, which showed that it might have a diagnostic value for PCOS.
Keywords: Polycystic Ovary, Glucose-Potassium Ratio, Index, Marker

OP-032
INVESTIGATION OF THE EFFECT OF METFORMIN ON GROWTH ARREST SPECIFIC PROTEIN 6, AXL AND SAXL PATHWAYS IN PATIENTS WITH TYPE 2 DIABETES

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OBJECTIVES: Gas6/Axl signaling to be roles in regulating tissue homeostasis, inflammatory cytokine release, vascular disease, carcinogenesis and metabolic disorders associated with glucose intolerance. This research aimed to investigate the effects of Metformin and Metformin-Insulin combination, which are used in Type 2 Diabetes (T2DM) treatment on Growth Arrest Specific Protein 6, Axl and sAxl.
MATERIALS and METHODS: Patients applied to Erciyes University Faculty of Medicine who were diagnosed with T2DM, will start metformin treatment and will start using insulin in combination with metformin are prospectively evaluated. Patients were divided into 4 groups as the Control group, Prediabetic group, Metformin group, Metformin + Insulin group. Gas6, Axl and sAxl levels within patients' serums obtained from their 0. month and 6. month blood samples were measured according to ELISA method.
RESULTS: In our study, no statistically significant change was found in the values of Gas6, Axl and sAxl in the groups who did not receive medication. However, there was a statistically significant decrease in Gas6 and Axl values for those diagnosed with T2DM; the Met group, who were diagnosed with T2DM, using metformin, and Met+Ins group whose metformin treatment was not sufficient and insulin was added to their treatment. On the other hand, there was no statistically significant change in sAxl values for these two group of patients.
CONCLUSIONS: While Metformin, used in the treatment of T2DM, is regulating the blood glucose levels, it is thought to inhibit the Gas6/Axl pathway with various mechanisms. We think that this study will be clinically useful in designing therapeutic approaches targeting Gas6/Axl.
Keywords: Gas6, Axl, sAxl, Tip 2 Diabetes Mellitus

OP-033
THE ASSOCIATION OF SERUM 15D-PGJ VE PPAR GAMMA LEVELS WITH METABOLIC SYNDROME IN PATIENTS WITH SCHIZOPHRENIA

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OBJECTIVES: Many hypotheses have been proposed for the development metabolic syndrome in patients with schizophrenia, including the one proposing that exogenous and endogenous factors are linked to metabolic processes.. In this study, it was aimed to examine the levels of serum 15d-PGJ and PPARγ levels in schizophrenia patients in order to elucidate the metabolic syndrome (MS).
MATERIALS and METHODS: Fourty patients with schizophrenia and fourty

healthy controls were included in the study. According to ATP-III A criteria, 8 (20%) of 40 patients has MS. Serum 15d-PGJ and PPAR gamma levels of schizophrenic patients with MS have been compared with both healthy controls and schizophrenia patients without MS.
RESULTS: Serum 15d-PGJ and PPAR gamma levels were significantly lower in schizophrenia patients without MS with respect to the healthy control group.There is no significant statistical difference between schizophrenia patients with MS and schizophrenia patients without MS in terms of 15d-PGJ and PPAR gamma levels. And there is no significant statistical difference between schizophrenia patients with MS and the control group.
CONCLUSIONS: In our study, the fact that 15d-PGJ and PPAR gamma levels were significantly lower in schizophrenia patients without MS with respect to the healthy control group does not comply with the literature.This suggests that the findings may be related not only to the MS but also to the pathogenesis of schizophrenia. It will be useful to examine the prostaglandin receptor relations with the data obtained from future studies in terms of understanding how the metabolic syndrome affects the etiology of the disease in schizophrenia.
Keywords: Schizophrenia, 15d-PGJ, PPAR Gamma, Metabolic Syndrome

OP-034
ACADEMIC EXAMINATION STRESS: EFFECTS ON SALIVARY CORTISOL, NEUROPEPTIDE Y AND INTERLEUKIN-1β

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OBJECTIVES: Saliva is one of the preferred non-invasive body fluid for the biomarker studies. The aim of this study is to investigate the possible alteration of stress biomarkers of the students before and after the examinations by using cortisol, neuropeptide Y (NPY) and Interleukin-1β (IL-1β) salivary levels.
MATERIALS and METHODS: Forty-four adults were included in the study and divided to two groups as pre-stress (Group I) and post-stress (Group II) groups. Salivary samples were collected between 8-9 am in the morning before the exam and after the exam that was ended at 5 pm by SARSTEDT saliva collection tubes. Participants were asked to soak the swab with saliva and take out after 1 minute. Swabs were kept 15-30 minutes at room temperature and centrifuged for 10-15 min at 1500 g. Salivary cortisol (ng/mL), NPY (ng/mL) and IL-1β (pg/mL) levels were analysed by Enzyme-linked immunosorbent assay (ELISA).
RESULTS: The salivary cortisol, NPY and IL-1β levels were significantly increased in Group II compared to Group I (9.65±4.53 ng/mL, 6.37±4,14 ng/mL, p <0,019; 27.10±4.71 ng/mL, 32.12± 4.69 ng/mL,p <0,001; 11.69±3.61 pg/mL, 7.20±3.49 pg/mL, p <0,001, respectively). The IL-1β levels were positively and significantly correlated with the salivary cortisol and NPY levels in Group II (r=0.642, p=0.03; r=0.589, p=0.004, respectively). Also, IL-1β levels were positively and significantly correlated with salivary NPY levels in Group I (r=0.430, p=0.04).
CONCLUSIONS: These data indicated that acute stress can alter inflamatory response and increase NPY release which is positively associated with cortisol.
Keywords: Saliva, Neuropeptide Y, Interleukin-1β, Stress

OP-035
PREDICTION OF LDL CHOLESTEROL CONCENTRATION BY ARTIFICIAL INTELLIGIENCE

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OBJECTIVES: Low-density lipoprotein cholesterol (LDL-C), an evidence-based target for cardiovascular risk management, can be estimated by Friedewald and Martin-Hopkins formulas. We developed alternative LDL-C prediction models using multiple artificial intelligence methods and investigated the validity of the new models, Friedewald and Martin-Hopkins formulas in the Turkish population.
MATERIALS and METHODS: The laboratory data (n: 58030) of directly measured LDL-C, high-density lipoprotein cholesterol, triglycerides (TG), and total cholesterol were partitioned into train and test data. Linear regression, gradient boosted trees, and artificial neural network models were formed from train data. The homogenous assay was regarded as a reference method for models' training. Group comparisons, correlation, and regression analysis of LDL-C prediction models were performed for the different TG concentrations range from test data. LDL-C classification performances were evaluated for essential LDL-C concentration ranges.
RESULTS: For TG levels < 177 mg/dL, Friedewald, Martin-Hopkins formulas, and other models agreed with the homogenous assay. For TG levels ≥ 177 mg/dL, the Friedewald formula underestimated and the Martin-Hopkins formula overestimated LDL-C (p<0.001), which was substantial for LDL-C < 70 mg/dL. Linear regression, gradient boosted trees, and artificial neural network models outperformed Friedewald and Martin-Hopkins formulas for TG≥177 and LDL-C<70 based upon comparison (p>0.001) with homogenous assay and classification accuracy.
CONCLUSIONS: Friedewald and Martin-Hopkins formulas are valid for TG levels < 177 mg/dL. However, linear regression, gradient boosted trees, and artificial neural network models offer more accurate alternatives to the Friedewald and Martin-Hopkins formulas, especially for TG levels 177-399 mg/dL and LDL-C levels < 70 mg/dL.
Keywords: Low-Density Lipoproteins, Cholesterol, Lipid, Artificial Intelligence, Machine Learning

OP-036
RELATIONSHIP BETWEEN MEAN PLATELET VOLUME-LYMPHOCYTE RATIO IN PATIENTS WITH CORONARY ECTASIA

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OBJECTIVES: Inflammation markers may play a part in the pathogenesis of coronary artery ectasia (CAE).The aim of this study was to investigate the relationship between, the mean platelet volume to-lymphocyte ratio (MPVLR) an easily available inflammatory marker, and CAE.
MATERIALS and METHODS: After applying the exclusion criteria, the retrospective study population consisted of 184 patients, including 88 patients with isolated CAE, and 96 with normal coronary artery angiograms (NCA). The MPVLR and mean platelet volume (MPV) were measured as part of the automated complete blood count. The severity of isolated CAE was determined according to the Markis classification. SPSS 24.0 statistical package program was used for data analysis
RESULTS: Baseline demographic characteristics and medical history of groups were similar. The level of MPV (10.83±1.13 vs 10.04±1.12 vs;p<0.001), MPVLR (5.38±2.54 vs 4.87±2.27; p:0.042) were significantly higher in CAE group than control subjects. In ROC analysis, a cut-off value of 4.49 for MPVLR had an 71% sensitivity and a 62 % (Area Under Curve [AUC]: 0.695 95%CI 0.616 – 0.714; p:0.000<0.001).
CONCLUSIONS: To the best of our knowledge, this study showed for the first time that MPVLR was significantly associated with CAE.
Keywords: Coronary Artery Ectasia, Inflammation, Platelet-to-Lymphocyte Ratio

OP-037
THE EFFECT OF TRAUMA ON SERUM BDNF LEVELS IN SPORTSMEN

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OBJECTIVES: BDNF has an important role in neuron development and maintenance of functions. In this study, it was aimed to investigate the effects of acute and chronic trauma on serum BDNF levels.
MATERIALS and METHODS: Serum BDNF levels were determined in 40 male elite athletes (boxing; n:10, teakwando; n:10, wrestling; n:10, soccer; n:10) before and after vigorous exercise (training match) with a high probability of being traumatized to the head region; and in 10 sedentary men (control group) before and after exercise (Astrand running protocol).
RESULTS: Serum BDNF levels were found as 11,50±5,00 ng/ml ng/ml before exercise and 14,02±6,29 ng/ml after exercise in the athlete group (p=0,02); and 12,18±6,55 ng/ml before exercise and 11,74±1,48 ng/ml in the sedentary group respectively (p=0,873). Serum BDNF levels before exercise (baseline) were slightly lower in the athlete group than those in the sedentary group (11,50±5,00 and 12,18±6,55 ng/ml, respectively), but the difference between groups is not significant (p=0,796).
CONCLUSIONS: As a result of the comparison of the values before and after exercise in the athlete groups, it was observed that serum BDNF levels did not decrease after acute trauma and exercise had an increasing effect on BDNF levels. As a result of the comparison of pre-exercise (baseline) values of athletes and sedentary individuals, it was seen that the chronic effects of trauma did not significantly reduce serum BDNF levels in athletes. Even if athletes are exposed to acute trauma, they may be protected from the chronic effects of trauma thanks to the protective effect of their non-sedentary lifestyle.
Keywords: BDNF, Exercise, Trauma

OP-038
HYPOTHYROIDISM AND BONE REMODELING: CONSTRUCTION OR DESTRUCTION?

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OBJECTIVES: Thyroid hormones affect multiple organ systems and bone metabolism may be closely related to thyroid dysfunction. There are contradictory results in the literature regarding the production-destruction effects of TSH levels on bone turnover. In this study, we aimed to investigate the relationship between thyroid function tests and osteocalcin, parathyroid hormone (PTH), phosphorus, calcium and alkaline phosphatase (ALP) levels as markers of bone metabolism
MATERIALS and METHODS: The data of patients (n=182, age>18) who applied to Eskisehir Osmangazi University Hospital between January 2015 and November 2019 were used retrospectively. Patients with any bone disease, chronic disease and malignancy were excluded from the study. All data were evaluated statistically using SPSS 21 package program. The patients were divided into two groups according to their TSH levels and the markers were compared between these groups.Results are shown with median values of 25-75% and percentile. P<0.05 values were considered statistically significant.
RESULTS: There were 115 (66 men, 49 women) patients (TSH=0.27-4.2 µIU/ml) in the euthyroid group and 67 (34 men, 33 women) patients (TSH>4.2 µIU/ml) in the subclinical hypothyroidism group. Serum osteocalcin (ng/mL) and PTH (pg/mL) levels were higher in the hypothyroid group (26,35 [18,98-41,31] ve 51,54 [39,52-79,04], respectively) than in the euthyroid group (22,54 [18,25-32,16] ve 42,85 [31,80-62,67], respectively) (p <0.05). There was no statistically significant difference in ALP (U/L), phosphorus and calcium (mg/dL) levels between the groups
CONCLUSIONS: In subclinical hypothyroidism, high bone mass accompanying elevated TSH levels may be caused by increased osteocalcin levels. The increase in PTH levels may be due to the apoptosis inhibitory feature of osteoblast cells. Monitoring of bone markers in patients with subclinical hyperthyroidism who are treated to suppress TSH levels may be important in maintaining bone turnover homeostasis.
Keywords: Thyroid Dysfunction, Osteocalcin, PTH, ALP, Bone Metabolism

OP-039
THE ROLE OF ADROPIN AND IRISIN IN NONALCOHOLIC HEPATOSTEATOSIS IN THE PREOBESE AND OBESE INDIVIDUALS

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OBJECTIVES: Nonalcholic fatty liver disease (NAFLD) is a disease that is considered to be the hepatic appearance of metabolic syndrome, which can be seen in healthy people with higher rates of obesity and type 2 diabetes. It was investigated the relationship between serum irisin and adropin levels withhepatosteatosis in preobese and obese adults with NAFLD.
MATERIALS and METHODS: A total of 89 individuals were divided into four groups. Group 1; healthy people with normal weight (n=25) (Body mass index (BMI); 18,5 m2/kg -24,9 m2/kg), Group 2; preobez(BMI; 25 m2/kg - 29,9 m2/kg) and obese (BMI m2/kg ≥ 30) individuals (n=17) without NAFLD, Group 3; preobese and obese individuals with grade 1 hepatosteatosis (n=24) with NAFLD and Group 4; preobese and obese individuals with grade 2 hepatosteatosis with NAFLD (n=23). Demographic data of all subjects were recorded. Abdominal ultrasonography and anthropometric measurements were performed. Serum adropin and irisin levels were carried out by ELISA method.
RESULTS: The serum adropin and iris levels were lower in group 3 and 4 with NAFLD than healthy group (Group 1) (p=0.006, p=0.001, respectively). However, adropine and irisin levels were similar between groups 3 and 4 with NAFLD.
CONCLUSIONS: The reduction in serum adropin and irisin levels may play a role in the development of NAFLD regardless of the severity of the disease in preobese and obese individuals however this reduction is not associated with the severity of the disease.
Keywords: Nonalcoholic Fatty Liver Disease (NAFLD), Obesity, Adropin, Irisin

OP-040
MEASUREMENT OF TWEAK LEVELS, WHICH IS AN INDICATOR OF ENDOTHELIAL DYSFUNCTION, BEFORE AND AFTER RADIOACTIVE IODINE TREATMENT

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OBJECTIVES: Tumor necrosis factor-like weak inducer of apoptosis (TWEAK) is a member of the tumor necrosis factor (TNF) superfamily. Soluble form (sTWEAK) can be detected in plasma and has been shown to be associated with various diseases such as atherosclerosis, auto-immun diseases including hashimoto tiroiditis and graves orbitopathy. Moreover, radioactive iodine (RAI) treatment is accused of atherosclerosis with the evidence of increased intima media thickness of carotid artery independent of age and sex. As a novel biomarker of atherosclerosis and endotelial dysfunction, we aimed to evaluate the TWEAK levels before and after the RAI treatment for thyrotoxicosis.
MATERIALS and METHODS: This study was conducted with 26 patients who underwent RAI treatment for thyrotoxicosis. Hyperthyroidism was diagnosed according to thyroid function tests, thyroid ultrasonography,scintigraphy and radio-iodine uptake tests. Toxic nodular goitre, toxic multinodular goitre and relapses of toxic diffuse goitre were randomly assigned. Tweak levels were analyzed with ELISA method. Serum TSH, fT3, fT4 levels were assessed using a direct chemiluminescence immunoassay. Tweak levels before and 3 months after RAI treatment were recorded. Euthyroidism was restored at 3 months of treatment. Wilcoxon test was used to compare Tweak levels before and after RAI treatment. Carotis intima media thickness is measured in a small proportion of the patients, so, was not given in the abstract of the study.
RESULTS: Mean age was found 56 ± 12,3 years. The median Tweak levels before treatment was found 82 (22-564) pg/ml and after treatment was 76 (26-454) pg/ml. The median TSH levels (p<0,01) and free T3 levels (p:0,01) were found to be different while free T4 (p:0,06) and Tweak levels (p: 0,84) were found to be same before and after treatment.
CONCLUSIONS: Although Tweak was suggested to be a biomarker for RAI induced endotelial dysfunction and atherosclerosis, we did not find such a difference for Tweak levels. The short time (3 months) elapsed from the RAI treatment could be a reason for our findings. Further studies on the long term of evaluation will further clarify the effectiveness of this novel biomarker for atherosclerosis.
Keywords: Thyrotoxicosis, Radioactive Iodine Treatment,Tweak, Atherosclerosis

OP-041
THIOL/DISULPHIDE HOMEOSTASIS IN PATIENTS WITH HASHIMOTO'S THYROIDITIS

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OBJECTIVES: Hashimoto's thyroiditis is a common cause of goiter and acquired hypothyroidism in individuals residing in areas of no iodine deficiency. Thiol/disulphide homeostasis is crucial in antioxidative protection, detoxification, cell growth and apoptosis. It is believed that this homeostasis plays a very significant role in immune etiopathogenesis and the thiol/disulphide imbalance triggers the disease through oxidative stress and tissue inflammation. In this study, we aimed to investigate thiol/disulphide homeostasis in patients with Hashimoto's thyroiditis (HT).
MATERIALS and METHODS: A total of 112 HT patients and 120 healthy individuals were included in this study. The diagnosis of HT was determined according to the presence of parenchymal heterogeneity in thyroid ultrasonography and anti-TG and/or anti-TPO positivity in serum. Age (18-55 years for patients, 25-55 years for controls), gender, TSH, anti-TPO, anti-TG, HDL cholesterol, and triglyceride levels were recorded. Anti-TPO and Anti-Tg were evaluated with chemiluminescence immunoassay. Thiol-disulfide homeostasis parameters were measured through automated spectrophotometric methods.
RESULTS: The TSH, anti-TPO and anti-Thyroglobulin, total thiol and disulphide levels, and also the levels of disulfide/total thiol and disulfide/native thiol were found to be significantly higher in Hashimoto patients when compared to controls (p<0.05); however, the native thiol levels were lower (p<0.05). While there was a negative correlation (r=-.859) between disulfide and native thiol, a positive correlation (r=.542) was detected between disulfide and total thiol.
CONCLUSIONS: Thiol-disulfide balance in Hashimoto patients changes in favor of oxidants. Thiol-disulfide data may play an important role in observing the oxidative damage occurring in Hashimoto patients.
Keywords: Hashimoto's Thyroiditis, Oxidative Stress, Thiol/Disulphide Balance

OP-042
IMPACT OF THE COVID-19 INFECTION ON THE PEOPLE WITH G6PD DEFICIENCY IN RELATION TO THE HEMOGRAM AND BIOCHEMISTRY RESULTS

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OBJECTIVES: COVID-19 has become the major public health problem since December, 2019 worldwide and no treatment or vaccine have been found until now. Elderly population and people with secondary diseases such as diabetes, cancer, hypertension, cardiovascular diseases, endocrine diseases and metabolic syndrome. However people without comorbidities or individuals belonging to the young population have died because of COVID-19 infection. We have suggested that people with enzyme deficiencies including glucose-6 phosphate dehydrogenase (G6PD) deficiency may become more vulnerable against COVID-19 infection.
MATERIALS and METHODS: We have evaluated hemogram and biochemistry results of two male patients at the same age and one them is diagnosed as G6PD deficiency.
RESULTS: Serum biochemistry and inflammation markers including CRP, fibrinogen, D-Dimer, total bilirubin, lactate, ALT, AST, ferritin, glucose and eGFR increased in the G6PD deficient patient, where CK levels decreased. WBC, MCH, Hgb, lymphocyte #, lymphocyte %, eosinophil %, basophil %, HCT and PLT levels as hemogram parameters decreased in the G6PD deficient upon COVID-19 infection, however monocyte % and RDW levels increased during infection. On the other hand, magnesium, sodium, potassium, calcium and levels were evaluated in both patients to evaluate electrolyte balance. Only calcium levels decreased in G6PD deficient patient within 2 weeks following diagnosis.
CONCLUSIONS: Clinical data showed that COVID-19 infection causes severe symptoms in the G6PD-deficicent patients. Our clinical report is important, because we have showed that currently used drugs may worsen COVID-19 symptoms in the G6PD deficient patients infected by COVID-19.
Keywords: COVID-19, Oxidative Stress, Hemogram, Biochemistry, G6PD Deficiency

OP-043
RETROSPECTIVE COMPARISON OF PATIENTS WITH COVID-19 AND NORMAL INDIVIDUALS IN TERMS OF BIOCHEMISTRY PARAMETERS

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OBJECTIVES: Coronavirus disease 2019 (COVID-19) is an infectious disease caused by a newly discovered type of coronavirus, identified as “severe acute respiratory syndrome coronavirus 2” (SARS-CoV-2). COVID-19 was declared a global epidemic by the WHO on March 11, 2020. The aim of this retrospective study is to evaluate the differences and correlations of biochemical parameters in blood between individuals with COVID 19 and other patients.
MATERIALS and METHODS: 294 individuals with COVID-19, including 148 women and 146 men, participated in the study, and a control group of 294 people, 157 women and 134 men, participated. The COVID-19 group was selected among people who were diagnosed with COVID-19 through PCR at the Infectious Diseases department of Gazi University Medical Faculty Hospital between April, May and June 2020. The control group was selected from patients who had not been diagnosed with COVID through PCR before and who did not have known chronic disease or any kind of malignant neoplasms registered in the system. The ethics committee permission was obtained from Gazi University Clinical Research Ethics Committee. Blood biochemistry parameters of the two groups; Glucose, BUN, Creatinine, Total cholesterol, HDL cholesterol, Triglyceride, TSH, T4, Insulin, Serum iron, Serum iron binding capacity, Ferritin, Vitamin B12, Folic acid, Calcium, Sodium, Potassium, Chlorine, AST, ALT, GGT, ALP, Procalcitonin, D dimer, CRP, Sedimentation, Fibrinogen were retrospectively analyzed.
RESULTS: The mean age was 44,44 in the COVID-19 group, whose ages ranged from 18 to 90, and the mean age was 39,23 in the control group, whose ages were between 18 and 83. According to our study; AST (n:577), GGT (n:520), ferritin (n:231), glucose (n:410), creatinine (n:580), calcium (n:475), sodium (n:578) and potassium (n:567) values were significantly different between COVID-19 patients and the control group (p<0,05).
CONCLUSIONS: There are many unknowns in COVID-19. Our study shows the biochemical blood parameters of patients with COVID-19 at early stages of the disease. In order to better understand the damage caused by Sars-Cov-2 to the human body, it is very important to follow up with patients in the long term. Our study has limitations due to its retrospective nature, some parameters were not analyzed in the number of persons in equal proportions in both groups. Biochemical analytes such as D-Dimer, Fibrinogen, Procalcitonin, which determine prognosis, were examined in the COVID-19 group, although very few individuals in the control group were examined. Therefore, it may not have given meaningful results.
Keywords: COVID-19, Biochemistry, Blood parameters

OP-044
THE RELATIONSHIP BETWEEN CLINICAL CHARACTERISTICS OF COVID-19 PATIENTS AND HYPOALBUMINEMIA

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OBJECTIVES: We aimed to investigate the relationship between hypoalbuminemia and the clinical features of COVID-19 patients with common systemic inflammation.
MATERIALS and METHODS: This study was conducted retrospectively by examining the records of patients who were hospitalized between March 16 and May 1, 2020 due COVID-19 disease and whose diagnoses were confirmed by RT-PCR test. A total of 520 adult patients, 263 patients with hypoalbuminemia (<3.5 g/dL) for whom albumin test was requested during their first hospitalization and 257 patients with normal albumin levels, were included in the study.
RESULTS: 288 (55.4%) of the patients included in the study were male, and 232 (44.6%) were female. Average age of the patients was 59.1±16.2. The findings related to age, hypertension, diabetes, cardiovascular diseases, chronic renal disease, cough and shortness of breath findings were significantly different between the hypoalbuminemic group and the group with normal albumin levels (p<0.05). Multivariate logistic regression analysis revealed that age at admission (relative risk (RR) = 1.036, 95% confidence interval (CI) = 1.016-1.056, p<0.001), albumin (RR = 0.233, 95% CI = 0.131–0.378, p<0.001) and respiratory rate of 30/min (RR = 8.769, 95% CI = 3.322–23.146, p<0.001) parameters were each important independent predictors of mortality. In addition, Kaplan-Meier survival analysis showed that patients with albumin value less than 3.5 g/dL cut-off value were significantly more likely to develop mortality (log-rank, p<0.001).
CONCLUSIONS: We think that low serum albumin levels at admission reflected the severity of systemic inflammation in COVID-19 patients and are associated with the poor clinical course of the disease.
Keywords: COVID-19, Hypoalbuminemia

OP-045
HEMOGRAM PARAMETERS IN PREDICTING THE NEED FOR INTENSIVE CARE IN COVID-19

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OBJECTIVES: The number of COVID-19 infected patients has exceeded 40 million and deaths has exceeded 1 million. While the disease is mild in most people, it can be serious and mortal in few. Laboratory findings of the patients are important in terms of course and severity of disease. The aim of this study is to examine the relationship between hematological parameters and clinical course of patients
MATERIALS and METHODS: Routinely studied parameters were evaluated from 222 patients who applied to Sisli Hamidiye Etfal Training and Research Hospital with positive COVID-19 PCR test. Patients were followed up and categorized as those in need of intensive care (n = 37) and those who did not (n = 185). The data were analyzed in SPSS program.
RESULTS: There was a significant difference between groups in terms of age (p <0.001) and gender (P = 0.023). Neutrophil, RDW, PDW, MCV, NLR (neutrophil / lymphocyte ratio), PLR (platelet / lymphocyte ratio), NMR (neutrophil / monocyte ratio), procalcitonin, CRP and D-dimer values were significantly higher in patients requiring intensive care, while hemoglobin and hematocrit values were found to be significantly lower. When the values adjusted according to age and gender were examined, significant difference was observed in only neutrophils [1.22 (1.08-1.38), p = 0.001], Hb [0.97 (0.95-0.99), p = 0.002], NMR [1.05 (1.02-1.09), p = 0.001], CRP [1.00 (1.00-1.02), p = 0.003], D-dimer [1.00 (1.00-1.02), p = 0.037] parameters.
CONCLUSIONS: In terms of showing course of COVID-19, the most

valuable indicator among laboratory parameters at the time of admission is neutrophil count, and it was found that 75% sensitivity (95%Cl;57.8-87.9] and 78.92% specificity [95%Cl;72.3-84.6] for 0,814 cut-off value.
Keywords: COVID-19, Intensive Care Unit

OP-046
THIOL-DISULPHIDE HOMOEOSTASIS IN COVID-19: EVALUATION OF RELATIONSHIP WITH COMPLETE BLOOD COUNT PARAMETERS

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OBJECTIVES: It was aimed to evaluate the relationship between thiol-disulfide homoeostasis, and the hemogram parameters and intensive care treatment need in COVID-19 patients.
MATERIALS and METHODS: Total thiol (TT), Native thiol (NT), dynamic disulfide status (DDS), DDS/NT, DDS/TT, NT/TT ratio and CBC parameters were analyzed in 68 patients with positive COVID-19 (33 wards and 35 intensive care units) and 31 healthy individuals, The relationship of these parameters with intensive care and mechanical ventilation needed, survival and death of the patients were examined.
RESULTS: TT, NT, DD, hemoglobin and hematocrit levels were higher in the control group than in patient groups. TT, NT, DD and lymphocyte levels of COVID-19 patients treated in the ward were higher than those treated in intensive care; WBC, neutrophil and NLR were low ($p<0.05$). PLR was higher in only intensive care patients than in the control group ($p<0.05$). When COVID-19 patients who do not need mechanical ventilation are grouped according to survival and death at the end of the process; TT, NT, DDS and lymphocyte levels were higher in survivors; WBC, Neutrophil, PLR and NLR were lower ($p<0.05$). When evaluated with ROC analysis, it was found that the decrease in TT, NT and DDS levels showed high sensitivity and specificity for the intensive care treatment needed ($p<0.05$).
CONCLUSIONS: In COVID-19, it has been observed that the thiol-disulfide balance is disrupted, and it may be beneficial to monitor the thiol-disulfide balance in the follow-up of the patients clinical processes and the processes of going to intensive care.
Keywords: COVID-19, Total Thiol, Native Thiol, Dynamic Disulfide Status, Complete Blood Count

OP-047
EVALUATION OF COAGULATION PARAMETERS ACCORDING TO INFLAMMATION SEVERITY IN COVID-19 PATIENTS

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OBJECTIVES: Cytokine storm and associated inflammation findings are seen in COVID-19 patients. In our study, we aimed to evaluate the coagulation parameters according to the severity of inflammation in COVID-19 patients.
MATERIALS and METHODS: 184 PCR positive patients over the age of 18 who applied to the emergency department and outpatient clinic were included in the study. C-Reactive protein (CRP), D-Dimer, Fibrinogen, Prothrombin Time (PT), Activated Partial Thromboplastin Time (APTT) tests were evaluated retrospectively. The cases were divided into three groups according to the CRP parameter values created according to the Ministry of Health Guide and meta-analysis studies; Group 1: CRP <10 mg / L (n = 84), Group 2: CRP 10-40 mg / L (n = 45) and Group 3: CRP> 40 mg / L (n = 55). Coagulation parameters were compared between the three groups.
RESULTS: Fibrinogen ($p = 0.001$) and D-Dimer ($p <0.001$) parameters between 1st and 2nd group; PZ parameter between 2nd and 3rd group ($p = 0.005$); Fibrinogen ($p = 0.016$), D-Dimer ($p <0.001$) and PT ($p = 0.001$) parameters between the 1st and 3rd group were statisticaly significant.
CONCLUSIONS: High D-Dimer and Fibrinogen parameters and PT prolongation in COVID-19 patients, especially in patients with CRP> 40 mg / L, suggested that there may be changes in the hemostasis system due to the severity of inflammation.
Keywords: COVID-19, C-Reactive protein, D-Dimer, Fibrinogen, Prothrombin Time

OP-048
LABORATORY PARAMETERS IN EARLY STAGE CORONAVIRUS (COVID-19) PATIENTS

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OBJECTIVES: The early diagnosis of COVID-19 disease, which has become a worldwide epidemic, is critical for its control and treatment of patients. For this reason, the diagnostic value of laboratory parameters in the early detection of COVID-19 disease has been investigated.
MATERIALS and METHODS: Among the patients with suspected COVID 19 who admitted to our hospital between 01 April 2020 and 30 May 2020, those with positive RT-PCR results were included in this retrospective study. Patients with normal chest CT results were considered as early stages. Chest CT results obtained with biochemical tests studied at the first application were evaluated.
RESULTS: Fifty patients with negative RT-PCR and chest CT findings constituted the control group, and 80 patients with positive RT-PCR and no chest CT findings comprised the patient group. Among the groups, a significant difference was found between hemoglobin, white blood cell, neutrophil count, lymphocyte count, percentage of monocyte and serum D-Dimer, C-Reactive Protein, procalcitonin, and total bilirubin levels. In ROC analysis, percentage monosit value exhibited the largest area under the curve at 0.787, with the highest specificity (97.9 %) and sensitivity (50.6 %).
CONCLUSIONS: Percentage monocyte value, one of the parameters of complete blood count, can guide the diagnosis of early stage COVID patients with normal CT findings.
Keywords: COVID19, Biochemical Tests, RT-PCR

OP-049
EVALUATION OF SARS-COV-2 IgG AND SARS-COV-2 IgM LEVELS IN COVID-19 INFECTION

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OBJECTIVES: The SARS-Cov-2 IgM and SARS-Cov-2 IgG assays are intended to be used as an aid in the diagnosis of COVID-19 infection both with clinical presentation and other laboratory tests. We aimed to investigate SARS-Cov-2 IgG and SARS-Cov-2 IgM levels in infected patients.
MATERIALS and METHODS: Blood samples are taken from patients who have either a suspicion of SARS-Cov-2 infection or a screening purpose. SARS-Cov-2 IgG and SARS-Cov-2 IgM levels were analysed by a chemiluminescent microparticle immunoassay (CMIA) by Abbott Architect ci8200 (Abbott park, IL, USA).
RESULTS: In this study 1025 individuals were included. The cutoff is 1.4 Index (S/C) in SARS-Cov-2 IgG and 1.0 Index (S/C) SARS-Cov-2 IgM assay. Gray zone is accepted as 0.49-1.39 Index (S/C). In patients with a negative PCR test 5.46 % IgG levels and with a positive PCR test 18,5 % IgG levels were found to be in the gray zone.
CONCLUSIONS: Cut off values for IgG and IgM antibodies against SARS-Cov-2 is expected to change more as more research will be needed to be done in this area. Monitoring these antibodies in infected patients at specified time intervals will aid us to show developing immunity to COVID-19 infection in future.
Keywords: COVID-19, SARS-CoV-2 IgM, SARS-CoV-2 IgG

OP-050
EVALUATION OF NUCLEATED RED BLOOD CELL LEVELS IN SARS-COV-2 INFECTED PATIENTS

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OBJECTIVES: Nucleated red blood cells (NRBC) which are precursors of red blood cells are not present in the circulation of a healthy individual. NRBC levels is a parameter of complete blood count test. Studies suggest that increased NRBC levels may be seen in hypoxia patients. Our aim is to evaluate NRBC levels in hospitalized SARS-Cov-2 infected patients with hypoxia.
MATERIALS and METHODS: Blood samples were taken into EDTA containing tubes and nasopharyngeal samples were taken from patients with SARS-Cov-2 infection.
Complete blood count levels were analysed with Sysmex XN-1000 hematology analyzer (Sysmex corporation, Kobe, Japan). Real time polymerase chain reaction (qRT-PCR) assay is performed for SARS-Cov-2 virus by Senteligo SARS-Cov-2 detection reagent.
RESULTS: In this study 79 hospitalized patients either in the intensive care unit or with SARS-Cov-2 infection were included. The level of NRBC was 0,026 ±0,008 10^3/µL in patients with negative COVID-19 PCR test (n=44) and 0,022 ±0,007 10^3/µL in patients with positive COVID-19 PCR test (n=35).
CONCLUSIONS: Since SARS-Cov-2 infection is new, more research must be done on possible blood parameters that have an effect on the progression of the disease. Therefore analysis of NRBC levels which is practical and a part of a routine test might shed a light on the clinical course of this infection.
Keywords: COVID-19, SARS-CoV-2, NRBC, Complete Blood Count

OP-051
INVESTIGATION OF GHRELIN HORMONE LEVEL IN ACUTE APPENDICITIS PATIENTS AND COMPARISON OF GHRELIN HORMONE LEVEL WITH C-REACTIVE PROTEIN AND WHITE BLOOD CELL LEVELS

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OBJECTIVES: This study aims to investigate the diagnostic value of ghrelin in acute appendicitis and the correlation between ghrelin and routine laboratory tests such as white blood cell (WBC), C-reactive protein (CRP).
MATERIALS and METHODS: We prospectively evaluated patients aged 16-80 years who were operated for acute appendicitis between October 2018 and December 2018. Blood was preoperatively collected for ghrelin, hemogram, and CRP assessments. The patients were divided into 3 groups and evaluated in terms of age, gender, comorbidities, anorexia, ghrelin, leukocyte, CRP, and body mass index (BMI). The blood taken into the biochemistry tube for the ghrelin hormone was preserved at –80 degrees after centrifugation. Measurements were made after the frozen serum samples were dissolved. Human Ghrelin ELISA Kit Catalog No: E-EL-H1919 96T was used to study serum samples in the Biochemistry laboratory in accordance with the test procedure.
RESULTS: The study included 30 healthy individuals, 29 patients with non-complicated appendicitis, and 29 patients with complicated appendicitis. The groups were not statistically different in terms of age, gender, comorbidities, BMI, or ghrelin levels ($p>0.05$). Anorexia and leukocyte and CRP levels were significantly higher in patients with acute appendicitis ($p<0.001$). Ghrelin level and leukocyte count were not significantly correlated.
CONCLUSIONS: Serological tests such as WBC and CRP can be used in the diagnosis of acute appendicitis and in determining its severity. Ghrelin levels increased with increasing acute appendicitis severity, but this finding was not statistically significant. Further studies with larger samples are needed to better understand how appetite is affected in acute appendicitis.
Keywords: Acute Appendicitis, C-Reactive Protein, Leukocyte, Ghrelin, Loss Of Appetite

OP-052
A COMPARISON OF SYMPTOMPS, COMORBID DISEASES AND LABORATORY DATA OF PATIENTS WHO DID and DID NOT SURVIVE AFTER COVID-19 DISEASE

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OBJECTIVES: It was aimed to evaluate the relationship with mortality by retrospectively investigating the symptoms, comorbid diseases and laboratory data of COVID -19 patients.
MATERIALS and METHODS: Totally 113 COVID-19 PCR(+) patients treated in our hospital between March-June 2020 were included. Clinical and laboratory data were obtained from the hospital information system and the study group was divided into two as dead (n=14) and recovered (n=99).
RESULTS: The median ages (min-max) of the groups with no statistical difference in terms of age and gender in the ex and recovering groups were 68(32-88) and 51(20-89) years, respectively. The most common symptoms were shortness of breath in the ex-group (9 patients,64.2%), and cough in those who recovered (44.4%). In the ex group comorbid diseases were hypertension (8 patients,57.1%) and diabetes mellitus (4 patients,28.6%), in the recovered it were hypertension (32.3%) and diabetes mellitus (16 patients,16.2%). WBC ($p = 0.011$), neutrophil ($p = 0.001$), neutrophil-lymphocyte ratio (N / L ratio) ($p <0.001$), CRP ($p <0.001$) were found to be significantly higher in the ex group, while lymphocytes ($p = 0.005$) was found significantly lower.
CONCLUSIONS: Evaluating according to the comorbidity, hypertension was found to be high in the ex group (57.1%). Hypertension was found as one of the most common comorbid diseases accompanying COVID-19, and increasing the possibility of developing ARDS and the need for intensive care. Leukocyte and neutrophils were significantly higher and lymphocyte results were found to be significantly lower in the ex group. These fast-running tests are valuable in the follow-up of patients. CRP, the important acute phase reactant, was found to be higher in the ex group. Severe CRP elevation can be used as an indicator of clinical deterioration.
Keywords: COVID 19, Laboratory, CRP

OP-053
CHANGES IN PLASMA AMINO ACID LEVELS OF CRIMEAN-CONGO HEMORRHAGIC FEVER PATIENTS

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OBJECTIVES: In this study, it was aimed to determine the plasma amino acid profiles and possible metabolic pathways affected in patients infected with the Crimean Congo Hemorrhagic Fever (CCHF) virus in the acute and convalescent period and to contribute to the pathophysiology of the disease.
MATERIALS and METHODS: 35 volunteers diagnosed with CCHF were selected. The blood samples taken on the first day of hospitalization of these patients were acute group, and the convalescent group was formed with blood samples taken before discharge from the hospital. A control group was formed with samples taken from 35 healthy volunteers who were similar to the patient group in terms of age and gender. Plasma amino acid levels were measured using the CE-IVD certified Jasem Amino Acid Kit in the LC-MS/MS device from the plasma obtained from these groups.
RESULTS: According to the findings, when the control and acute group are compared; We found that while the amino acids taurine, phenylalanine, tyrosine, GABA, glutamate, leucine, aspartate, ornithine increased significantly ($p<0.05$), tryptophan, glutamine, proline, arginine, citrulline decreased ($p<0.05$). Was found a statistically significant decrease in plasma amino acid levels in the convalescent group (alanine, asparagine, aspartate, phenylalanine, glutamine, histidine, leucine, serine, citrulline, tyrosine, tryptophan) compared to the acute group ($p<0.05$).
CONCLUSIONS: It was observed that the amino acid profiles of CCHF patients changed between acute and convalescent periods. It shows that altered plasma amino acid levels can guide further studies to investigate its relationship with the immune system and provide an important support for the prognosis of CCHF disease.
Keywords: Crimean-Congo Hemorrhagic Fever (CCHF), Amino Acid, Protein, Nutrition

OP-054
EFFECTS OF TOPIRAMATE ON INFLAMMATORY PARAMETERS IN MIGRAINE PROPHYLAXIS

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OBJECTIVES: Many medical agents are used in migraine prophylaxis. Topiramate is used as a first-line treatment option for migraine prophylaxis. It has different side effects but its effects on inflammatory markers are unknown. In this study we investigate the effects of topiramate in neutrophil/lymphocyte ratio (NLR), platelet/lymphocyte ratio (PLR), and C reactive protein (CRP) with migraine patients without aura.
MATERIALS and METHODS: In our retrospective study 60 healthy controls, 75 patients who were followed up and had a diagnosis of migraine and took a topiramate therapy were evaluated before treatment, and 3 and 6 months after treatment. The number of days with pain, duration of pain and MIDAS and VAS scores, of the patients were evaluated before treatment and during the controls.
RESULTS: A significant decrease was observed in the painful days, duration of pain, MIDAS and VAS scores in the evaluations in the 3 and 6-month periods after the initiation of topiramate. Thrombocytopenia developed in two patients, generalize paresthesia in two patients, and treatment was discontinued four patients. Neutrophil count, lymphocyte count, thrombocyte count, NLR, PLR, MPV and CRP values before the topiramate treatment were statistically higher than the values at 3 and 6 months of treatment. There was no statistically significant difference between inflamatory parameters and number of days with pain, duration of pain and MIDAS and VAS scores.
CONCLUSIONS: It was seen that NLR, PLR, MPV and CRP values decreased topiramate threapy. Studies are needed to evaluate the anti-inflammatory effectiveness of topiramate in the treatment of migraine.
Keywords: Migren, Topiramate, Neutrophil/Lymphocyte Ratio (NLR), Platelet/Lymphocyte Ratio (PLR)

OP-055
EVALUATION OF ADENOSINE DEAMINASE ACTIVITY IN TERMS OF INFLAMMATION IN PATIENTS WITH ROMATOID ARTHRITIS

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OBJECTIVES: Rheumatoid arthritis (RA) is a chronic systemic inflammatory disease, primarily affecting the joints of hands and feet causing corrosive, symmetrical polyarthritis. Several measures are used for the evaluation of disease activity in rheumatoid arthritis and laboratory tests such as erythrocyte sedimentation rate (ESR) and C-Reactive protein (CRP) are being used as markers of inflammation.
Cyclic citrulled peptide antibody (anti-CCP) is a test that detects citrulline qualities in the blood. Studies have shown that CCP has a higher percentage of positivity in early stage RA.
Adenosine deaminase (ADA), an enzyme of purine metabolism, is considered a marker of cell-mediated immunity and has been proposed as a marker of the inflammatory process in RA.
This study aimed to examine the efficacy of serum ADA activity as an inflammatory marker in RA.
MATERIALS and METHODS: In our study, the results obtained were compared by studying the CRP and ESR and ADA levels of 15 patients with joint pain complaints, positive and negative anti-CCP. Anti-CCP chemiluminescence immunometric assay, CRP immunoturbimetric, ESR photometric and ADA spectrophotometric methods were used.
RESULTS: The ADA activity ($p < 0.001$), CRP ($p = 0.006$) and ESR ($p < 0.001$) levels of patients with positive anti-CCPs increased compared to patients with negative results, and it showed a statistically significant difference.
CONCLUSIONS: Although this study shows that serum ADA levels can predict disease activity in RA patients, it can also be proposed as a marker of inflammation. However, studies involving more patients are needed to determine its role as an inflammatory marker.
Keywords: Rheumatoid arthritis, Anti-CCP, Adenosine Deaminase, Inflammation

OP-056
DYNAMIC THIOL/DISULFIDE BALANCE IN PREGNANT WOMEN WITH PREECLAMPSIA AND ITS RELATIONSHIP WITH INFLAMMATION

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OBJECTIVES: Preeclampsia is characterized by hypertension due to endothelial dysfunction. Deterioration of oxidative balance and increased inflammation are important in the pathogenesis of preeclampsia. We aimed to determine the relationship between serum dynamic thiol balance and TNF-α in pregnant women with preeclampsia.
MATERIALS and METHODS: Thirty pregnant women with preeclampsia and 30 healthy controls were included in the study. Fasting blood samples were collected from all pregnant women in the second or third trimester. After all samples were centrifuged at 1500xg for 10 minutes, serum samples were aliquoted and stored at -80 ° C. Serum total and native thiols were measured by colorimetric method and disulfide values were calculated. Serum TNF-α was measured by the ELISA method.
RESULTS: While gestational week and birth weight were significantly lower in the preeclampsia group compared to the controls, systolic and diastolic blood pressures were significantly higher ($P < 0.001$). A high negative correlation was found between the week of gestation and systolic and diastolic pressures ($r=-0.768$, $p<0.001$; $r=-0.782$, $p<0.001$, respectively). Disulfide and TNF-α were significantly higher in the preeclampsia, while the total and native thiol levels were significantly lower ($p<0.001$). There was a significant positive correlation between disulfide levels and TNF-α in the patient group ($r=0.575$, $p<0.001$).
CONCLUSIONS: Dynamic thiol balance is impaired in preeclampsia and it is associated with inflammation. Dynamic thiol balance may have a role in the pathogenesis of preeclampsia.
Acknowledgements: This work was supported by Hatay Mustafa Kemal University Scientific Research Projects Coordination Unit (project no, 18YL22).
Keywords: Thiol Balance, Pregnancy, Preeclampsia, Disulfide

OP-057
THE URINE FOAMING TEST IN COVID-19 AS A USEFUL TOOL IN DIAGNOSIS, PROGNOSIS AND FOLLOW-UP: PRELIMINARY RESULTS

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OBJECTIVES: We aimed to develop a simple, rapid urine test based on the level of foaming that occurs in the urine sample as a result of the excretion of peptide structures containing amino acids specific to the antigenic structure of COVID-19.
MATERIALS and METHODS: After obtaining the approval of the ethics committee, urine samples were taken from 3 groups of patients whose informed consent was obtained. The groups were created according to the COVID-19 Diagnostic Guide of Ministry of Health. A: outpatients with suspected COVID-19, B: inpatients for follow-up and treatment, C: patients treated in intensive care unit (ICU). Also, 30 healthy volunteers were included as the control group D. Urine samples taken from all groups were delivered to the laboratory. Urine sample was added to the test tube and shaken. The level of foam was visually evaluated according to the color scale.Other data of the patients were obtained from the HIS. Performance characteristics were statistically calculated according to the RT-PCR result and/or CT.
RESULTS: A statistically significant difference was observed between UFT distributions of control, outpatient, inpatient and ICU patients ($p=0.0001$). The results of UFT orange and red in inpatients and ICU patients were statistically significantly higher than in the control and outpatient groups.The diagnostic accuracy of UFT was detected in all group, the pooled sensitivity was 92%(95%CI:87–95%) and specificity was 89%(95%CI: 80–98%).
CONCLUSIONS: Our preliminary results show that the UFT is useful in predicting the clinical severity of COVID-19. The UFT could be recommended as a point of care test, rapid and non-invasive method in the follow-up of COVID-19.
Keywords: COVID-19, Urine Foaming Test, Prognostic Predictive Value

OP-058
ALKALINE PHOSPHATASE INTERFERENCE IN IMMUNO-ENZYMATIC ASSAYS

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OBJECTIVES: Alkaline phosphatase (ALP) enzymes are widely used as signal amplifiers in immunoenzymatic methods. Conditions that cause ALP elevations, such as bone, liver and small intestine diseases and pregnancy, can cause interference in immunoenzymatic methods. We aimed to examine ALP's effect on methods and tests by adding isolated pure ALP enzyme to the serum pool prepared for this study.
MATERIALS and METHODS: Method In our lab, total βhCG (5th IS) and High Sensitivity Troponin I (hsTnI) tests are measured immunoenzymatically by means of Access II (BeckmanCoulter, Brea, CA) and Ferritin, Free T4 (FT4), Thyroid-stimulating hormone (TSH) (3rd IS) and Vitamin B12 tests by means of UniCelDxl 800 (Beckman Coulter, Brea, CA) auto-analyzer. We prepared a serum pool and divided into 4 groups. By adding isolated pure ALP enzyme at different concentrations to each group, we obtained sample groups containing ALP enzyme at concentrations of 85 U / L, 340 U / L, 870 U / L and 1570 U / L. In each group, 20-repetition βhCG, Ferritin, FT4, TSH, Troponin I and Vit B12 tests were performed. Coefficient of variation (CV), bias, and total error values were calculated for the studied parameters. Total Error values were evaluated by comparing them with acceptable error limits that reported by RiliBÄK.All groups were compared by using Friedman test and Bonferroni correction for paired samples.
RESULTS: After ALP addition, the calculated total error percentages of FT4, βhCG and Troponin I tests were found to be above the acceptable error limits. With the addition of ALP, positive interference was observed in βhCG test, while negative interference was observed in Troponin I test.
CONCLUSIONS: Isolated ALP elevations can be a source of interference for immunoenzymatic methods using ALP as conjugate.
Keywords: Alkaline Phosphatase, Immuno-Enzymatic Assay, Interference, Total Error

OP-059
INVESTIGATION OF THE EFFECT OF DEXAMETHASONE AND BETAMETHASONE ON PETINIA IMMUNASSAY MEASUREMENT METHOD

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OBJECTIVES: Similarities of dexamethasone and betamethasone to some hormone molecules may cause false test results in the analytic phase. Drug-related measurement errors can lead misinterpretation of the tests. The aim of this study is to investigate the effect of dexamethasone and betamethasone on tests (AFP, CA 125, CA 15-3, CA19-9, CEA, complex PSA, total PSA, troponin I, mass CK-MB, cortisol, TSH, FT3, FT4, FSH, LH, progesterone, prolactin, total testosterone, estradiol(E2), HCG, parathyroid hormone, vitamin B12, folate and ferritin) measured by PETINIA method.
MATERIALS and METHODS: The study was carried out using the PETINIA immunoassay method (Siemens,Atellica,USA) with hormone control material (BioRad Lyphocheck Immunoassay Plus Control).1800µL of control solution was taken and 200µL of dexamethasone and betamethasone were added, respectively. After vortexing the sample, it was incubated at room temperature for 20 minutes. From the control sample, AFP, CA 125, CA 15-3, CA19-9, CEA, complex PSA, total PSA, troponin I, mass CK-MB, cortisol, TSH, FT3, FT4, FSH, LH, progesterone, prolactin, total testosterone, E2, HCG, parathyroid hormone, vitamin B12, folate and ferritin tests were performed.The study was reproduced by adding 200µL of distilled water.The measurements were repeated 3 times and the mean values were recorded. Percentage deviations from the target value were calculated with bias.
RESULTS: Due to betamethasone,concentrations of AFP,CK-MB mass, cortisol,E2 and progesterone was exposured positive and negative interference at the rate of 10.27%,-27.66%,457.62%, 88.86% and 39.51%, respectively. The deviations were -11.64% in AFP, -48.94% in mass CK-MB,79.47% in cortisol,86.21% in E2, -10.23% in complex PSA and -25.19% in FT3 after adding dexamethasone. Deviations in other tests were observed at minimal rates.
CONCLUSIONS: Negative interference occurring in CK-MB mass due to dexamethasone and betamethasone may cause to miss acute cardiac syndrome, deviations in progesterone and E2 may cause erroneous treatment practices in infertility. Sampling is recommended before cortisol infusion.
Keywords: Dexamethasone, Betamethasone, CK-MB Mass, Progesterone, False Result

OP-060
CAN PLASMA OR SERUM BE USED INTERCHANGEABLY FOR DIFFERENT IMMUNOCHEMICAL ANALYTES?

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OBJECTIVES: Studies revealing the difference in plasma and serum test results for immunochemical analytes are limited and the results are also contradictory. The aim of this study was to evaluate whether there is a difference between serum and plasma for 10 immunochemical analytes.
MATERIALS and METHODS: Total of 30 healthy volunteers were included in the study. Blood samples were collected in clot-activator with gel (Vacuette) and containing lithium heparin tubes with barrier (Barricor). Serum and plasma were obtained by centrifugation at 2000 g for 10 minutes. Hemolysis index was lower than 20 in serum and plasma samples. Paired t test was used for statistical analysis. Bias% results were compared with the desirable specification (B%) obtained from the Ricos database for clinically significant. Vitamin B12 (B12), ferritin, folate, free triiodothyronine (FT3), free thyroxine (FT4), insulin, ProBNP, parathyroid hormone (PTH), thyroid stimulating hormone (TSH) and vitamin D levels analysed on a Roche COBAS 8000 device.
RESULTS: There was a statistically significant difference for B12, ferritin, folate, insulin, proBNP, PTH, vitamin D between serum and plasma. Only, plasma PTH levels were clinically significant higher than serum. PTH levels were stable up to 8 hours at room temperature in plasma with lithium heparin. However, insulin levels remained stable up to 8 hours at room temperature in serum.
CONCLUSIONS: Plasma cannot be used instead of serum for PTH analysis. Therefore serum reference range is not suitable for this analyte. Unlike insulin, PTH levels are more stable in plasma with lithium heparin at room temperature.
Keywords: Plasma, Serum, Lithium Heparin, Parathyroid Hormone, Insulin

OP-061
SAMPLE REJECTION RATE IN THE PRE-ANALYTICAL PHASE IN BIOCHEMISTRY LABORATORIES OF VAN YUZUNCU YIL UNIVERSITY DURSUN ODABAS MEDICAL CENTRE

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OBJECTIVES: Our aim in this study is to determine the rates and reasons of rejected samples for some of our test groups.
MATERIALS and METHODS: The counts of rejected samples between January 1 and December 31, 2019 was obtained retrospectively from the laboratory information system. Samples were classified according to analysis purposes as biochemistry, hormone, emergency biochemistry, complete urine analysis, blood gas, cardiac and HbA1c.
RESULTS: The total counts of samples that arrived in our laboratory were 872.253 and the total counts of the rejected sample were 7.354 (the rejection rate was 0.84 %). The rejection rates in biochemistry, hormone, emergency biochemistry, complete urine analysis, blood gas, cardiac and HbA1c analysis were %0.047, %0.11, %0.26, %0.13, %0.22, %0.027 and %0.027, respectively. The most frequent first three reasons for sample rejection were insufficient (48.9 %), clotted (20.8 %) and haemolyzed (11.1 %) samples, respectively.
CONCLUSIONS: The fact that insufficient sample collection is the most common reason for sample rejection shows that phlebotomists do not have enough information on this subject. We believe that the training on this issue will contribute to reducing our rejection rates.
Keywords: Pre-Analytical Phase,Sample Rejection Rates

OP-062
THE EFFECTS OF POINT OF CARE BLOOD GAS DEVICES ON SOME QUALITY INDICATORS

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OBJECTIVES: Blood gas tests from the intensive care unit constitute a significant part of emergency laboratories' workload. Blood gas samples must be transported to the laboratory quickly, studied and finalized. In laboratory practice, blood gas samples were sent from intensive care to the laboratory collectively. The arrival of many blood gas samples to the laboratory at the same time reduces the reliability of the results and increases rejected samples and results not given in time at the emergency unit. We examined whether point of care blood gas devices contribute to quality process management by evaluating some of the quality indicators.
MATERIALS and METHODS: We analyzed the percentage changes in some quality indicators in point of care blood gas device in our hospital set up in February 2020. We retrospectively evaluated two quality indicators before and after this date.
RESULTS: According to our findings, for three months before and after February 2020 quality indicator percentage changes are: result not given in a time: 9.08, 10.98, 8.05 and 5.25, 5.95, 7.25. Rejected sample percentages were 6.82, 8.91,

7.70 and 5.62, 3.96, 3.87%.
CONCLUSIONS: Setting up point of care blood gas devices in intensive care units, improves quality indicators such as results not given on time and percentage of rejected samples, contributes positive effect to the total testing process of the laboratory.
Keywords: Quality, Indicator, Point of Care Test

OP-063
EVALUATION OF BILECIK PUBLIC HEALTH LABORATORY SAMPLE REJECTION RATES WITH SIX SIGMA APPROACH

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OBJECTIVES: Errors in the Total test process (TTP) are most frequently observed in the extraanalytical phase. One of the quality indicators to assess the TTP is sample rejection rates (SRRs). In this study, it was aimed to evaluate the SRRs with the Six Sigma approach, and rejection causes of the samples accepted to Bilecik Public Health Laboratory in 2020.
MATERIALS and METHODS: SRRs in January-September 2020 were obtained via Fonet LIS. Groups were assigned as biochemistry, ESR, hematology, immunoassay, urine, HbA1c/HbA2 /HbF, and blood type. The SRRs of the groups were calculated. Subsequently, the SRRs were calculated with a formula of defects per million opportunities (DPMO), and the corresponding Sigma metric (SM) was determined. While calculating the SM, a 1.5 SD shift was not added due to the non-normally distributed data. Moreover, the causes of rejection and their rates within the rejected samples were identified.
RESULTS: Total SRR and SM were calculated as 0.094%-3.11. These values for biochemistry, ESR, hematology, immunoassay, urine, HbA1c/HbA2 /HbF, and blood type were 0.009%-3.73, 16.07%-0.99, 0.72%-2.45, 0.012%-3.66, 0.874%-2.38, 0.154%-2.96, and 0.159%-2.95, respectively. The most common causes of rejection were founded as clotted sample (68.8%), insufficient sample (11.97%), and unsuitable sample (6.2%), respectively.
CONCLUSIONS: The use of the Six Sigma approach in the extraanalytical phase may benefit laboratories in terms of evidence-based evaluation. Further studies are needed to determine the quality goals. Besides, it is thought that the rate of hemolyzed samples may decrease in centers where routine blood collection recommendations can be applied easily.
Keywords: DPMO, Extraanalytical Phase, Quality Management, Sample Rejection Rates, Six Sigma

OP-064
SERUM OSMOLARITY AND ITS RELATIONSHIP WITH PROGNOSIS IN STROKE PATIENTS UNDERGOING INTRAVENOUS THROMBOLYSIS

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OBJECTIVES: In this study, the relation of serum osmolarity calculated before treatment with mortality, cerebral hemorrhagic transformation and short-term prognosis in stroke patients who received intravenous thrombolytic therapy (IVT) was evaluated.
MATERIALS and METHODS: 361 acute ischemic stroke patients who were given IVT were included in the study. The patients were divided into 2 groups as NIH Stroke Scale (NIHSS) score above 15 and below. Hemorrhagic transformation was evaluated by brain computed tomography at 24 and 72 hours. The patients were divided into 2 groups according to the NIHSS difference between admission and discharge. NIHSS 4 and above was accepted as reduction and improvement. Patients were divided into 3 groups according to their blood gas and serum osmolarity (less than 285 mmol / kg, 285-300 mmol / kg and over 300 mmol / kg). Results were analyzed with SPSS 17.0 software package.
RESULTS: The study included 188 (52.1%) female and 173 (47.9%) male patients. Their mean age was 71.67 ± 12.060 (35-97). Potassium and glucose levels were higher in patients with severe disability ($p < 0.001$, $p = 0.005$, respectively). Glucose level and serum osmolarity were higher in patients with mortality ($p = 0.001$, $p = 0.010$, respectively). There was no relationship between the recovery status and development of hemorrhagic transformation and serum osmolarity ($p > 0.05$). Disability and mortality were higher in patients with high osmolarity ($p = 0.006$, $p = 0.001$, respectively).
CONCLUSIONS: High serum osmolarity in patients given IVT is particularly associated with stroke severity and mortality.
Keywords: Ischemic Stroke, Intravenous Thrombolysis, Serum Osmolarity

OP-065
EVALUATION OF PREANALYTICAL VARIABLES AND LABORATORY CONDITIONS IN BLOOD GAS ANALYSIS

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OBJECTIVES: Preanalytical errors in blood gas tests significantly affect the test results. The aim of the study is to evaluate the effect of preanalytical errors in sampling and transfer on the results and the performance of the analyzer.
MATERIALS and METHODS: Samples were taken from 8 volunteers into heparinized venous blood gas injectors. Standard conditions were applied to the first group (control). Groups 2nd and 3rd contained 0.5 ml and 0.25 ml of air bubbles, respectively. In the 4th group, while the samples were transported to laboratory by pneumatic system, 5th group was kept for 90 and 120 minutes and compared with control. The 13 samples (arterial blood) received routinely were serially reanalyzed a second time immediately after the first analysis and the effect of waiting during analysis on the results was evaluated. The samples were studied with the Siemens Rapiblab 1265 device.
RESULTS: Statistical analysis was performed with SPSS version 23.0 software. Normality of the data Repeated measurements were evaluated with the ANOVA test. No significant difference was found in samples sent by pneumatic system. For samples with air bubbles and kept +4˚C for 90 minutes only pO2 was found significantly different. PH and pCO2 showed significant difference in samples kept at +4˚C for 120 minutes. In the samples that have been studied twice in series pO2, pCO2 and HCO3 were found different ($p<0.05$).
CONCLUSIONS: Samples are stable on ice for up to 90 minutes. Keeping the samples at room temperature disrupts the stability. PO2 is affected in samples with an air bubbles. Pneumatic system can be used in emergency situations. In addition, it is appropriate to keep the samples waiting for analysis at least on ice.
Keywords: Blood Gas, Temperature, Pneumatic System

OP-066
THE RELATIONSHIP OF SST-2, OSTEOPONTIN AND MYELOPEROXIDASE LEVELS IN ACUTE CORONARY SYNDROME PATIENTS WITH FRAGMENTED QRS

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OBJECTIVES: In this study, we aimed to investigate the myeloperoxidase (MPO), osteopontin (OPN) and soluble ST2 (sST2) levels in acute coronary syndrome (ACS) patients with and without a fragmented QRS (fQRS).
MATERIALS and METHODS: 60 Acute coronary syndrome(ACS) patients and 26 healthy individuals were included the study. Patients were divided into two groups: +fQRS (n=30) and –fQRS (n=30). OPN, sST2, MPO and other parameters were measured.
RESULTS: In ACS patients, serum MPO (33.7 U/L),OPN (103.29 ng/mL) and sST2 (495.4 pg/mL) levels were found significantly higher than the control group (23.14 U/L, 42.65 ng/mL, 344.11 pg/mL, respectively;$p<0.01$,$p<0.01$,$p<0.05$). However, there were no significant difference between MPO (32.74 U/L),OPN (101.89 ng/mL) and sST2 (451.97 pg/mL) levels of patients with fQRS(+fQRS) and without fQRS(-fQRS) (34.67 U/L, 104.69 ng/mL, 535.73 pg/mL; $p>0.05$). There were positive correlations between MPO and platelet ($r=0.376$,$p<0.05$) levels in (+) fQRS group, sST2 and triglyceride levels in (-) fQRS group, as well as sST2 and troponin-I ($r=0.276$;$p<0.05$) levels in ACS patients.When the diagnostic performances for ACS was examined, the sensitivity of CK-MB,troponin-I, MPO,OPN and sST2 were 83%, 80%, 65%, 85%, 58% and specificity 96%, 100%, 72%, 96%, %80, respectively.But, these parameters were not found to have a diagnostic value for the diagnosis of fQRS ($p>0.05$).
CONCLUSIONS: The results of our study indicated that diagnostic value of MPO, OPN and sST2 in fQRS diagnosis are not significant.Nevertheless, the discovery of the high diagnostic sensitivity and specificity of OPN is a new finding obtained in this study.This study is the first study to exhibit the relationship between MPO,OPN and sST2 and fQRS development.
Keywords: Acute Coronary Syndrome, Fragmented QRS, Myeloperoxidase, Osteopontin, Soluble ST-2

OP-067
COMPARATIVE INHIBITORY EFFECT OF SAFRANIN O ON CHOLINESTERASES

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OBJECTIVES: Inhibition of cholinesterases is a mainstay strategy in the treatment of Alzheimer's disease (AD) that involves critical loss of acetylcholine

in the central nervous system. Recently, we have shown that a phenazine-derived synthetic dye, methylene violet 3RAX is an effective inhibitor of acetylcholinesterase (AChE) and butyrylcholinesterase (BChE). In the present study, the inhibitory mechanism and effect of a synthetic phenazine dye, safranin O (SO) on human erythrocyte AChE, human plasma BChE and recombinant BChE mutants (A328F and A328Y) was studied for comparison.
MATERIALS and METHODS: AChE and BChE activities were assayed spectrophotometrically in 50 mM MOPS buffer (pH 8) containing 0.05-0.4 mM acetylthiocholine or butyrylthiocholine as substrate, 0.125 mM DTNB and 0-40 µM SO at 25°C. Initial rate data were analyzed using a simplified rapid equilibrium model for mixed inhibition The kinetic results were supported by molecular modelling studies.
RESULTS: SO leaded to linear competitive inhibition of human plasma BChE (Ki=0.44± 0.085 µM; $\alpha=\infty$) and hyperbolic noncompetitive inhibition of human erythrocyte AChE (Ki=0.69±0.13; $\alpha=1$; $\beta=0.08$). On the other hand, SO caused linear mixed type inhibition of A328F (Ki=0.033± 0.003 µM; $\alpha=45\pm9$) and A328Y BChE mutants (Ki=0.078±0.014 µM; $\alpha=74\pm30$). The molecular modelling results showed that human BChE's affinity against SO increases with replacement of Ala328 to Phe or Tyr.
CONCLUSIONS: SO is a potent inhibitor of cholinesterases and may be useful in the design and development of new drugs for the treatment of AD.
Keywords: Safranin O, Cholinesterase İnhibition, Acetylcholinesterase, Butyrylcholinesterase, Molecular Docking

OP-068
PURIFICATION OF LIPASE ENZYME FROM BOVINE PANCREAS AND INVESTIGATION OF INHIBITION EFFECTS OF NATURAL INHIBITORS ON THIS ENZYME ACTIVITY

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OBJECTIVES: The aim of this study is searching purification of pancreatic lipaz enzyme with chromatographic techniques that are gathered from biological sources and frequently used in medical and drug industry, effect of some crucial natural propolis sources that can show inhibitor effect on enzyme activity thus investigating availability of natural inhibitors for bariatric treatment.
MATERIALS and METHODS: In the study, pancreatic lipase enzyme (EC.3.1.1.3), which is responsible for digestine of triglyceride and released by acinar cells of pancreas, was purified with gel-filtration chromatography method from bovine pancreas and lipase activity which is obtained with 17,94 % productivity ratio and 568.58 purification ratio and characterized with sodium dodecyl sulfate polyacrylamide gel electrophoresis. Propolis samples were collected from six different regions and after their extraction, their effect on pancreatic lipase activity was analyzed. All propolis extracts indicated inhibitor effect and their IC50 values were calculated.
RESULTS: IC50 values are as 4,00 mg/mL (Duzce propolis), 11,80 mg/mL (Balikesir propolis), 7,69 mg/mL (Kirmizi propolis), 6,91 mg/mL (Hakkâri propolis), 12,68 mg/mL (Kirklareli propolis), 9,23 mg/mL (Artvin propolis). According to this data Duzce propolis extract has the highest inhibition effect with ratio of IC50 4,00 mg/mL. To define composition of propolis extracts, total amount of polyphenol and flavanoid matter were calculated spectrophotometrically. This sample with the highest total amount of polyphenol and flavanoid matter has been with ratio of 41,35+0,43 mgGAE/ mL and 5,69+0,05 mgQUE/mL.
CONCLUSIONS: The gathered findings show that inhibition effect can be depended on propolis composition and propolis extracts have the potential to be used as anti-obesity agent.
Keywords: Enzyme purification, Pancreatic lipase, Obesity, Inhibition, Propolis

OP-069
PURIFICATION AND PRESERVING THE STABILITY OF PLANT GLUTATHIONE TRANSFERASES

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OBJECTIVES: Plant glutathione transferases (GST) consist of eight distinct main classes and numerous subclasses that are involved mainly in detoxication, growth and development, stress tolerance, signalling and transport of secondary metabolites. Most of these members are uncharacterized, and structures, chemical properties, active-site residues and other functions need to be clarified. Compared to mammalian GSTs, purification of these plant GSTs are quite cumbersome due to short stability of proteins, that usually results in precipitated product after a short time. In this study, purification of some plant GSTs were optimized and stability of enzymes were performed using glycerol.
MATERIALS and METHODS: Histidine-tagged tau class GSTs were codon-optimized and heterologously expressed in Escherichia coli and purified using Ni sepharose activated His GraviTrap columns (GE Healtcare). Additional changes in standart purification protocol were made in binding/elution and dialysis buffers. Proteins were eluted using 100 mM imidazole into a tube containing 50 µl of potassium phosphate buffer (1 M). Stability of proteins is maintained in glycerol.
RESULTS: Protein's were purified without any precipitated product, kept half in fridge (+4 °C) and the other half in – 80 °C. GST activities were stable with the CDNB substate for several weeks when glycerol concentration is kept % 30 or above in samples of purified proteins.
CONCLUSIONS: Plant GSTs are not stable as mammalian GSTs. However stability and activities can be enhanced by improvements in purification and keeping enzyme mixed with glycerol.
Keywords: Plant Glutathione Transferases, Purification, Stability, Glycerol, Ni-Sepharose Affinity Chromatography

OP-070
ASSESSING THE INHIBITORY EFFECTS OF SELECTED PHYTOHORMONES ON HUMAN PLACENTAL GLUTATHIONE S-TRANSFERASE

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OBJECTIVES: Phytohormones are involved in the control of growth, reproduction, and stress response in plants. The fact they are ingested in considerable amounts in the diet may reasonably suggest their relevance to human health and disease. Humans are able to conjugate potentially toxic electrophiles to glutathione (GSH) by a class of phase II detoxification enzymes known as glutathione S-transferases (GSTs). GSTP1-1 is the predominant GST isozyme in the placenta, meaning that the general detoxifying function of GSTs also extends to the protection of fetal health. GSTP1-1 has also been shown to be a cancer-promoting enzyme overexpressed in various malignancies. Here, we aim at evaluating the inhibitory actions of dormin and gibberellin on human placental GSTP1-1 (hpGSTP1-1).
MATERIALS and METHODS: The percent remaining activity of hpGSTP1-1 in the presence of dormin or gibberellin was assayed against GSH and 1-chloro-2,4-dinitrobenzene (CDNB) as co-substrates in an *in vitro* setting. The binding mode of each phytohormone was predicted through molecular docking, and non-covalent interactions between the enzyme and the top-ranked inhibitor was calculated accordingly.
RESULTS: Both dormin and gibberellin were found to inhibit hpGSTP1-1 in a competitive manner, with *IC*50 values of 5.2 mM and 5.0 mM, respectively. Also, they were able to establish multiple non-covalent interactions with key residues lining the G- and H-subsites of the enzyme's active site.
CONCLUSIONS: Inhibitory interactions between hpGSTP1-1 and selected phytohormones may leave the fetus prone to the potentially toxic effects of xenobiotics and noxious endobiotics. On the other hand, they may guide medicinal chemists through the structure-based design of new anti-cancer drugs.
Keywords: Dormin, Enzyme Inhibition, Gibberellin, Human Placental Glutathione S-Transferase, Molecular Docking

OP-071
DETERMINATION OF ANTIBACTERIAL ACTIVITIES AND CYTOTOXICITIES OF DIFFERENT NITZSCHIA SP. EXTRACTS

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OBJECTIVES: This study aimed to reveal the antibacterial and cytotoxic properties of different *Nitzschia sp.* extracts.
MATERIALS and METHODS: Diatome *Nitzschia sp.*, grown in a 5 L F/2 medium, was cultivated under 16 different temperature, light intensity and aeration rate conditions determined by experimental design. Antimicrobial activities of freeze-dried extracts, obtained by ethanol/water extraction, were determined by disk diffusion and minimum inhibition concentration (MIC) methods at 3 different concentrations. Antibiotics used for *Escherichia coli* and *Staphylococcus aureus*, were Streptomycin and Vancomycin, respectively. Cytotoxicity response was determined by the viability of NIH/3T3 mouse fibroblast cells with MTT test for 24 and 48 hours at 7 different concentrations.
RESULTS: Based on the MIC results, the growth of *E. coli* was suppressed in each extract concentration, whereas, there was still *S. aureus* growth at 25 and 50 mg/mL, but complete inhibition was encountered at 100 mg/mL. The cytotoxicity test was carried out with the extracts exhibiting antibacterial properties. For the first 24 hours, the viability was the highest (98%) in cases of low temperature at constant aeration rate; and low light intensity at constant temperature. Also, for the first 48 hours, it was concluded that high temperature (35 ° C) and light intensity (538 µmol m-2s-1) affected the viability negatively.
CONCLUSIONS: Microalgal extracts showed the desired antibacterial effect for both *E. coli* and *S. aureus*, and the MIC value was determined as 100 mg/mL. Although the undesirable cytotoxic effect varies depending on the extract concentration and time, it has been observed that mouse fibroblast cells still maintain their viability.

Acknowledgements:This work was supported by TUBITAK 1002 (Project No: 213M623), EBILTEM (Project No: 2015 / BIL / 016), and Ege University Scientific Research Projects Coordinator (Project No: 17-MUH-043). In addition, we extend our gratitude to all experts in Izmir High Technology Institute, Biotechnology and Bioengineering Application and Research Center (IYTE-BIYOMER) for the bioactivity tests performed.
Keywords: Cytotoxicity, {Escherichia Coli}, NIH/3T3 Mouse Fibroblast Cells, {Nitzschia Sp.}, {Staphylococcus Aureus}

OP-072
COLORIMETRIC BROTH MICRODILUTION METHOD FOR THE ANTIMICROBIAL SCREENING OF AMPHIROA RIGIDA (J.V.LAMOUROUX 1816) EXTRACTS AGAINST SOME TEST MICROORGANISM

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OBJECTIVES: In this study, we aimed to screening the antimicrobial activities of methanol, ethanol, acetone and water extracts of *A. rigida* (J.V.Lamouroux 1816) a pharmaceutically important marine macroalgae against different pathogenic microorganisms.
MATERIALS and METHODS: According to Colorimetric Broth Microdilution Method; antimicrobial activities of different extracts of *A. rigida* against *Escherichia coli* (ATTC 25922),*Pseudomonas aeruginosa*(ATTC 27853), *Klebsiella pneumoniae* (ATTC 70603),*Staphylococcus aureus*(ATTC 43300),*Salmonella enteritidis* (ATTC 13076),*Sarcina lutea* (ATTC 9341) and *Bacillus cereus* (ATTC 11778) standard bacterial and *Candida albicans* yeast strain were evaluated by determining the Minimum Inhibition Concentration (MIC).
RESULTS: It was observed that the water extract of the *A. rigida* showed no antimicrobial activity against any test microorganism. The highest antimicrobial effect was observed in *A. rigida* acetone extract and the most effective strains were *Sarcina lutea* and *Candida albicans*(1.562 mg/ml). Besides this, methanol extract had highest antimicrobial effect and the most effective strain was *Pseudomonas aeruginosa* (1.562 mg/ml). According to the findings we obtained, it was determined that the extracts obtained by using different solvents belonging to *A. rigida* the used in our study had different degrees of antimicrobial effects against the tested bacteria and yeast. With future studies, it would be appropriate to optimize the production conditions of the bioactive metabolites to characterize and to clarify the mechanism of action.
CONCLUSIONS: We think this experimental report indicate that the *A. rigida* have great potential for pharmaceutical applications. So, it is thought that this study will be provided as a basis for the studies aimed at reducing the use of commonly used antibiotic against microorganisms.
Keywords: {Amphiroa Rigida}, Antimicrobial Screening, Broth Microdilution Method, Gram Negative Bacteria, Gram Positive Bacteria.

OP-073
FLOW CYTOMETRIC ANALYSIS OF ERYTROCYTES OSMOTIC FRAGILITY TEST

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OBJECTIVES: The guidelines do not currently recommend the traditional OF test in the diagnosis of Hereditary Hemolytic anemias. Flow cytometric osmotic fragility (FC-OF) test has been defined in recent years. This test is simple, fast, inexpensive and more sensitive and more specific than the traditional OF test. The FC-OF test is still in development, and some variables have not yet been fully tested and the cut-off value is not clear either. We aimed to find the optimum cut-off level - measurement time and NaCl concentration in our laboratory.
MATERIALS and METHODS: We performed FC-OF test in FACS-CANTO (BD) brand Flow Cytometry device with EDTA-containing peripheral fresh blood at two separate NaCl concentrations of 6.0 g / L -8 g / L in 30 diagnosed Hereditary Spherocytosis (HS) cases and 40 healthy individuals. We determined the percentages of residual red blood cells (% residual RBC) at 140 seconds, 160 seconds, and 300 seconds after the addition of distilled water to the test.
RESULTS: While we found the most reliable NaCl concentration to be 6.0 g / L to distinguish HS cases from healthy controls, we determined the cut-off value for% residual RBC as 25%. We found no difference between% residual RBC between 300th second and 160th second.
CONCLUSIONS: The FC-OF test is an easy, inexpensive and more reliable screening test than the traditional OF test, which provides results in an hour.
Keywords: Flow Cytometry, Hereditary Spherocytosis, Osmotic Fragility

OP-074
ULTRA FAST GLIOBLASTOMA DETECTION BY CRISPR BASED BIOSENSOR

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OBJECTIVES: Glioblastoma (GBM, WHO stage IV astrocytoma) is the most common and most aggressive malignant brain tumor. Somatic single nucleotide mutations in the isocitrate dehydrogenase (IDH1) gene mutation are an important biomarker in the correct diagnosis of both glioblastomas. However, the detection of this mutation, which is determined by sequencing method, is very limited as it requires high cost and time. In this study, a biosensor system was developed to determine mutations of the IDH1 gene with the CRISPR-dCas9 system.
MATERIALS and METHODS: This biosensor system has been developed as an impedimetric/capacitive DNA biosensor using dCas9 proteins without endonuclease activity. A gold electrode was first coated with PAMAM after cystamine to increase the sensitivity, then the dCas9 proteins were immobilized to this modification with glutaraldehyde, and IDH was modified with synthetic guide (sg) RNAs targeting the R132 codon, that is, target isocitrate dehydrogenase (IDH) enzyme mutations. It has been made to recognize its mutations.
RESULTS: The CRISPR system, which will be linked to the target DNA sequence on the entire genome, as impedimetric biosensor to detect the presence of target mutation, and the presence of the target genome sequence and its approximate length were also determined by capacitive measurements. The biosensor system, which provides measurement in 92 seconds and selectivity up to a single base, can determine the target point mutation faster than PCR.
CONCLUSIONS: The DNA biosensor we developed has succeeded in analyzing the IDH1 gene point mutation for glioma diagnosis in 92 seconds by accurately determining the target point mutation at a rate of 0.9923.
Keywords: CRISPR, Biosensor, Impedance, Glioblastoma, IDH

OP-075
ANTIGEN RETRIEVAL IN FORMALIN-FIXED PARAFFIN-EMBEDDED GASTRIC BIOPSY SAMPLES: ESCAPE PROTEINS IN BUFFER SOLUTION

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OBJECTIVES: Formalin-fixed paraffin-embedded(FFPE) tissues are valuable for mass spectrometry-based proteomic studies as they correlate with clinical data. In the matrix-assisted laser desorption/ionization(MALDI) imaging(MSI) method histological information and the spatial distribution of analytes on the tissue is determined. Successful results of MALDI-MSI applications on FFPE tissues depend on the effect of antigen retrieval. Antigen retrieval allows the detection of various proteins by unmasking epitopes by hydrolysis of formalin-induced methylene cross-links with the aid of heat. Since there are many optimization steps in MALDI-MSI analysis, the aim of study is to compare different buffers in terms of protein amount in samples taken into tubes in order to evaluate the effect of antigen retrieval.
MATERIALS and METHODS: Sections of 14 µm thickness were taken into tubes by microtome. For tissue preparation, different antigen retrieval procedures were performed using buffer solutions of 10 mM Citrate(pH 6), 10 mM Citrate + 2%SDS and 10 mM Tris(pH 9), followed by washing with xylene and decreasing alcohol concentrations. Protein concentrations obtained as a result of methanol/chloroform precipitation were measured by Bradford assay and LC-MS/MS analysis was performed. MALDI-MSI analysis was performed using citrate buffer in the selected biopsy sample.
RESULTS: It was observed that the protein concentration obtained as a result of antigen retrieval in Citrate+SDS buffer solution was the highest.As a result of LC-MS/MS proteomic analysis, keratin proteins escape into the buffer solution were detected.
CONCLUSIONS: It is important to eliminate methylene cross-links caused by formalin fixation in FFPE tissues and to optimize the sample preparation steps of MALDI-MSI analysis of tissues.
Keywords: FFPE, MALDI-MSI, Sample Preparation, Optimization, Antigen Retrieval

OP-076
PROTECTIVE EFFECT OF ALPHA-LIPOIC ACID AGAINST SKIN FIBROSIS IN BLEOMYCIN-INDUCED SCLERODERMA MODEL

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OBJECTIVES: Scleroderma (SSc) is a connective tissue disease characterized by fibrosis of the skin and internal organs. It is well known that oxidative stress plays a major role in that period. The aim of this study was to investigate the protective effect of alpha-lipoic acid (ALA), called as antioxidant of antioxidants, and molecular mechanisms mediating its antioxidant, antifibrotic and anti inflammatory effect against bleomycin induced scleroderma in mice.
MATERIALS and METHODS: 32 healthy female Balb-c mice were used in this study and randomly divided into four groups: control(n=8), ALA(100mg/kg)(n=8), BLM(5µg/kg)(n=8), BLM+ALA(n=8). Skin tissue specimens and blood were collected. Connective tissue fibrosis in the dermis area was evaluated histopathologically. mRNA expressions of the subunit of NADPH oxidase (NOX4), tumor necrosis factor (TNF-α), fibronectin, α-smooth muscle actin and type I collagen in skin tissue samples were analysed by qPCR. Also, activation of p38 MAPK signaling was evaluated by western blot. Serum total antioxidant status (TAS) and total oxidant status (TOS) were analysed by using a colorimetric kit.
RESULTS: In the ALA groups, connective tissue fibrosis in the dermis area was significantly lower than that of the BLM group ($p<0.05$). ALA also significantly reduced mRNA expressions of NOX4 in the BLM group, which was parallel to significant decreases of TNF-α, fibronectin, a-smooth muscle actin, and type I collagen mRNA expressions ($p<0.05$). In serum samples, ALA increased TAS and decreased TOS compared to the BLM group ($p<0.05$). ALA could suppress the activation of p38 MAPK during BLM administration.
CONCLUSIONS: ALA not only plays as an antioxidant but also an antifibrotic role in the SSc bleomycin induced mouse model. Our study suggests that ALA could be beneficial for patients with SSc.
Keywords: Scleroderma, Alfa Lipoic Acid, Antioxidant, Antifibrotic

OP-077
INVESTIGATION OF THE EFFECT OF CONTRAST MEDIA ON ROUTINE UROONCOLOGICAL TUMOR MARKERS

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OBJECTIVES: Contrast media drugs frequently used in imaging techniques have many side effects, from urticaria to anaphylaxis. Although clinicians are cautious about these side effects, they may not have enough information about the interference effects on laboratory test results. If contrast media drugs cause false high or false low test results, especially on tumor markers, it may cause misdiagnosis. The aim of this study is to investigate the effects of three different parenteral contrast media on AFP, HCG, PSA, CA15-3, CEA, CA125 tests results.
MATERIALS and METHODS: The study was carried out using the chemiluminescence immunoassay method (Siemens, Atellica,USA) with BioRad hormone control material.1800µL of control solution was mixed with 200µL of fluorescein, ioversol, gadopentetic acid, respectively. After the sample was vortexed,it was incubated for 20 minutes at room temperature. AFP, HCG, PSA, CA15-3, CEA, CA125 were measured from the control sample. The study was reperformed by adding 200 µL of distilled water. The measurements were repeated three times and the mean values were recorded. Percentage deviations from the target value were calculated with bias.
RESULTS: Fluorescein related deviations were determined as AFP -17.46%, HCG -15.25%, PSA -9.91%, CA 15-3 -99.79%, CEA -12.18%, CA125 -18.62%. Ioversol related deviation values were determined as AFP -6.88%, HCG -5.77%,PSA 9.91%, CA 15-3 27.08%, CEA 6.96%, CA125 -4.93%. Gadopentetic acid related deviation values were determined as AFP -1.59%, HCG -1.41%, PSA 8.62%, CA 15-3 18.75%, CEA 6.35%, CA125 -7.72%.
CONCLUSIONS: Due to fluorescein,a significant deviation in tumor markers was observed between -9.91% and -99.79%. Ioversol and gadopentetic acid produced positive interference in CA15-3 at ratio 27.08% and 18.75%,respectively. After contrast medium infusion, interference in test results may lead to false interpretation of tests and malpractice.
Keywords: Ioversol, Gadopentetic Acid, Fluorescein, Tumor Markers, False Result

OP-078
DETERMINATION OF TRACE ELEMENT AND MINERAL LEVELS IN DIFFERENT TISSUES OF SOME FISH SPECIES (CAPOETA) LIVING IN BOTAN (SIIRT) RIVER

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OBJECTIVES: In this study *Capoeta damascina, Capoeta caelestis, Capoeta capoeta* and *Capoeta umbla* fish species in liver, brain, gills and muscle tissue in Botan Stream (Ulucay) in the province of Siirt were investigated for mineral and trace elements (As, Cd, Co, Cr, Cu, Fe, Mg, Mn, Ni, Pb, Zn).
MATERIALS and METHODS: Fish liver, brain, gill and muscle tissues samples were prepared for analysis using the dry ashing method. Subsequently, trace element and mineral levels were then determined using Inductively Coupled Plasma Atomic Emission Spectrometer (ICP-OES).
RESULTS: Mg, Fe and Zn levels of liver, brain, gill and muscle tissues of *Capoeta damascina, Capoeta caelestis, Capoeta capoeta* and *Capoeta umbla* species were found to be higher than the other elements studied.
CONCLUSIONS: Among the *Capoeta* fish species *(Capoeta damascina, Capoeta caelestis, Capoeta capoeta, Capoeta umbla),* which are consumed at the some time by the people and have economic value, living in the Botan Stream (Ulucay), levelsof trace elements and minerals (As, Cd, Co, Cr, Cu, Fe, Mg, Mn, Ni, Zn) in the liver, brain, gill and muscle tissues were below the recommended acceptable values for fish in Turkish Food Codex, Environmental Protection Agency and World Health Organization. However, Pb level was higher than the values determined in all tissues.
Acknowledgements: This work was supported by a grant from the Scientific Research Projects Presidency of Van Yuzuncu Yil University (FYL-2018-7538).
Keywords: Capoeta, Mineral, Trace Element.

OP-079
INVESTIGATION OF *IN VITRO* AND *IN VIVO* ANTICANCER EFFECT OF OLEUROPEIN ON COLORECTAL CANCER

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OBJECTIVES: Colorectal Cancer (CRC) is the third most common cancer diagnosed in the world. Although 5-Fluorouracil (5-FU) is the primary antineoplastic used in therapy, its insufficient treatment efficiency has led to the search for new herbal-based agents. Oleuropein (OLE), the phenolic active ingredient of olive leaf, shows anti-cancer properties at high doses. The aim of our study is to investigate the *in vitro* and *in vivo* anti-cancer effects of OLE and 5-FU combinations on CRC.
MATERIALS and METHODS: Cytotoxicity, genotoxicity, apoptosis, intracellular ROS, intracellular glutathione, and mitochondrial membrane potential were measured in LoVo cells. Cells were given to nude mices by the xenograft method. After four weeks of single and combination therapy, tumor size was measured by *in vivo* imaging system (IVIS) and caliper.
RESULTS: Combination therapy *in vitro* dose-dependently increased cytotoxicity, intracellular ROS, and calcium significantly compared to single therapy ($p<0.001$). DNA damage and apoptosis were induced higher in combined therapy than single therapy and increased statistically significantly ($p<0.001$). It was found that it decreased glutathione and MMP levels statistically significantly ($p<0.01$; $p<0.001$). Combination therapy *in vivo* has been found to reduce tumor size by a minimum of 30% compared to single therapy.
CONCLUSIONS: Our results showed that OLE has different anti-cancer properties *in vivo* and *in vitro*. The combined use of OLE and 5-FU may be an option for routine therapy.
Keywords: Oleuropein, Colorectal Cancer, IVIS, Anticancer

OP-080
APOPTOTIC EFFECTS OF RESVERATROL IN HEPATOCELLULAR CARCINOMA CELL LINE

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OBJECTIVES: Resveratrol is a polyphenol nonflavonoid compound which positively affects human health due to its anti-cancer, anti-inflammatory and anti-microbial properties. It had also been shown that resveratrol has role in preventive of cancer and anti-cancer properties. In this study, we aimed to investigate the effects of resveratrol on cell viability, apoptosis and cellular proliferation in human hepatocellular carcinoma cell (HepG2) line. MATERIALS and METHODS: Cytotoxicity was analyzed via MTT assay on HepG2 cells. HepG2 were treated with different resveratrol concentrations (5, 10, 25, 50, and 100 mM). Anti-cancer and proapoptotic properties of resveratrol were determined by immunocytochemistry using antibodies against caspase-3, cytochrome-c, Fas Ligand and Ki-67. RESULTS: The effective dose for inhibition of cell growth in HepG2 cells was determined to be 100 µM resveratrol for 48 hours. The immunoreactivity of cytochrome-c was significantly higher in resveratrol-treated HepG2 cells than the control group ($p<0.05$). Also, immunoreactivity of Ki-67 in resveratrol-treated HepG2 cells was significantly lower than the control group ($p<0.05$). CONCLUSIONS: Our results suggested that resveratrol induced apoptosis in human hepatocellular carcinoma cells. Interestingly, resveratrol triggered intrinsic apoptotic pathway in human hepatocellular carcinoma cells. Moreover, resveratrol decreased significantly Ki-67 immunoreactivity and showed anti-proliferative effects in HepG2 cells.
Keywords: Resveratrol, Apoptosis, Human Hepatocellular Carcinoma

OP-081
INVESTIGATION OF PHOTOTOXIC EFFECTS OF SILICON PHTHALOCYANINE AGAINST A549 CELL LINE

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OBJECTIVES: Lung cancer is the most common cause of cancer-related mortality in global. According to the World Health Organization, about 2 million people died in 2018 because of lung cancer. Photodynamic therapy (PDT) is an alternative method to treat lung cancer in recent years. Phthalocyanines are used as PDT agents for cancer treatment. In this study, we aimed to investigate the potential of water soluble silicon phthalocyanine containing dimethylamino groups (SiPcMS) as a PDT agent for lung cancer. MATERIALS and METHODS: The DNA photodamage effects of SiPcMS were examined using agarose gel electrophoresis (1 and 5 µM, white light, 17.5 mW/cm2, 5-10-15 min). The cytotoxic/phototoxic (white light, 17.5 mW/cm2, 30 min) effects of SiPcMS were investigated using MTT cell viability test against human lung carcinoma (A549) cell line (n=6, 0.01-10 µM, 24 h). Cis-platin was used as a positive control. To determine the cell death mechanism of SiPcMS, Anneksin V-FITC apoptosis test and cell cycle analysis were used. RESULTS: SiPcMS had high photodamage on DNA depending on the light dose and concentration whilst it showed low nuclease effect without irradiation. MTT results showed that SiPcMS had higher phototoxic activities than its cytotoxicity ($p < 0.001$). The IC50 values of SiPcMS (at light) and cisplatin were determined as 0.18±0.04 and 9.37±2.70 µM. The apoptotic cells at 1 µM were 15.10% and 61.60%, respectively, in the absence and presence of light. As a result of the cell cycle analysis, SubGo/G1 phase increased at 1 µM in the presence of light. The cell death mechanism studies showed that SiPcMS induced apoptosis on A549 cells. CONCLUSIONS: These results showed that SiPcMS has high DNA photodamage and phototoxic effects and the compound is a promising candidate for PDT agent.
Keywords: A549, Photodynamic Therapy, Cancer, Apoptosis

OP-082
A COMPARATIVE EVALUATION OF CYTOTOXIC AND CELLULAR ANTIOXIDANT ACTIVITY OF ORIGANUM ONITES L. ESSENTIAL OIL AND ITS TWO COMPONENTS IN HCT-116 CELLS

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OBJECTIVES: Origanum onites L. (Turkish Oregano) is one of the cultivated Origanum species in Turkey. Origanum onites L. essential oil has medicinal and preservative importances, including antiviral, antimicrobial, antioxidant, anticancer and proapoptotic properties. Carvacrol and p-cymene are the important compounds of O. onites essential oil. In this study, we aimed to determine the effects of essential oil from Origanum onites L. and its two components, carvacrol and p-cymene, on cytotoxicity and to investigate their cellular antioxidant effects in human colorectal carcinoma (HCT-116) cells. MATERIALS and METHODS: Origanum onites essential oil components were analyzed by GC/MS and GC/FID. Cytotoxicity was analyzed via the MTT assay on HCT-116 cells. HCT-116 were separately treated with Origanum onites essential oil, carvacrol and p-cymene concentrations (100-500 µg/ml). Cellular antioxidant activities of Origanum onites essential oil, carvacrol and p-cymene were determined with dichloro-dihydro-fluorescein diacetate (DCFH-DA). RESULTS: GC/MS analysis identified carvacrol (%78.4) as the main constituent of Origanum onites essential oil. The effective dose for inhibition of cell growth in HCT-116 was determined to be 400 µg/ml Origanum onites essential oil, carvacrol and p-cymene after 48 hours treatment period. The cellular antioxidant effect of the carvacrol was found to be significantly higher than the control group. Also, carvacrol showed higher cellular antioxidant activity than Origanum onites essential oil and p-cymene. CONCLUSIONS: Our results suggested that Origanum onites essential oil, carvacrol and p-cymene have anti-proliferative effects on HCT-166 cells. Moreover, carvacrol exhibited higher cellular antioxidant activity than Origanum onites essential oil and p-cymene in HCT-116 cells.
Keywords: Origanum Onites L. Essential Oil, Carvacrol, P-Cymene, Colon Cancer

OP-083
NEURTURIN: A NEUROTROPHIC FACTOR IN BREAST CANCER

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OBJECTIVES: The glial cell line-derived neurotrophic factor family ligands comprise a group of four homologous and potent growth factors that includes GDNF, neurturin (NRTN), artemin, and persephin. NRTN, one of the neurotrophic factors, is a protein that mediates both the development of the organism and the growth and survival of neurons. NRTN binds to GFRα2 coreceptor and exerts its effects through Ret tyrosine kinase. In our study, we aimed to examine the possible role of NRTN in breast cancer pathogenesis. MATERIALS and METHODS: Gazi University Medical Faculty Hospital General Surgery Outpatient Clinic and Dr. Abdurrahman Yurtaslan Ankara Oncology Training and Research Hospital General Surgery Outpatient Clinic 110 patients diagnosed with breast cancer (regardless of staging) and 110 healthy women without any systemic disease. Serum NRTN level was measured in blood samples taken from the study group using commercial ELISA kits. Findings were evaluated with SPSS 20.0 statistical program. RESULTS: Serum NRTN levels (1.81 ± 0.25 ng / mL) in patients with breast cancer were found to be significantly higher than the healthy control group levels (1.1 ± 0.16 ng / mL) ($p=0,019$).
CONCLUSIONS: In our study, it was found that soluble NRTN levels increased in the serum of breast cancer patients. In the light of these findings, it is thought that NRTN may play a role in breast cancer pathogenesis.
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Keywords: Breast Cancer, Neurturin, Neurotrophic Factor

OP-084
EVALUATION OF SERUM TRAIL AND DR5 LEVELS IN PATIENT WITH BREAST CANCER

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OBJECTIVES: Breast cancer is the most common type of cancer among women in the world. One of the factors developing of cancer is the impaired apoptosis mechanism. Changes in serum levels of TNF-associated apoptosis inducing ligand (TRAIL) and its receptor DR5, some of the extrinsic apoptotic pathway elements, are associated with the prognosis of cancer. In our study, it was aimed to evaluate serum TRAIL, DR5 levels in with breast cancer patients.
MATERIALS and METHODS: Our study group includes 62 newly diagnosed patients with breast cancer who not treated and 62 healthy individuals in the Department of General Surgery, Gazi University Medical Faculty Hospital. The mean age of the breast cancer patients and the control group was 53.82 ± 1.56 and 52.23 ± 1.37, respectively; mean body mass index is 27.55 ± 0.59 and 28.41 ± 0.64, respectively. Serum TRAIL and DR5 levels were measured with a commercial kits in blood of the study group. The results were evaluated by SPSS 20.0 package program.
RESULTS: Serum DR5 levels were measured as 1.57 ± 0.11 ng / mL in breast cancer patients and 1.03 ± 0.10 ng / mL in the healthy control group, and a significant difference was found between the two groups ($p < 0.01$). TRAIL levels were measured as 6.53 ± 0.51 ng / mL in breast cancer patients and 6.99 ± 0.43 ng / mL in the healthy control group, and there was no significant difference between the two groups ($p > 0.05$).
CONCLUSIONS: In a previous study, serum DR5 levels were reported to be significantly higher in colorectal cancer patients compared to the control group. Similarly, it was found that DR5 levels increased in the serum of breast cancer patients in our study. Additionally, there are not significant change in serum TRAIL levels of breast cancer, which is consistent with the data in the literature. With increasing serum DR5 levels in breast cancer, it is thought that the apoptotic mechanism induced by TRAIL may be involved in the pathology of the disease.
Keywords: TRAIL, DR5, Breast Cancer

OP-085
ASSOCIATION OF XPD LYS751GLN POLYMORPHISM WITH RENAL CELL CARCINOMA

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OBJECTIVES: Renal cell carcinoma makes 2-3% of all malignant cancers and is the third often cancer amongst all urogenital cancers. An abnormality in DNA repair mechanism results in cancer and aging. For that reason, DNA repair mechanisms are very important to prevent cancer development. Nucleotide excision repair (NER) pathway, has a role in the repairment of DNA damages that affect double strand helix structure. XPD Lys751Gln gene polymorphism is indicated as a risk factor for various cancers. On the other hand, in some studies it is reported that this polymorphism has no impact on cancer development. Our goal in this study is to reveal the distribution of XPD Lys751Gln gene polymorphism genotype and its relation with renal cell carcinoma in Turkish population.
MATERIALS and METHODS: The patients who were admitted to Istanbul Faculty of Medicine, Department of Urology between 2015 and 2018 and diagnosed for renal cell carcinoma (n=101, mean age: 54,5 year) and healthy people (n=94, mean age: 55.2 years) have formed the control group. XPD Lys751Gln gene polymorphism was determined using polymerase chain reaction restriction fragment length polymorphism (PCR-RFLP). Results were evaluated with chi-square test, logistic regression analysis and Mann-Whitney U test. Our study is proceeding to increase n number.
RESULTS: Age and BMI were similar in patient and healthy control groups. Genotype and allele frequencies for XPD Lys751Gln gene polymorphism were not significantly different between the patient and healthy control groups. The genotype distribution of XPD Lys751Gln gene polymorphism was consistent with Hardy–Weinberg equilibrium in controls and patients ($p > 0.05$). On the other hand, XPD Lys751Gln gene polymorphism was not associated with the clinicopathological characteristics of renal cell carcinoma.
CONCLUSIONS: We suggest that the XPD Lys751Gln gene polymorphism is not a risk factor for the development of renal cell carcinoma in Turkish population.
Keywords: Renal Cell Carcinoma, XPD Lys751Gln Gene Polymorphism, Turkish Population, PCR-RFLP

OP-086
THE EVALUATION OF CATALASE (CAT) C-262T GENE POLYMORPHISM IN TURKISH RENAL CELL CARCINOMA PATIENTS

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OBJECTIVES: CAT is an enzyme involved in ROS neutralizing pathways participating in defence mechanisms against oxidative stress.This study was designed to explore whether the C-262Tsingle nucleotide polymorphism in catalase (CAT) gene influenced the development and progression of renal cell carcinoma (RCC).
MATERIALS and METHODS: The patients who were admitted to Istanbul Faculty of Medicine, Department of Urology between 2015 and 2018 and diagnosed for renal cell carcinoma (n=113, mean age: 54,7±10,7 year, mean BMI: 28,1±4,7) and healthy people (n=203, mean age: 56,0±11,0 year, mean BMI: 27,2±2,8) have formed the control group. WHO/ISUP grade and clinical T stages of the patients were determined. G1 and G2 were recorded as low grade (n=72), G3 and G4 as high grade (n=41); those with T stage T1 and T2 were recorded as low stage (n=72), those with T3 and T4 as high grade (n=41).DNA samples obtained from patients and healthy controls were analyzed for CAT C-262Tgene polymorphism by using Polymerase chain reaction (PCR), restriction fragment length polymorphism (RFLP) and Agarose Gel Electrophoresis techniques. Pearson Ki-square ($\chi 2$) test, student-t test, Mann-Whitney U test and logistic regression test were used for statistical analyses of the results.
RESULTS: No statistically significant difference was determined between patient and control groups in terms of age and body mass index (BMI).%39,8 of the patient group was CC, %44,2 CT, %16 TT genotype; %52,7 of the control group were found in CC genotype, %39,4 in CT, %7,9 in TT genotype. In the patient group, the C allele was %62, T allele %38; in the control group, the C allele was %72,4 and T allele was %27,6. When CAT C-262T polymorphism was evaluated, it was observed that there was a significant increase in TT genotype distribution in patient group when compared to control group (p=0,012). There was no significant difference between high grade and advanced stage in terms of CAT C-262T polymorphism.
CONCLUSIONS: We suggest that CAT C-262T gene polymorphism may be effective in the initiation of renal cell carcinoma, but not in its development.
Keywords: Renal Cell Carcinoma, CAT C-262T Polymorphism, Turkish Population, PCR-RFLP

OP-087
INVESTIGATION OF SERUM IRISIN LEVELS IN COLORECTAL CANCER PATIENTS

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OBJECTIVES: Investigation of the serum irisin levels in obesity, obesity-related diabetes mellitus and obesity-related other diseases is a current issue. It was aimed to investigate serum irisin levels in colorectal cancer (CRC) patients and healthy volunteers.
MATERIALS and METHODS: The cross-sectional study included 53 patients diagnosed with colorectal cancer and 87 healthy volunteers. Serum irisin, glucose, insulin, c-peptide and plasma HbA1c levels were measured in venous blood samples taken from patients and the control group. This study was supported by Ataturk University Scientific Research Projects Coordinator.
RESULTS: Serum irisin level was found 23.97±16.94 ng / mL in the patient group and 32.71±17.26 ng / mL in the control group. The mean serum irisin level was statistically significantly lower in the patient group compared to the control group ($p = 0.004$). Serum glucose level was found 96,58±15,12 mg / dL in the patient group and 81.91 ± 11.24 mg / dL in the control group. Serum glucose level was statistically significantly higher in the patient group compared to the control group ($p < 0.01$).
CONCLUSIONS: Our findings that serum irisin levels are decreased in CRC patients compared to healthy controls made a significant contribution to the literature. In addition, glucose intolerance and insulin resistance, which are common in cancer patients, may have an effect on the low serum irisin levels in CRC patients. We hope that our results will lead to further studies including in-vitro, in-vivo and in large patient groups for the use of irisin in many diseases, especially CRC.
Keywords: Colorectal Cancer, Irisin, Obesity

OP-088
A RETROSPECTIVE EVALUATION OF FREE PROSTATE-SPECIFIC ANTIGEN ORDERS IN PROSTATE CANCER SCREENING

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OBJECTIVES: Prostate spesific antigen (PSA) is a tumor marker used for prostate cancer screening. PSA is found in serum two forms; free (fPSA) and complex PSA. It is recommended to measure fPSA levels when Total PSA (TPSA) levels are between 4-10 ng/mL. The aim of the current study was to perform a cross-sectional analysis rather than ensuring the harmony between medical laboratory and clinical branches.
MATERIALS and METHODS: TPSA, fPSA, fPSA test demand when TPSA values were 4-10 ng/mL were examined. Average age of the patients and the departments where the tests were requested were also examined. Patient data between October 2019 and September 2020 were accessed from laboratory information system retrospectively.
RESULTS: TPSA test was requested from 1322, fPSA test was requested from 766 patients. The number of patients whose TPSA values were between 4-10 ng/mL was 110. Simultaneous fPSA test was requested for 89 patients and simultaneous or later fPSA test was not requested for 21 patients. The mean age of the patients was 61.55. The departments requested for TPSA test were 26.3% Urology, 24.8% Familiy Medicine, 22.8% Internal Medicine, 9.6% Oncology and 16.5 other departments.
CONCLUSIONS: fPSA test is expected to be ordered after TPSA test result. However, these two tests can be ordered together in routine clinical practice due to reasons such as possible false positive/negative values of TPSA test, possible incompatibilities in the follow up of patients who needs care, situations where the health system is burdened and the desire to avoid invasive biopsy procedures.
Keywords: Prostate Cancer, Prostate Specific Antigen, Cancer Screening

OP-089
THE EFFECT OF METFORMIN AND VERTEPORFIN ON GROWTH ARREST SPECIFIC PROTEIN 6/AXL PATHWAY IN HUMAN CHOLANGIOCARCINOMA CELL LINE

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OBJECTIVES: Cholangiocarcinom (CCA) is a malignant tumor originating from bile duct epithelial cells. Since tumor metastasis is associated with poor prognosis and short-term survival of patients, there is an urgent need for alternative therapeutic approaches for CCA. Growth arrest specific protein 6 (Gas6), a ligand of Axl, is known to play a role in the regulation of tissue homeostasis. Gas6/Axl has been shown to play an oncogenic role in many cancer studies, but it has also been reported to play a tumor suppressor role in a few studies. In this study, we investigated the effect of Metformin and Verteporfin on Gas6/Axl in cholangiocarcinoma (TFK-1) cell line. Moreover, the effect of Metformin and Verteporfin on apoptosis was investigated.
MATERIALS and METHODS: TFK-1 cells were treated with 5 µM Metformin and 13 µM Verteporfin. Both drugs were dissolved in DMSO and used as negative control.Gas6, Axl, and sAxl protein concentrations were analyzed by the Elisa method. Apoptosis was performed by Muse® Cell Analyzer.
RESULTS: Metformin and Verteporfin statistically increased Gas6 /Axl and sAxl protein concentrations ($p<0.001$, $p<0.04$, $p<0.001$; $p<0.02$, $p<0.02$, $p<0.001$). Metformin and Verteporfin statistically increased apoptosis ($p<0.001$; $p<0.001$).
CONCLUSIONS: We observed the antiproliferative effects of both Metformin and Verteporfin in cholangiocarcinoma due to the induction of apoptosis. However, the role of Gas6 and Axl in cancer is a paradox, that is, experimental studies have reported that their functions may change according to tissue and cell type and may play a dual role in cancer. sAxl may have been increased by proteolysis of Axl. Gas6 and Axl expression may be increased by induction of apoptosis to maintain dormancy of cells remaining in the tumor microenvironment.
Keywords: Cholangiocarcinoma, Metformin, Verteporfin, Gas6, Axl

OP-090
INVESTIGATION OF THE EFFECT OF CIVAN PERCEMI (ACHILLEA MILLEFOLIUM) ON EHRLICH ASCITES TUMOR

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OBJECTIVES: One of the most important health problems of today is cancer. In addition to the basic methods used in cancer treatment, complementary and alternative treatment applications have increased recently. One of these applications is herbal treatment. The aim of this study was to investigate the in vitro effect of yarrow perch (CP) with known anticarcinogen effect on Ehrlich Ascites Tumor (EAT).
MATERIALS and METHODS: The above-ground part (300 g) of the CP was massaged with water and extracted three times in a shaking water bath at 37 ° C for 24 hours. The extracts obtained were concentrated and lyophilized in rotavapor (37-38 ºC) under vacuum. The obtained extract was dissolved in a mixture of distilled water and 0.1% DMSO. In the study, EAT cells were divided into control, DMSO group 5-FU, 50, 100, 200, 400 and 800 µg / ml CP groups. It was cultured at 37 ° C for 24, 48 and 72 hours in an environment with 5% CO2. Cell cycle analyzes were performed using MuseAnnexin V, Muse Cell Cycle and Mito Potential kits compatible with the Muse Cell Analyzer device.
RESULTS: At the end of the 48th hour, it was observed that total apoptosis increased significantly in CP groups (especially 50 µg / ml) compared to the control group ($p <0.05$). It was observed that CP slowed the division of EAT cells (especially 800 µg / ml) by halting the cell cycle at the G0 / G1 stage. It was concluded that CP (especially at high doses) triggered apoptosis by significantly increasing the percentage of total depolarized cells ($p <0.001$) in all three time periods.
CONCLUSIONS: The results obtained as a result showed that CP extract may have an antitumoral effect on EAT cells. It is thought that this study will contribute to studies on cancer treatment.
Keywords: Yarrow, EAT, Apoptosis

OP-091
THE EFFECT OF RESVERATROL ON HEART IN EXPERIMENTAL HYPERTHYROID RATS

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OBJECTIVES: Hyperthyroidism is an endocrine disease characterized by overproduction of thyroid hormones FT3 and/or FT4. The aim of this study is; Investigation of the effect of resveratrol on the heart in rats with experimental hyperthyroidism with L-thyroxine.
MATERIALS and METHODS: 4 groups were formed as Control, Hyperthyroidism, Hyperthyroid Resveratrol (1mg/kg/day), Hyperthyroidism Resveratrol(5mg/kg/ day). The rats in the Control and Hyperthyroidism groups were sacrificed after hyperthyroidism was found to be statistically significant. After the occurrence of hyperthyroidism, indicated doses of resveratrol i.p. was applied to the Hyperthyroid Resveratrol(1mg/kg/day) and Hyperthyroid Resveratrol (5mg/kg/day) groups for 3 weeks. Caspase -3, -8 and -9 enzyme activities and Bcl-2 levels as apoptotic markers; nitric oxide (NO), endothelin-1 (ET-1) and hypoxia-induced factor-1-alpha (HIF1a) levels as angiogenic markers were determined in heart tissues; also FT3, FT4, HDL, LDL, total cholesterol and triglyceride levels were evaluated in serum.
RESULTS: There was a significant decrease in Caspase -3, -8 and -9 enzyme activities in Hyperthyroidism+Resveratrol (5mg/kg/day) group compared to Hyperthyroidism and Hyperthyroidism+Resveratrol (1mg/kg/day) groups. There was no effect of resveratrol on Bcl 2, FT3, FT4, NO, ET-1 and HIF-1a. Both doses of resveratrol, significantly increased HDL and total cholesterol levels and decreased LDL compared to Hyperthyroidism group. Triglyceride levels were significantly decreased in Hyperthyroidism+Resveratrol (1mg/kg/day) group compared to Control and Hyperthyroidism groups.
CONCLUSIONS: It may suggested that resveratrol have a cardioprotective effect on heart tissues with hyperthyroidism due to its suppression of apoptosis in the extrinsic and intrinsic pathways and beside its antilipidemic properties.
Acknowledgement: This study was supported by Mersin University Research Foundation (2019-1-TP2-3294).
Keywords: Hyperthyroidism, Resveratrol, Caspase, HDL, LDL

OP-092
INVESTIGATION OF THE EFFECT OF OLEUROPEIN ON CD36 GENE EXPRESSION IN RAW264.7 CELL LINE

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OBJECTIVES: Olive and olive oil are an essential component of the Mediterranean diet (MD) and have positive effects on many diseases. One of the most important benefits of MD is its effect in preventing cardiac events and / or coronary heart disease. Oleuropein is the main polyphenolic compound of olive and olive oil. It has many beneficial effects such as antioxidant, anti-inflammatory and anti-atherogenic effects. In this study, it was aimed to investigate the possible effects of oleuropein on CD36 gene expression which regulates Ox-LDL uptake in RAW 264.7 macrophage cell line. Thus, a contribution will be made to the literature to elucidate the mechanisms underlying the anti-atherogenic effect of oleuropein.
MATERIALS and METHODS: RAW 264.7 macrophage cells were obtained from ATCC (American Type culture collection). MTT test was performed to determine the dose of oleuropein to be used in the study. Therefore, cells were treated with different concentrations of oleuropein (0, 1, 5, 10, 25, 50, 100, 250 µM) prepared by dissolving in DMEM. After dosage determination, cells were treated with determined concentrations of oleuropein for 48 hours. CD36 gene expression was examined by RT-PCR in the cDNAs obtained at the end of the period. Differences between groups were determined by paired samples T test.
RESULTS: Since oleuropein concentration up to 100 µM did not have a cytotoxic effect in RAW264.7 cells, oleuropein concentrations of 5-100 µM were used in the study. A significant reduction in CD36 gene expression of 100 µM Oleuropein (0.72 ± 0.25 Fold / Gapdh) compared to control group (0.00 ± 0.00 Fold / Gapdh) was observed in cells treated with oleuropein for 48 hours ($p = 0.031$).
CONCLUSIONS: Oleuropein exhibited anti-atherogenic effect by inhibiting CD36 expression in RAW264.7 cell line. Therefore, oleuropein can be used as part of new therapeutic strategies for the prevention and treatment of atherosclerosis.
Keywords: CD36, Oleuropein, Ox-LDL, RAW264.7, RT-PCR

OP-093
EVALUATION OF NOVEL MARTIN FORMULA AND FRIEDEWALD FORMULA FOR LDL-C ESTIMATION IN A ADULT POPULATION

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OBJECTIVES: Friedewald formula is used in the calculation of LDL-C. However, several new formulas for prediction of LDL-C have been proposed in recent years but have not been validated in different populations. The aim of this study is to compare the directly measured LDL-C, Friedewald and a new Martin LDL-C formulas in the Turkish adults population.
MATERIALS and METHODS: A total of 1558 patients between the ages of 18 and 65 with a triglyceride level of<400 mg / dL were included in this study. Serum lipid profile concentrations of all patients were measured with Cobas 6000 c501 (Roche Diagnostic). d-LDL-C concentrations were measured by a homogeneous direct method using reagents. The d-LDL-C measurement results were used as a reference method. Friedawald [TC- (HDL-C + (TG/5)]and Martin [TC-(HDL-C + TG / new adjustable factor)] formulas were used to estimate LDL-C.
RESULTS: The average age of the patients included in the study was 52.7±12.3. Of the 1558 patients, 56% were women and 44% were men. The d-LDL-C, F-LDL-C and M-LDL-C concentrations in the all patient were 148.6±39.8 mg/dL, 123.9 ± 38.7 mg/dL and 133.4±35.9 mg/dL, respectively. The mean difference between F-LDL-C and M-LDL-C concentrations according to d-LDL-C in the patients was 24.6±10.7 and 15.10±10.3, respectively. In comparing the Scatter blot plot [estimated LDL-C (x) and d-LDL-C (y)] in patients, were calculated by the equations y=1.1665x+0 for Friedewald and y=1.1667x+0 for Martin. When compared to the dDL-C concentration, both the Friedewald and Martin formulas showed a strong correlation (r=0.963, r=0.968, respectively). The new adjustable factor mean of Martin formula was 6.1±0.9.
CONCLUSIONS: Although there was a strong correlation between formulas and dLDL-C in our study, there was a negative bias in the calculated LDL-C concentrations. These formulas show a lower risk in the determination of the risk of coroner heart disease and in the planning of treatment strategies. This may lead to delayed lipid-lowering treatment or improper diet for high-risk patients with coronary artery disease. This difference was less in the Martin formula. Martin formula showed a relatively better separation.
Keywords: Friedewald Formula, Martin Formula, LDL Cholesterol, Direct LDL Measurement, LDL Cholesterol Estimation

OP-094
INVESTIGATION OF HERPES VIRIDEA FREQUENCIES IN LYMPHOPENIC MALIGNANT PATIENTS RECEIVING CHEMOTHERAPY

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OBJECTIVES: In this study, we aimed to investigate the frequency of EBV, HSV, CMV and Parvovirus B19 viral infections in patients diagnosed with cancer receiving chemotherapy in our clinic.
MATERIALS and METHODS: 138 lymphopenic patients who were hospitalized and received chemotherapy at the Medical Oncology Clinic of Ataturk University Medical Faculty Hospital, and 30 healthy controls were evaluated. The % frequency of EBV, HSV, CMV and Parvovirus B19 in serum samples were determined by real time PCR method.
RESULTS: The mean age of the patients was 58.93±13.28 years, and the mean duration of diagnosis was 2,0±2,2 years. EBV positively was detected in 9 patients (6.5%), CMV positively in 12 patients (8.7%), and EBV and CMV (together) positively in 1 (0,7%) patient. HSV and parvovirus B19 positively were not determined in any patients. EBV, HSV, CMV and Parvovirus B19 positivity was not found in any healthy volunteers. According to the results of the survival analysis, the average survival time in all lymphopenic patients was 3.71 (%95 confidence interval: 2,92-4,51) months. It was observed that 65.21% of all lymphopenic patients die within 12 months following lymphopenia diagnosis.
CONCLUSIONS: EBV and CMV positivity rates were determined in all lymphopenic patients receiving chemotherapy (6.5% and 8.7%, respectively). This study is the first to investigate the frequencies of HSV, CMV, EBV and parvovirus B19 in lymphopenic cancer patients receiving chemotherapy. Lymphopenic patients receiving chemotherapy should be followed up by physicians for viral infections and treated with antiviral therapy in the early stages of infection.
Keywords: Cancer, Chemotherapy, Lymphopenia, Viral Infections

OP-095
CHANGING THE PARADIGM OF EQAS THROUGH THE IMPLEMENTATION OF PATIENT-BASED REAL-TIME QUALITY CONTROL MONITORING

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OBJECTIVES: External quality assessment (EQA) or proficiency testing (PT) plays a crucial role in the standardization and harmonization. The performance of instruments/methods used in medical laboratories is routinely evaluated by EQA providers. Laboratories measure the concentrations of measurands using commercial samples obtained from EQA providers. However these samples are not commutable and therefore their measurements results may not represent the performance of the methods/instruments correctly. In this study we aimed to evaluate the reliability of the test performance reported by EQA providers using the trends of long term patients test results.
MATERIALS and METHODS: We analyzed the results of three different measurands (ALT, Na and cholesterol) reported by two different EQA providers and compared with the trends of long term patients' results.
RESULTS: The standard deviation indexes (SDIs) of ALT reported for three surveys were -0.5, 3.44, -0.23 respectively. Although in the second survey the SDI was out of range, no shift in patients' results was detected. On the other hand, in the third survey the SDI was within acceptable range but a shift was detected. The SDIs of Na were 0.40, 3.86, 0.60 respectively but no shifts were detected in patients' results. A similar pattern was observed for cholesterol. The D/Dmax of cholesterol were -0.20, -1.67, -1.17 but no shifts were detected in patients' results.
CONCLUSIONS: The results reported by EQA providers may not reflect the trend of patients' tests results correctly. Therefore in addition to EQAS results the trend of patients' tests results should be monitored as a complementary factor and the corrective and preventive actions should be taken accordingly.
Keywords: Patient-Based Real-Time Quality Control, External quality assessment, proficiency test

OP-096
EVALUATION OF TOTAL TESTING PROCESS FOR HBA1C WITH RISK ANALYSIS

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OBJECTIVES: Risk analysis has an increasing importance in improving the service quality of clinical laboratories, especially as a requirement of the ISO 15189 standard. CLIA regulations also recommend test -based risk analysis for individualized quality control plan (IQCP). In this study, it was aimed to evaluate the contribution of risk analysis applied for HbA1c test to total testing process..
MATERIALS and METHODS: Failure modes and effects analysis (FMEA) method was used for risk analysis. Risk priority numbers (RPNs) of pre-analytical, analytical and post-analytical risks for HbA1c testing were calculated using frequency, severity and detectability values. An evaluation scale was created with a maximum of 10 points for frequency and severity and a maximum of 3 points for detectability. ROS value> 150 was considered as very severe risk, between 100-150 as severe risk, between 50-100 as medium risk, between 25-50 as low risk, and <25 as very low risk. Corrective action was planned for those RPN> 50.
RESULTS: RPNs for pre-analytical and analytical risks were <50. RPNs for three of the analytical risks (random error, systematic error, interference) were calculated over 50 and the corrective action was applied by accepting them as medium risks. RPNs were recalculated at the end of three months, and RPNs for all risks were <50.
CONCLUSIONS: Test-based risk analysis in medical laboratories is a useful method for evaluating the total testing process, detecting and preventing laboratory errors.
Keywords: FMEA, Hba1c, Laboratory Errors, Risk Analysis

OP-097
DEVELOPMENT AND VALIDATION AN LC/MSMS METHOD FOR SIMULTANEOUS QUANTIFICATION OF VITAMIN D METABOLITES AND DETERMINATION OF SAMPLE STORAGE CONDITIONS

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OBJECTIVES: Vitamin D deficiency has become an important public health problem due to its high prevalence. Plasma concentrations of 25(OH) D and other vitamin D metabolites are used as biomarkers to detect vitamin D deficiency or to investigate vitamin D metabolism. In our study, we developed an LC/MSMS method that can simultaneously measure the frequently investigated vitamin D metabolites (25(OH)2D3, 1,25(OH)2D3 24R,25(OH)2D3, 25(OH)D2 and 3-epi-25(OH)D3) and determined how different storage conditions affect these metabolites' stability in samples.
MATERIALS and METHODS: We developed an LC/MSMS based method by using vitamin D metabolites' standard and internal standard solutions to quantitate the vitamin D metabolites in plasma samples. After validating the method according to CLSI C62-A guideline, we examined the stability of vitamin D metabolites in samples obtained from volunteers at different storage temperatures (+25°C, +4°C, -20°C) and durations (up to 10 months).
RESULTS: The method developed met the linearity and imprecision criteria within the measuring ranges chosen in accordance with the clinical decision-making levels of vitamin D metabolites. In imprecision studies; coefficient of variations of metabolites at different concentrations did not exceed 9.3% at all CV% classifications evaluated. The highest bias% results obtained from the measurement of the certified reference materials by NIST (SRM972a) for 25(OH)D3, 24R,25(OH)2D3, 25(OH)D2 and 3-epi-25(OH)D3 were (+1,3%), (-3,8%), (-8%) and (-8%), respectively. Vitamin D metabolites were found to be stable in the different storage conditions tested.
CONCLUSIONS: LC/MSMS based methods have high sensitivity and specificity and can be used to monitor changes on vitamin D metabolites' concentrations in various clinical situations.
Keywords: Vitamin D, Mass Spectrometry, Storage Conditions

OP-098
REPEATABILITY OF BIOMERIEUX HIGH SENSITIVITY TROPONIN I IN SERUM IS SIGNIFICANTLY BETTER THAN IN Li-HEPARIN PLASMA SAMPLES

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OBJECTIVES: Emergency department and internal medicine physicians in Gokcebey District Hospital complained about the inconsistent bioMerieux Vidas High Sensitive Troponin I (hsTI) results in a 2-hour rule-out protocol. The study aimed to identify the source of the repeatability problem in the hsTI test system and develop a solution proposal.
MATERIALS and METHODS: For routine hsTI determination, Vacuette Li-Heparin (Greiner Bio-One) tubes were used for venipuncture and centrifugated for 5 min at 4000g. We conducted a repeatability study of 41 Li-heparin plasma samples (<100 ng/L) analyzed in duplicate. We also prepared a pool of plasma concentration of hsTI close to the critical value of 19 ng/L to estimate the within precision and compare to the manufacturer's insert data. In another repeatability study, we analyzed 58 serum samples from Rapid Serum Tubes (RST tubes from Becton Dickinson). We calculated the Standard Deviation of duplicates (SDdup) as $(\Sigma diff^2/2N)^{1/2}$. We made all calculations in Microsoft 365 Excel software.
RESULTS: Repeatability testing of 41 plasma samples hsTI results expressed as 2SD (encompassing 95% range) was 12,5 ng/L. This variation was two times the allowed difference for a two-hour rule-out algorithm (<6 ng/L). Within-run precision study with a plasma pool of 21,4 ng/L (N=12) resulted in a CV of 5,7%, similar to the manufacturer's within-run performance. We suspected that plasma samples could interfere with the test system. Indeed, our repeatability study showed much better precision in the subsequent investigation with 58 serum samples where 2SD was 2,4 ng/L, which is five times less than for Liheparin plasma samples.
CONCLUSIONS: bioMerieux Vidas hsTI tests should be analyzed in serum rather than Li-heparin samples.
Keywords: hsTroponinI, Plasma, Serum, Repeatability, Vidas

OP-099
THE IMPACT OF AUTOVERIFICATION SYSTEM ON LABORATORY TURNAROUND TIME

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OBJECTIVES: Recent advances in artificial intelligence technology and its current applications in medicine, the use of autoverification is becoming widespread to ensure rapid and accurate verification of clinical laboratory tests. The aim of our study is to evaluate impact of autoverification algorithm inserted in middleware for biochemistry tests on laboratory turnaround time (TAT).
MATERIALS and METHODS: The turnaround time of biochemistry test results for emergency service was aimed up to 60 minutes in Hatay Mustafa Kemal University Hospital, Central Laboratory. 120 minutes was aimed for all polyclinics and services except for emergency service. A total of 199,895 biochemistry test results from 01.09.2018 to 31.08.2019 were collected. The impact of autoverification and manual verification of patient test results on TAT was evaluated.
RESULTS: The average of reported TAT from the time of sample receipt by the lab to result with manual verification on the LIS was calculated as 43,85 for emergency service and 71,79 minutes for polyclinics and services. However, implementation of autoverification led to reduction of emergency service by 35,85 minutes (18.24%), and all polyclinics and services by 61,79 minutes (13.9%). When autoverification was implemented, the reported TAT was reduced.
CONCLUSIONS: The autoverification system in clinical laboratories has contributed to raise the work efficiency by reducing TAT and eliminating workload of manual verification. The use of autoverification system shortened the TAT. We believe that autoverification system is able to prevent the samples with abnormal values for manual verification, guarantee medical safety, minimize the number of samples that needed staff revision.
Keywords: Autoverification System, Biochemistry Tests, Turnaround Time

OP-100
COMPARISON OF RESULTS OF DIFFERENT AUTOVERIFICATION ALGORITHMS DEVELOPED FOR LIVER FUNCTION TESTS

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OBJECTIVES: The aim of our study was to evaluate the performance of different autoverification algorithms which have been developed for liver function tests (LFT) and to investigate their effect on the aotuverification process.
MATERIALS and METHODS: In our study, ALT (n = 48.208), AST (n = 38.781), LDH (n = 15.766), GGT (n = 15.863), ALP (n = 17.534)), Total Bilirubin (n = 17.898) and Direct Bilirubin (n = 17.774), a total of 171.824 tests obtained from LBYS between 01.10.2019 - 31.12.2019 were evaluated. Autoverification algorithm criterias were; calibration/internal quality control, moving average, analytical measurement range, indices, critical value, delta check and reference range. The tests were subjected to last step consistency checks (ALT / AST> 0.25 or <4, Direct Bil / Total Bil <1). The results were validated and compared according to the reference range, lower reference limit minus total allowable error and upper reference limit plus total allowable error and 2nd and 98th percentile of cumulative patient data along with other criteria.
RESULTS: According to the reference range, lower reference limit minus total allowable error and upper reference limit plus total allowable error and 2nd and 98th percentile of cumulative patient data algorithms; the average autoverification passing rates were 61.69% (n=105.998), 73.41% (n=126.137) and 84.38%

(n=144.980), respectively.
CONCLUSIONS: Different approaches applied in autoverification algorithms affect the distribution of average autoverification passing rates. We think that it would be appropriate for each laboratory to create algorithms suitable for its own patient population and laboratory features.
Keywords: Autoverification, Algorithm, Liver Function Tests

OP-101
PRELIMINARY STUDY TO DIAGNOSE COVID-19 AND TO IDENTIFY SEVERE FROM NON-SEVERE CASES USING IMMATURE GRANULOCYTES AND INFLAMMATORY HEMOGRAM INDICES

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OBJECTIVES: We aimed to see the role of immature granulocytes (IG%) and inflammatory complete blood count (CBC) indices in COVID-19 and to evaluate their predictive value in the diagnosis and determining disease severity.
MATERIALS and METHODS: In this study, 72 patients with COVID-19 (patient group) and age-, sex-matched 70 adults with no infection (control group) were enrolled. Patients were assigned to two groups (severe vs. non-severe) according to oxygen demand.
RESULTS: The IG%, neutrophil count, Neutrophil-to-Lymphocyte Ratio (NLR), Platelet-to-Lymphocyte Ratio (PLR), and Systemic Immune-Inflammatory Index (SII) were higher in the patient group than in the control group ($p<0.001$ for all). The lymphocyte and platelet counts, as well as hemoglobin levels, were significantly lower in the patient group than in the control group ($p<0.001$, $p=0.009$ and $p=0.041$, respectively).
Regarding sub-group analysis, severe COVID-19 patients had significantly higher levels of the IG%, leukocyte and neutrophil counts, NLR, PLR, and SII ($p<0.001$ for all), with significantly lower levels of lymphocyte count and hemoglobin ($p=0.005$ and $p=0.001$, respectively).
To determine disease severity, curve values from receiver operating characteristics for IG%, NLR, PLR and SII were, 0.875 (95%CI: 0.759-0.948), 0.861 (95%CI: 0.742-0.939), 0.689 (95%CI: 0.551-0.806) and 0.851 (0.731-0.932) respectively. IG% also had a sensitivity and specificity value of 73.21% and 83.72%, for the diagnosis and 85.0% and 75.0%, to detect the disease's severity, respectively.
CONCLUSIONS: The IG% and CBC indices, which can be obtained quickly from the hemogram test, a cost-effective and ready-made method, can be used in the diagnosis and classification of COVID-19 in addition to other laboratory tests.
Keywords: Blood Cell Count, Immature Granulocyte Ratio, COVID-19, SARS-Cov-2

OP-102
RETROSPECTIVE ASSESSMENT OF THE DIAGNOSTIC VALUE OF SOME HEMOGRAM PARAMETERS ON MORTALITY IN PATIENTS WITH COVID-19 RT-PCR TEST (+) ADMITTED IN A PANDEMIC HOSPITAL IN ISTANBUL

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OBJECTIVES: We aimed to investigate the effect of the diagnostic value of platelet, WBC (White Blood Cell), MPV (Mean Platelet Volume), PDW (Platelet Distribution Width), neutrophil, lymphocyte, hemoglobin, NLR (Neutrophil Lymphocyte Ratio), PLR (Platelet Lymphocyte Ratio) on mortality in patients who applied to Istanbul Training and Research Hospital and were positive for the COVID-19 RT-PCR test.
MATERIALS and METHODS: The total number of COVID-19 RT-PCR (+) patients who applied to Istanbul Training and Research Hospital between 10th March – 10th June 2020 was 2774, with 1308 outpatient, 1393 inpatient and 73 intensive care patients. The data of these patients were retrospectively obtained from the health information management system. Statistical analysis was performed in SPSS version 17.0.
RESULTS: Diabetes mellitus, hypertension, chronic renal failure, immunosuppressive therapy and COVID-19 compatible tomography; it was higher in patients with mortality ($p<0.05$). The differences between all hemogram parameters and age values except baseline platelet levels in the group with and without mortality were statistically significant ($p<0.05$). According to Spearman's rho correlation analysis results, there was a positive and significant relationship between age, WBC, neutrophil, NLR, PLR and mortality, and a negative significant relationship with hemoglobin, lymphocyte ($p<0.01$, r: 0.198, 0.116, 0.179, 0.224, 0.139, 0.165, 0.168 respectively). In accordance with the binary logistic regression analysis results, the significance of age, WBC, neutrophil, NLR, and hemoglobin parameters in determining mortality was statistically significant ($p<0.05$, OR:1.065, 0.306, 4.322, 2.080, 0.730 respectively).
CONCLUSIONS: It is suggested that hemogram values in patients with mortality may be an important variable in this clinical picture.
Keywords: COVID-19, Hemogram, Mortality

OP-103
SITE-SPECIFIC GLYCOSYLATION ANALYSIS OF HUMAN THYROGLOBULIN PROTEIN USING HIGH-THROUGHPUT MASS SPECTROMETRIC APPROACHES

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OBJECTIVES: Human thyroglobulin containing a high percentage of glycosylation sites is an important protein produced by the human thyroid glands. The glycosylation sites observed in the thyroglobulin protein modulate the hormone biosynthesis taking place in the thyroid gland. Therefore, to better understand the function of the glycosylation sites, the analysis of the glycosylation sites of the thyroglobulin protein should be performed using sensitive and reliable techniques. In this study, it was aimed to perform site-specific N-glycosylation analysis of thyroglobulin protein isolated from human thyroid glands.
MATERIALS and METHODS: Studies were performed using high-throughput mass spectrometric methods at both glycopeptide and glycan level. At the glycan level, in-gel glycan release was performed after SDS-PAGE analysis of thyroglobulin protein. Ethyl-esterification of the released N-glycans were then analyzed by MALDI-TOF/TOF-MS system. After in-gel proteolytic cleavage was performed, proteolytic products of the thyroglobulin protein were achieved using the nLC-TIMS-TOF-MS/MS system.
RESULTS: It was determined from the analyzes that the thyroglobulin protein contained high mannose type N-glycans. It was found that the rate of fucosylation was high in complex type N-glycans. A large amount of sialylated N-glycans was found to be alpha2-6-linked. Most of the glycosylation regions of the thyroglobulin protein at the glycopeptide level were determined, and both the glycosylation sites and the glycan structures were confirmed.
CONCLUSIONS: The results showed that the glycosylation content of human thyroglobulin protein included high amount of mannose-type glycans.
Acknowledgements: This study was supported by TUBITAK. Project No: 119Z066
Keywords: Thyroglobulin, Glycomics, Glycoproteomics, Glycosylation

OP-104
DIFFERENCES AMONG LABORATORY RESULTS FOR D-DIMER TEST

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OBJECTIVES: D-dimer test has extensive usage as a component of diagnostic algorithms in exclusion of deep vein thrombosis and pulmonary embolism. Today, it has been reported to have also prognostic value for SARS-CoV-2/COVID-19. Due to differences among methods, specificity of the antibodies used in reagents and reporting units there may be discordant results among laboratories. In this study investigation of the conformity of d-dimer results on various analytical systems using external quality control data is aimed.
MATERIALS and METHODS: Peer group means of four different batches (3 samples for each) analyzed on ACL Top(IL HemosIL D-Dimer-HS), ACL 8000(IL HemosIL D-Dimer), Sysmex CS(Siemens Innovance), ACL Top(IL HemosIL D-Dimer-HS 500), Stago(STA-Liatest D-DI Plus) and BioMerieux VIDAS (dedicated reagent) in a cycle of Bio-Rad External Quality Assessment Program(US) were evaluated with grouping according to D-dimer unit (DDU) and fibrin equivalent unit (FEU). For systems in DDU group [ACL Top (IL HemosIL D-Dimer-HS), ACL 8000 (IL HemosIL D-Dimer)] difference between the systems was assessed using Mann-Whitney U test and in FEU group with Kruskal-Wallis test for each of the batches. A statistical significance level of $p<0.05$ was established.
RESULTS: Peer group mean values of DDU reporting systems were ranged between 0.119-0.189mg/L for level 1, 0.259-0.318mg/L for level 2, 0.695-0.762mg/L for level 3 and 0.871-1.09mg/L for level 4.The difference between the systems was insignificant ($p>0.05$). Peer group mean intervals in FEU group were observed as; 0.229-0.324mg/L for level 1, 0.577-0.920mg/L for level 2, 1.310-2.540mg/L for level 3, and 2.160-3.820mg/L for level 4. Significant difference was observed for four levels in FEU group ($p<0.05$).
CONCLUSIONS: It was thought that conformity in DDU group may be due to more traceable results obtained with different reagents of the same manufacturer. Since harmonization could not be achieved in D-dimer measurement, it is important to inform clinicians that different results can be obtained depending on method.
Keywords: D-Dimer, Harmonization

OP-105
THE EFFECT OF DIAGNOSTIC VALUE OF BIOCHEMICAL PARAMETERS ON MORTALITY IN COVID-19 PATIENTS

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OBJECTIVES: We aimed to examine the effect of the diagnostic value of NLR, D-Dimer and some other biochemical parameters on mortality in patients with positive COVID-19 test who applied to Istanbul Training and Research Hospital.
MATERIALS and METHODS: The data (Procalcitonin, Ferritin, CRP, LDH, hsTroponin-I, Fibrinogen, Albumin, AST, ALT, Creatinin, Urea, Total Bilirubin, CK, Uric acid, IL-6, Neutrophil and Lymphocyte count, D-Dimer) of COVID-19 RT-PCR(+) 2774 patients who applied to Istanbul Training and Research Hospital between 10th March and 10th June 2020 was admitted via health information system retrospectively. All statistical analysis was performed at SPSS 17.0 version at 95% confidence interval.
RESULTS: Patients were divided into two groups as mortality (N: 74) and non-mortality (2700).In both groups, the ratio of men was higher than women and the difference was not significant (p> 0.05).87.8% of those who lost their lives were treated in intensive care (p <0.05).All parameter differences except ALT initial, bilurbin final, uric acid final and fibrinogen final were statistically significant between mortality groups (p<0.05) In patients with mortality, DM, HT, COPD, malignancy, CRF, immunosuppressive therapy and COVID-19 related CT were higher (p <0.05).
CONCLUSIONS: According to the correlation analysis results, all research parameters except gender, bilirubin and ALT were significantly associated with mortality (p <0.05).Binaryl logistic regression analysis showed that NLR have diagnostic value for mortality in multivariate analysis(p<0.05). It is important that the NLR is separated from all other parameters and has a high diagnostic value among the values at the time of admission to the hospital in the study.
Keywords: COVID-19, Clinical Chemistry, Coagulation, Immunochemical Measurement, Mortality

OP-106
DIAGNOSTIC UTILITY OF C-REACTIVE PROTEIN TO ALBUMIN RATIO AS AN EARLY WARNING SIGN IN HOSPITALIZED SEVERE COVID-19 PATIENTS

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OBJECTIVES: C-reactive protein-to-albumin ratio (CAR) has been used as an indicator of prognosis in various diseases and has a prognostic power comparable to other inflammation-related prognostic scores. Here, we intended to assess the CAR's diagnostic power in early differentiation of hospitalized severe COVID-19 cases.
MATERIALS and METHODS: In this retrospectively designed study, we evaluated 197 patients in total. They were divided into two groups based on their severity of COVID-19 as non-severe (n=113) and severe (n=84). The comparison of groups' demographic data, comorbidities, clinical symptoms, laboratory test results were done. The calculation of receiver operating characteristic (ROC) curve was used to determine the diagnostic power of CAR in differentiating severity of COVID-19. Independent risk factors predictive of COVID-19 severity were determined by using logistic regression analysis.
RESULTS: Age (p<0.001), hypertension (p=0.045), coronary heart disease (p=0.002), diabetes mellitus (p=0.001), dyspnea (p=0.015), headache (p=0.037), pharyngalgia (p=0.038), length of hospital stay (p<0.001), mortality frequency (p<0.001), neutrophil count (p=0.038), lymphocyte count (p=0.012), neutrophil-to-lymphocyte ratio (p=0.003), CRP (p<0.001), CAR (p<0.001), glucose (p=0.014), aspartate aminotransferase (p=0.047), ferritin (p=0.003), and prothrombin time (p=0.024) were significantly different between the two groups. Age (OR=1.046, p=0.003), CAR (OR=1.264, p=0.037), and AST (OR=1.029, p=0.037) were independent risk factors for severe COVID-19 based on the multivariate logistic regression analysis. ROC curve analysis determined an Area Under Curve of 0.718 for CAR in discrimination of severe COVID-19 cases.
CONCLUSIONS: CAR is a useful marker in early differentiation of severity in patients hospitalized due to COVID-19 that have longer hospital stay and higher mortality.
Keywords: C-Reactive Protein to Albumin Ratio, SARS-Cov-2, COVID-19

OP-107
MICROBIOLOGICAL ANALYSIS OF FRUIT BASED COMPLEMENTARY INFANT FOODS

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OBJECTIVES: Breast milk is the most natural food that can meet the nutritional and vitamin needs of the baby for the first 6 months. From the 6th month, in order to meet the increasing nutritional needs of babies, complementary foods are used in addition to breast milk. It has been reported that different microorganisms that threaten the health of babies are detected in the microbiological analysis of infant formula in various countries. In this study, it was aimed to investigate the presence of Cronobacter sakazakii, Staphylococcus aureus, Escherichia coli and Coliform bacteria in fruit-based complementary infant food offered for sale in the and to evaluate the infection risk of these products.
MATERIALS and METHODS: A total of 120 fruit-based complementary infant foods sold in different cities in the TRNC were included in this study. ISO / TS 22964: 2006 for C. sakazakii, ISO 4832 for coliform bacteria, ISO 16649 for E. coli and EN / ISO 6888 for S. aureus methods were used for the analysis of those products.
RESULTS: C.sakazakii, Coliform, E.coli and S. aureus were not detected in any of the samples
CONCLUSIONS: Although C. sakazakii, coliform, E.coli and S.aureus were reported in some of the microbiological studies conducted on infant foods around the world, these agents were not found in any of the complementary infant foods in the study. Since there are limited studies that examine the relationship of infant food with microorganism in Turkey and in TRNC, new and extensive studies are needed to promote the prevalence of micro-organisms in infant food.
Keywords: Cronobacter Sakazakii, Koliform, E.Coli, S. Aureus, Complementary Infant Food

OP-108
DEVELOPMENT OF POLYVINYLPYRROLIDONE, SODIUM ALGINATE AND NANOCELLULOSE-BASED COMPOSITE FILMS FOR SMART FOOD PACKAGING APPLICATIONS

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OBJECTIVES: Electrochemical biosensor studies have gained attention due their potential for determining food quality and safety easier than conventional methods. In this area, surface modified cellulose nanoparticles have potential to be used in biosensing applications due to their reactive functional properties such as being able to conjugate with biological moieties and metallic nanoparticles. The aim of this study was to prepare composite films of polyvinylpyrrolidone (PVP), sodium alginate (Al) with varying nanocellulose (NC) content.
MATERIALS and METHODS: PVP-Al blend films (1:1, w/w) were prepared by casting method and the NC content in the films were varied between 2-10% (w/w). The morphological analysis such as scanning electron microscopy (SEM) and Fourier transform infrared spectrophotometry (FTIR) and electrical conductivity measurements of resulting films were carried out.
RESULTS: FTIR analysis indicated that intermolecular interactions could be possible in blend films, while SEM analysis revealed a uniform NC distribution inside the film matrix. The increase in NC content resulted in a decrease in electrical conductivity.
CONCLUSIONS: The results of this study showed that PVP-Al films including NC had a promising potential to be used in smart food packaging applications.
Keywords: Nanocellulose, Polyvinylpyrrolidone, Smart Packaging, Sodium Alginate

OP-109
HIGH-FAT AND HIGH-SUCROSE DIET MODEL: ANATOMICAL, BIOCHEMICAL AND HISTOPATHOLOGICAL EVALUATION OF THE TESTES OF RATS

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OBJECTIVES: Dietary content has important effects on normal physiology. High

calorie-diets are associated with diseases such as obesity, diabetes, cardiovascular diseases, infertility and cancer. In particular, the potential effects of nutrition on male reproductive health are increasingly defined. In this study, it was aimed to investigate the effect of high-fat and high-sucrose diet on testicular tissues of male rats anatomically, biochemically and histologically.
MATERIALS and METHODS: In the study, 28 adult male Wistar Albino rats were used. Rats were divided into four groups according to their dietary consumption; standard feed (n=7), high-fat diet (n=7), high-sucrose diet (n=7), high-fat and high-sucrose diet (n=7). Testicles were removed and morphometric measurements were taken. Myeloperoxidase and catalase enzyme concentrations were analyzed by ELISA method. Hematoxylin-eosin staining, Johnson scoring, congestion, degeneration and mean tubular diameter measurements were examined histopathologically under light microscope.
RESULTS: There was an increase in the final weights of the rats compared to their initial weight, but no significant difference was found ($p>0.05$). Comparing the right and left testicles, the significant differences were found that between transverse diameter and mean tubule diameters. When the groups were compared, only significant difference was defined between the right mean tubule diameters ($p<0.05$). Myeloperoxidase and catalase levels were statistically significant difference between the groups ($p<0.05$).
CONCLUSIONS: Although it was determined that a high-calorie diet had an effect on oxidative stress in testicular tissue, no significant histopathological changes were observed. In this context, it was concluded that advanced studies should be carried out, including physiological analyzes, regarding calorie level and duration.
Keywords: High-Fat Diet, High-Sucrose Diet, Oxidative Stress, Testicles

OP-110
APPLICATION OF A NEW FORMULA FOR LDL CHOLESTEROL CALCULATION FOR PATIENTS WITH NORMAL OR HIGH TRIGLYCERIDE LEVELS

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OBJECTIVES: Comparison of directly measured low-density lipoprotein(d-LDL) results with results obtained from Friedewald formula(F-LDL),which is widely used in calculation, and a new formula (S-LDL) published by Sampson et al..
MATERIALS and METHODS: For the study, from lipid profile results of our laboratory,201 results with TG(triglyceride)<400mg/dL between 19-23 October2020 were randomly selected, and all results with TG>400mg/dL between July2020 and October2020(n=761) were taken.d-LDL measurement was made with Roche-Cobas c702 instrument using homogeneous enzymatic colorimetric method.Calculations were made by Friedewald formula(F-LDL=(Total Kolesterol)−(HDL)−(TG/5)) and new formula(S-LDL=(Total Kolesterol/0.948)−(HDL/0.971)−((TG/8.56)+((TGxNon−HDL-C)/2140)-(TG^2/16100))−9.44). For comparison of methods,Passing-Bablok regression analysis and for evaluation of difference between methods,dependent group t-test and ANOVA were used.RMSE(root mean square error) and MAD(mean absolute difference) measures were calculated to compare the accuracy of formulas.
RESULTS: In our study, for TG<400 results,S-LDL was more compatible with d-LDL than with F-LDL by Passing-Bablok regression analysis (R2 0.345,$p<0.05$,for both equations; F-LDL intercept -3.33 (95%CI -6to-0.429), slope 0.98 (95%CI 0.952 to 1); S-LDL intercept-3 (95%CI -3.658 to 0.063), slope 1.0 (95%CI 0.969 to 1.005)). Similarly for TG>400 mg/dl results S-LDL was more compatible with d-LDL than with F-LDL. (F-LDL R2 0.687, $p<0.05$; S-LDL R2 0.789, $p<0.05$; F-LDL intercept-51.7 (95%CI -56.79 to -46.84), slope 1.17(95%CI 1.122 to 1.210); S-LDL intercept-1.125 (95%CI -4.491 to 2.629), slope 0.875 (95%CI 0.843 to 0.906)). There was a significant difference between means of methods ($p<0.05$). For TG<400g/dl results, compared to d-LDL values, F-LDL RMSE was 10.2 mg/dL, MAD was 8mg/dl, S-LDL RMSE was 8.15mg/dL, MAD was 6mg/dl. For TG>400mg/dl values, RMSE was 44mg/dL and MAD was 36mg/dl for F-LDL, while RMSE was 26 mg/dL and MAD was 20 mg/dl for S-LDL.
CONCLUSIONS: New LDL-C formula can be easily applied by clinical laboratories with no additional cost. Especially for patients with TG level more than 400mg/dl, it may allow LDL-C level to be calculated more accurately than Friedewald formula.
Keywords: LDL Calculation, Lipid Profile, Triglyceride

OP-111
THE ROLE OF DECOY RECEPTOR 3 IN INFLAMMATION AND ATHEROSCLEROSIS IN PATIENTS WITH CHRONIC KIDNEY DISEASE AND RENAL TRANSPLANTATION

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OBJECTIVES: The cardiovascular risk has been increased in Chronic Kidney Disease (CKD) associated with chronic inflammation and atherosclerosis. Inflammatory process continues after renal transplantation. However it has been observed a significant improvement compared to patients with hemodialysis and periton dialysis. Decoyreceptor3 (DcR3), is a member of the TNFreceptor superfamily and associated with inflammation and atherosclerosis. The aim of this study is to show the relationship between DcR3 level with inflammation and atherosclerosis in patients with chronic kidney and renal transplant patients. For this purpose, we intend to measure serum levels of DcR3, ICAM-1,VCAM-1,IL-8 and evaluation of endothelial dysfunction via measurements of carotid intima-media thickness (CIMT) and presence of plaque.
MATERIALS and METHODS: A total of 150participant were obtained from 50 renal transplant patients, 40 patients undergoing hemodialysis, 30patients with pre-dialysis CKD and 30 control. Serum DcR3, VCAM-1, ICAM-1 and IL-8 levels measured with ELISA method. CIMT and presence of carotis arter plaque performed by ultrasound probe, non-invasively.
RESULTS: All parameters were measured in serum and CIMT were higher in HD andpre-dialysis CKD groups compared to renal transplant and control groups ($p<0,05$). The levels of renal transplant group were higher from control group. There was nodifference between HD andpre-dialysis CKD groups. There was no difference between patient groups in terms of the presence of plaque. Control group didn't show anyplaque. Pre-dialysis group was nosignificant difference between the stages in any parameter except CIMT. CIMT levels was highest in stage 3.
CONCLUSIONS: Although renal transplantation provides a significant improvement in the inflammatory process, not return completely. Inflammatory process associated with uremic milieu may predispose to atherosclerosis in pre-dialysis CKD and hemodialysis patients. Increased CIMT and presence of plaque in HD and pre-dialysis CKD groups supports this state.
Keywords: Atherosclerosis, CIMT, DcR3, Inflammation

OP-112
THE RELATIONSHIP BETWEEN SERUM VITAMIN D AND SERUM ZINC LEVELS IN CHILDREN

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OBJECTIVES: The aim of this study was to evaluate the relationship between serum 25 Hydroxy Vitamin D (25(OH) vitD) and serum zinc levels in pediatric patients.
MATERIALS and METHODS: Serum 25(OH)vitD and serum zinc levels of 358 children, 271 boys and 87 girls, aged between 0 and 18, who applied to Basaksehir Cam and Sakura City Hospital Pediatrics Department, were retrospectively analyzed. Serum 25(OH)vitD levels were measured by electrochemiluminescence method, and serum zinc levels were measured by atomic absorption method.
RESULTS: The mean age of boys and girls were 6.9±4 and 6.5±4 years, respectively. Serum 25(OH)vitD and zinc levels median and interquartile range were 31.1±13 ng/mL and 958±137 µg/L in boys; 26.3±11 ng/mL and 900±137 µg/L in girls, respectively. Serum 25(OH)vitD and zinc levels were significantly higher in boys than girls ($p<0.01$). There was a positive significant correlation between serum 25(OH)vitD and zinc levels ($r=0.213$, $p<0.01$, $n=358$), a negative significant correlation between serum 25(OH)vitD levels and age($r=0.196$, $p<0.01$, $n=358$). In boys, there was a negative significant correlation between serum 25(OH) vitD levels and age($r=0.147$, $p<0.05$), a positive significant correlation between serum zinc levels and age ($r=0.178$, $p<0.01$). In girls, there was a significant negative correlation between serum 25(OH)vitD levels and age($r=0.403$, $p<0.01$), no significant correlation between serum zinc levels and age ($p>0.05$).
CONCLUSIONS: In our study, it was found that serum zinc levels in the pediatric population increased significantly depending on the serum 25(OH)vitD levels. Based on this possible contribution in children with zinc deficiency, we think that vitamin D supplementation may be beneficial in order to reduce the rate of growth and development retardation, regulate bone development, and contribute to immune system development.
Keywords: 25 OH Vitamin D, Zinc, Pediatric Population

OP-113
EFFECTS OF COVID-19 PNEUMONIA PATIENT'S SERA ON CANCER CELLS

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OBJECTIVES: The aim of this research is; to examine the effects of COVID-19 patient's serums to the Epithelial to Mesenchymal Transition (EMT) related genes in A549, MCF7 and HCT116 cells.
MATERIALS and METHODS: Serum samples from COVID-19 patients and healthy volunteers were collected. Cancer cells were incubated in serum-free media for 16 hours prior to the experiment. Cell viability was assessed via MTT test and cells were incubated with equal amounts of the selected patient and normal serum samples. RNA was isolated within 6th hour of the treatment. 18S, E-cadherin, Vimentin, ZEB1 and SNAIL primers were designed for SYBR green based quantitative PCR assay. The rates of increase and decrease in gene expressions were calculated with 2^-(delta???-delta CT) formula.
RESULTS: Seven different patients and three control serums of similar age and gender was used for the experiments (Patient group (P) and Control group (C)). As a result of cell viability assay, 50% dilution did not kill the cells and 0.3% dilution used for further analysis. The results of qPCR assays revealed that there was a significant increase in the expression of EMT genes in P group especially in ZEB1 and SNAIL in HCT116 and A549 cells and SNAIL in MCF7 cells, comparing to C group.
CONCLUSIONS: In-vitro modeling was generated to examine the effects of cellular products released from the lungs and found in serum after SARS-CoV-2 infection to cancer cells, and an increase is seen in the expression of EMT related genes in A549, HCT116 and MCF7 cells.
Keywords: COVID-19, Epithelial to Mesenchymal Transition, Cancer

OP-114
TRIPLE COMBINATION OF METFORMIN, DICHLOROACETATE, AND CETUXIMAB EXERTS ANTI-TUMORIGENIC ACTIVITY IN UPCI-SCC-131 ORAL SQUAMOUS CARCINOMA CELLS

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OBJECTIVES: Oral squamous cell carcinoma (OSCC), a highly hypoxic, is the sixth most common epithelial cancer worldwide and associated with high mortality. The purpose of this study is to determine the effects of the combination of metabolic drugs which are Metformin and Dichloroacetate (DCA) with chemotherapeutic agent, Cetuximab, on cell viability, proliferation, apoptosis, and reactive oxygen species (ROS) levels in UPCI-SCC-131 cells under normoxic and hypoxic conditions.
MATERIALS and METHODS: First of all, WST-1 cell viability assay was carried out to determine IC50 values of each drug for 72 hours and to evaluate triple-drug combination studies on cell viability. The triple-drug combination index was calculated based on Chou-Talalay method using CompuSyn software. The long-term effects of drugs were assessed with clonogenic assay based on the potential of single cells to survive. We also evaluated the effect of triple-drug combination on cell proliferation by using both BrdU incorporation and 3D-spheroid proliferation assays. In addition, we analyzed apoptosis and ROS levels by flow cytometry and DCFDA assay, respectively. All experiments were performed under both hypoxic and normoxic conditions.
RESULTS: IC50 doses of Metformin, DCA, and Cetuximab under normoxic conditions were 3mM, 30mM, and 1200µg/ml, respectively, while IC50 doses under hypoxic conditions were determined as 14mM, 40mM, and 1200µg/ml, respectively. According to the CompuSyn analysis of triple-drug combination, the IC50 dose of the Metformin/DCA/Cetuximab was calculated as 3mM/9mM/225µg/ml for normoxia and 1mM/7.5mM/225µg/ml for hypoxia. We found that triple-drug combination i) showed synergistic effect (CI<1) on cell viability, ii) reduced the colony formation (pnormoxia = 0.0002, phypoxia = 0.0032), cell proliferation (pnormoxia = 0.0047, phypoxia = 0.0004), and 3D-spheroid proliferation (pnormoxia = 0.4741, phypoxia = 0.005), iii) increased the ROS production (pnormoxia < 0.0001, phypoxia= 0.0016) and apoptosis (pnormoxia < 0.0001, phypoxia = 0.0143) in UPCI-SCC-131.
CONCLUSIONS: Drug repositioning is a process that involves existing drugs to improve new therapeutic strategies for human safety with no side effects. In this context, Metformin/DCA/Cetuximab combination may be a novel and promising therapeutic approach for OSCC treatment.
Acknowledgements: This study was supported by a grant (no.118S576) from TUBITAK.
Keywords: Cetuximab, DCA, Drug Combination, Metformin, Oral Squamous Cell Carcinoma

OP-115
A PYRROLOPYRIMIDINE DERIVATIVE CONTAINING N-METHYL PIPERAZINE MOIETY SIGNIFICANTLY INDUCED APOPTOSIS OF MCF-7 CELLS THROUGH SUPPRESSION OF MMP-9 ENZYME ACTIVITY

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OBJECTIVES: The relation between oxidative stress and cancer has long been known. The studies have reported that the matrix metalloproteinase expression may be an important target for preventing cancer progression. This study aimed to evaluate the effects of some previously synthesized 1-(substituted-phenyl)-3-(7-methyl-4-(4-methylpiperazin-1-yl)-7H-pyrrolo[2,3-d]pyrimidin-2-yl)urea derivatives on cell viability of various cancer cells and interprete the efficiency of compounds on modulation of oxidative stress through MMP-9 expression.
MATERIALS and METHODS: The cells were treated with some pyrrolopyrimidine derivatives for 24 and 48 h and the effects of compounds on cell viability were screened against A549 (lung), MCF 7 (breast) and PC3 (prostat) cancer cells, using the MTT assay. The evaluation of apoptotic effect of compound 3, the strongest cytotoxic compound, was performed through Annexin V binding assay. The ROS(+) cell population were detected by oxidative stress assay kit and data were compared with the results of spectrofluorometric MMP-9 activity assay. Possible binding properties of compound 3 into the MMP-9 active site was evaluated by molecular docking study using Autodock vina.
RESULTS: Compound 3, 1-(4-fluoro-3-(trifluoromethyl)phenyl)-3-(7-methyl-4-(4-methylpiperazin-1-yl)-7H-pyrrolo[2,3-d]pyrimidin-2-yl)urea, showed the highest cytotoxicity with 23.42 µM IC50 value in MCF-7 cells, while it was less effective on A549 and PC3 cells with 28.28 µM and 26.28 µM IC50 values, respectively ($p<0.05$). The results also indicated that compound 3 increased total apoptotic cell population % to 14.80±1.34% in MCF-7 cells, significantly ($p<0.05$). It increased the ROS(+) cell population to 39.72% in MCF-7 cells, while MMP-9 activity has significantly reduced. In molecular docking results, compound 3 formed two hydrogen bond interactions with Glu402 and Ala189 into the MMP-9 active site.
CONCLUSIONS: Our results showed that compound 3 has potent cytotoxic activity on MCF-7 cells and significantly reduced MMP-9 activity, suggesting cytotoxic and apoptotic activity of compound 3 can be result from suppression of MMP-9 activity. Compound 3 may be a lead for development of new pyrrolopyrimidine derivatives.
Keywords: Cytotoxicity, Apoptosis, Oxidative Stress, MMP-9, Pyrrolopyrimidines

OP-116
THE EFFECTS OF 1,9-DIMETHYL-METHYLENE BLUE ON SECRETASES IN COLON CANCER CELLS

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OBJECTIVES: Colon cancer is among the most frequent cancer types. Amyloid precursor protein (APP), well known for its association with Alzheimer disease (AD) is highly expressed in various types of cancers. APP undergoes sequential proteolytic processing through two distinct pathways: the amyloidogenic pathway, which leads to Aβ formation and the non-amyloidogenic pathway, which generates soluble form of APP (sAPPα) by α-secretase. According to recent studies sAPPα was suggested to promote cancer cell proliferation and inhibition APP processing by α-secretases (ADAM10 and/or ADAM17) reduce cancer progression. Our previous studies showed that toluidine blue O (TBO), a phenothiazine-structured compound, reduces APP processing in vitro and in vivo models of AD. Our purpose was to determine whether 1,9-dimethyl-methylene blue [(DMMB), Taylor's blue], structurally similar to TBO, could cause an inhibition on sAPPα and α-secretase expressions.
MATERIALS and METHODS: Human colon cancer cell line HT29 was treated with DMMB (0-1.25 µM) for 24 hours. After treatment, the levels of sAPPα and α-secretases (ADAM10 and ADAM17) were analyzed using Western blotting. The results were compared to those obtained with vehicle-control cells.
RESULTS: Our results showed that 1.25 µM DMMB decreased the levels of ADAM10 and ADAM17 by 32% and 88%, respectively. On the other hand, sAPPα levels were reduced by 40% at 1.25 µM DMMB.
CONCLUSIONS: DMMB may show useful effects in the treatment of colon cancer.

Acknowledgements: This study is supported by the grants from the TUBITAK (SBAG-119S905).
Keywords: α-secretase, 1,9-dimethyl-methylene blue, colon cancer

OP-117
FUSARIC ACID DOWNREGULATES MRNA EXPRESSIONS OF HISTONE DEACETYLASES (HDACS) AND TOLL-LIKE RECEPTORS IN HT-29 COLON CANCER CELLS

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OBJECTIVES: Fusaric acid (FA) is a picolinic acid derivative and secondary metabolite first isolated from fungi of the Fusarium genus. Various therapeutic effects of FA such as anticancer and anti-inflammatory are under investigation. The aim of this study is to understand the antiproliferative effect of FA on HT-29 colon cancer cells and its effect mechanism through the expression of histone deacetylase and Toll-like receptors.
MATERIALS and METHODS: Effect of FA on cell proliferation was determined by XTT method. Total RNA isolation was performed by Trizol and subsequently cDNA was synthesized. RNA concentration and purity were determined by nanodrop. mRNA expression changes of HDAC1, HDAC2, HDAC3, HDAC4, TLR1,TLR2 TLR3, TLR4 TLR5, TLR6, TLR7, TLR8, TLR9, TLR10 and MyD88 were determined by RT-PCR. The analysis of the findings was carried out with the ΔΔCT method and statistical analysis and fold changes were determined with the "RT2-Profiles™ PCR Array Data Anaylsis" online system.
RESULTS: IC50 dose (concentration required for the reduction of cell viability by half) of FA in HT-29 colon cancer cells was determined as 145 µM at 48th hour. RT-PCR analysis showed that HDAC1, HDAC2, TLR2, TLR4 and MyD88 mRNA expressions decreased as 9.9, 6.02, 1.9, 3.1, and 6.5 fold respectively in the FA treated cells, compared to the control. These changes were found statistically significant ($p < 0.05$). Other expression changes found statistically unsignificant ($p > 0.05$).
CONCLUSIONS: It has been demonstrated that FA may act as a potential HDAC inhibitor in HT-29 cells, resulting in TLR-mediated cell death and anti-carcinogenic effects. In addition, preliminary findings were obtained for detailed studies to be conducted to determine the therapeutic efficacy of FA.
Keywords: Fusaric Acid, Histone Deacetylases (HDACs), HT-29 Cells Toll-like Receptors

OP-118
IN VITRO INVESTIGATION OF THE EFFECTS OF MESENCHYMAL STEM CELLS ON BREAST CANCER

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OBJECTIVES: MDA-MB 231 is an epithelial cancer cell type derived from human breast adenocarcinoma. Mesenchymal stem cells are multipotent stromal cells that can differentiate into various cell types. In this study, it was aimed to investigate whether mesenchymal stem cells derived from human dental follicle have an effect on MDA-MB 231 cell in terms of proliferation and apoptosis.
MATERIALS and METHODS: The stem cells we used in our study were isolated from the dental follicle tissue. In order to characterize the cells brought to the third passage, flow cytometry analysis was performed using positive and negative antibodies. After the characterization analysis, the differentiation potential of the cells was observed under the microscope by applying adipogenic, chondrogenic and osteogenic differentiation kits. Proliferation test was studied by MTT method and apoptosis analysis was studied with Annexin V method in flow cytometry device.
RESULTS: The % viability rate of the MDA-MB 231 cell line of %50 dose-conditioned medium obtained from dental follicle mesenchymal stem cells was found to be %66.6. As a result of the apoptosis analysis, the total apoptosis amount of the control group at 24 hours was %12.5 and %50 of the dosed cells Total apoptosis amount in the control group at 48 hours was 13.1% and %20.35 of the cells dosed with %50.
CONCLUSIONS: With the results we obtained, it was observed that conditioned media originating from dental follicle mesenchymal stem cells inhibited proliferation by %33.4 in MDA MB-231 cells compared to the control group and led the cells to apoptosis by %4.
Keywords: Apoptosis, Cancer, Mesenchymal Stem Cell, Proliferation

OP-119
INVESTIGATION OF THE SYNERGISTIC ANTI-CANCER EFFECT OF A COMBINATION OF ZOLEDRONATE AND QUERCETIN ON GLIOBLASTOMA

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OBJECTIVES: Glioblastoma, an aggressive type of tumor that occurs in the brain/spinal cord, is among the most difficult cancers to treat. Use of clinically proven, safe agents to combat cancer constitutes an important part of current research in cancer. Quercetin, the main dietary flavonoid, is believed to be a fatty acid synthase inhibitor. Zoledronate, an FDA-approved bisphosphonate, is a known inhibitor of the mevalonate pathway. Here, targeting cellular lipid metabolism, we aim at investigating the synergistic anti-cancer effect of a combination of zoledronate and quercetin on glioblastoma.
MATERIALS and METHODS: In cytotoxicity experiments, the DBTRG-05MG human glioblastoma cell line was treated with zoledronate or quercetin at increasing micromolar concentrations, applying six doses with three replicates each. Both IC50 values for the single compounds and possible dose pairs were estimated using the CompuSyn software. Cell viability was determined using the MTT cell proliferation assay.
RESULTS: At 72 hour, the IC50 value for quercetin was found to be 81.43 µM, while that for zoledrenate was found to be 63.29 µM. With a quercetin:zoledronate ratio of 1.3, the combination index (Chou–Talalay equation) for all of the dose pairs (at low- to mid-micromolar concentrations) was in the range of 0.3–0.7, suggesting that the quercetin–zoledronate combination exerted a clear synergistic anti-cancer effect on glioblastoma cells.
CONCLUSIONS: As modifiers of cellular lipid metabolism, quercetin and zoledronate, when used together, inhibit the proliferation of glioblastoma cells significantly. Supported by further preclinical/clinical studies, this drug regimen is predicted to hold great potential for treating glioblastoma patients, whose life expectancy is about 6–14 months.
Keywords: Cancer, Glioblastoma, Lipid Metabolism, Quercetin, Zoledronate

OP-120
DEVELOPMENT OF NEAR INFRARED ACTIVATABLE DUAL PHOTOTHERAPY AGENTS AGAINST CANCER CELLS

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OBJECTIVES: Photothermal therapy (PTT) and photodynamic therapy (PDT) are two minimally invasive light-based therapeutic modalities for treatment of cancer. Recent advancements in the design of photosensitizers (PS) for phototherapy applications have triggered the development of dual PDT and PTT agents as these multimodal agents display improved efficacies compared to single mode of action. To that end, different small organic-based agents have been proposed as dual phototherapy agents, however cancer cell selective agents remained elusive. Here, we introduce bromo-hemicyanine based near-IR activatable photosensitizers, which can serve as cancer cell selective multimodal phototherapy agents.
MATERIALS and METHODS: Generation of ROS and photothermal conversion of hemicyanine based agents as a function of laser wavelength (640 nm, 808 nm, 640 + 808 nm) and power were studied initially in solution. In cell culture experiments, in vitro ROS generation was determined on colon (SW480) and cervical (HeLa) cancer cells, cell viabilities were investigated with a MTT assay and cell death mechanisms were analyzed through flow cytometry.
RESULTS: Phototherapy agents were shown to be an effective dual phototherapy agents under a single (640nm or 808nm) and dual laser (640 nm + 808 nm) irradiation. Both single wavelength irradiations caused significant phototoxicity in different cancer cells. Co-irradiation, on the other side, provided complete elimination of cancer cells due to synergistic action even at low drug doses and just after 5 minutes of irradiation.
CONCLUSIONS: This work introduces easily synthesized small molecule-based synergistic phototherapy agents, which holds a great promise towards the realization of rapid and highly selective treatment modalities against cancer.
Keywords: Cancer, Phototherapy, Photodynamic Therapy, Photothermal Therapy, Selective Drugs

OP-121
SYNERGISTIC INTERACTIONS BETWEEN GW8510 AND GEMCITABINE IN AN IN VITRO MODEL OF PANCREATIC CANCER

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OBJECTIVES: One of the main reasons for the poor survival rates of pancreatic cancer patients is the development of gemcitabine resistance, indicating that novel treatment strategies that have the ability to improve gemcitabine sensitivity are in need to combat this devastating disease.
MATERIALS and METHODS: TCGA PAAD data was used to determine the clinicopathological significance of high RRM2 (Ribonucleotide reductase subunit M2) expression for pancreatic ductal adenocarcinoma (PDAC). The effects of GW8510 and gemcitabine on PANC-1 cell viability were determined using WST-8 assay. The potential synergistic interaction between GW8510 and gemcitabine was evaluated by the combination index (CI) analysis. The effects of GW8510 treatment on apoptosis, cell cycle, and cell migration, either in combination with gemcitabine or alone,were investigated. The effect of GW8510 on RRM2 protein levels was evaluated using ELISA assay.
RESULTS: RRM2 is significantly over-expressed in PDAC compared to healthy pancreatic tissues ($p < 0.0001$). RRM2 mRNA expression was found to be corralated with the overall survival rate of patients (HR=2.17 [1.44-3.27], p=0.00016) and the pathological stages of the disease (p=0.0054). GW8510 decreased the RRM2 protein levels compared to the control.Cell viability analysis showed that GW8510 has a similar effect to gemcitabine in inhibiting PANC-1 cell viability. GW8510 was found to synergize with gemcitabine to inhibit PANC-1 cell viability and migration. However, the effects of GW8510 on PANC-1 cells could not be explained by induction of apoptosis or cell cycle arrest.
CONCLUSIONS: Targeting RRM2 using GW8510 may have the potential to increase gemcitabine sensitivity in pancreatic cancer.
Acknowledgements:This research was funded by the TUBITAK(Project no: 318S052).
Keywords: GW8510; RRM2; PANC-1; Gemcitabine; mRNA Expression

OP-122
DNA REPAIR PROTEINS AS MOLECULAR TARGETS FOR CANCER THERAPY AND ITS MEASUREMENT BY MASS SPECTROMETRY

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OBJECTIVES: DNA damage occurs in living organisms by exogenous and endogenous sources. Unless repaired, DNA damage can cause genomic instability that may give rise to disease processes including carcinogenesis. Cancer tissues overexpress DNA repair proteins, leading to therapy resistance. Measurement of DNA repair proteins in disease-free tissues and malignant tumors of patients is important to evaluate DNA repair proteins as a predictive and prognostic biomarker in cancer, to develop and use inhibitors of these proteins in cancer therapy. We aimed to develop liquid chromatography-isotope dilution tandem mass spectrometry method for measurement of poly-(ADP ribose)polymerase-1 (PARP1) and apurinic/apyrimidinic endonuclease-1 (APE1) in human tissues and cell lines.
MATERIALS and METHODS: We quantified PARP1 in human normal and malignant ovarian tissues, and in human cell lines MCF-7, MCF-10A, HEPG2, THLE-2, HeLa, Ect1/E6E7.
RESULTS: Significantly greater expression of PARP1 was observed in malignant ovarian tissues than in normal tissues. While PARP1 level in HeLa cells was significantly greater than Ect1/E6E7 cells, no statistically significant difference between MCF10A and MCF7 cells, and THLE-2 and HEPG2 cells. We also show the simultaneous measurement of PARP1 and APE1 in a given protein extract.
CONCLUSIONS: Extreme expression of the PARP1 in cancer cells was observed, suggesting that cancer cells may overexpress DNA repair proteins for survival. The approach described is expected to be applicable to the measurement of expression levels of DNA repair proteins in malignant tumors vs. disease-free tissues in patients. This attribute may help develop novel treatment strategies and DNA repair inhibitors as potential anticancer drugs.
Keywords: PARP1, DNA Damage, DNA Repair Proteins, Cancer Biomarkers, Isotope-Dilution Mass Spectrometry

OP-123
THE EVALUATION OF METHYLTHIAZOLE DERIVATIVES ANTICANCER AND ANTIINFLAMMATORY ACTIVITIES IN C6 CELL LINES

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OBJECTIVES: Studies with the aim of developing anti-inflammatory and anticancer drugs show that thiazole-derived compounds have potent anti-inflammatory and anticancer effects. In this study, nine new compounds containing 4-methylthiazole-2-acetamide fragment in their main structure were synthesized and the analysis of these compounds was carried out by high resolution mass spectrometry (HRMS, LC/IT-TOF), 1H-NMR and 13C-NMR methods. Then, with the activity studies, the potential of these compounds to be drugs and their effects on the mechanisms that play a role in the anticancer effect were examined.
MATERIALS and METHODS: Cytotoxicity values of the compounds were determined by MTT method. Early/late apoptotic and necrotic cell ratio was determined by Annexin V-FITC method. Mitochondrial membrane integrity was determined by flow cytometry and caspase-3 activation levels were measured.
RESULTS: It was observed that the activity of compound 3c containing 4,5-dihydrothiazole moiety was higher than the positive control cisplatin. The cytotoxic effect value of compound 3f containing 4-nitro-1H-benzimidazole moiety and positive control cisplatin was determined as 18.6±3.21 and 17.0±4.36; respectively. When the apoptotic effect test results are evaluated it was determined that the percentage of compound 3c (49.2%) in which the cells induced apoptosis was close to the percentage of positive control cisplatin (50.7%).
CONCLUSIONS: The findings obtained from our study show that the 3c compound has anti-inflammatory and anticancer effect and will contribute to drug development studies based on thiazole derivative compounds.
Acknowledgements: This work was supported by Anadolu University Scientific Research Projects Commission (Project No. 1807S251).
Keywords: Methylthiazole Derivatives, Anti-inflammatory, Anticancer, C6 Cell Line.

OP-125
DESIGN, SYNTHESIS AND ANTICANCER ACTIVITIES OF NOVEL OXADIAZOLE-AZCETAMID COMPOUNDS

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OBJECTIVES: (Benz)Azoles are the ring systems frequently encountered in the structure of drugs used in cancer treatment. Therefore, they are used in the design of new drug molecules. In this study, it was aimed to determine the potential anticancer effects and structure-activity relationships of new twelve compounds containing 5-[(2-acetamidophenoxy) methyl)-1,3,4-oxadiazole as a core structure.
MATERIALS and METHODS: The synthesis of compounds (4a-4l) was carried out in four steps. Their anticancer activity potential was tested by the MTT method against A549 cell line. In addition, early / late apoptotic cell ratio, mitochondrial membrane integrity, caspase-3 activation measured by flow cytometry, caspase-3 activation levels, cell cycle arrest were measured by flow cytometric analyses. Also, they were investigate on MMP-9 enzyme.
RESULTS: Considering both the selectivity of the compounds between healthy cells and cancer cells and their apoptotic pathway inducing effects together, the 4f, 4h, 4i, 4k, and 4l compounds are remarkable. Compounds 4f, 4g, 4h, and 4l exhibited strong inhibition on MMP-9. MMP-9 inhibition values of the compounds with fluorine substitution (4f and 4l) were 75.08 ± 2.80% and 75.26 ± 3.73%, respectively; 83.79 ± 0.12% for the compound with ethoxy substitution (4g), and 78.49 ± 3.92% for the non-substituted phenyl analog.
CONCLUSIONS: Due to results, the derivatives bearing phenyl substitution (4h-4l) were found better potent than the benzothiazole analogs (4a-4g). Compound 4h and 4l may be good anticancer agent candidates due to their high inhibition and high anticancer selectivity at low doses.
Acknowledgements: This work was supported by Anadolu University Scientific Research Projects Commission (Project No. 1807S251).
Keywords: Cancer, Apoptosis, Matrix Metalloproteinase

OP-126
NOVEL THIOSEMICARBAZIDE DERIVATIVES: ANTICANCER AND MATRIX METALOPROTEINASE ENZYME INHIBITION EFFECTS

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OBJECTIVES: MMP activity has gained importance in the prevention and treatment of invasion, metastasis and angiogenesis in malignancies including lung cancer. Thiosemicarbazides, which stand out with their anticancer activities, are important structural starting compounds that have the potential to show chemical functionality in biologically active molecules. Optimization of this structure may result in the discovery of a new class of anticancer agents. Therefore, in our study, the thiosemicarbazide bridge, which is considered as the main structure, was designed with 2-acetamidophenoxy moieties on one end and a phenyl group on the other end. The anticancer activities and inhibition effects of these newly synthesized compounds on MMP-9 enzyme activity were investigated.
MATERIALS and METHODS: The designed new ten compounds (3a-3j) were synthesized via three steps andtheir structures were illuminated Each derivative was investigated for cytotoxic activity on A549 cell line by MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide method and ability to inhibit Matrix metalloproteinase-9 enzyme by colorimetric inhibitor screening assay kit.
RESULTS: Compounds 3b, 3g, 3i and 3j had significant cytotoxic activity. Cytotoxic activity values (IC50) of compounds 3b, 3g, 3i and 3j were 11.33±0.58, 10.33±0.58, 9.33±0.58 and 18.67±1.53mg/mL, respectively. It was shown that all of the compounds have an inhibitory effect on MMP-9 enzyme activity, it was determined that the derivate with the highest inhibition effect (84.86 ± 1,45, % at 100 µM) concentration was compund
CONCLUSIONS: As a result, phenyl groups with ortho and para halogen increased the cytotoxic effect of the compounds.
Acknowledgements: This work was supported by Anadolu University Scientific Research Projects Commission (Project No. 1905S085).
Keywords: Cancer, Matrix Metalloproteinase-9, Thiosemicarbazide

OP-128
IN VITRO METHODOLOGY FOR DETERMINING POTENTIAL ANTICANCER ACTIVITY IN PLANTS

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OBJECTIVES: Plants are the most important resource in anticancer drug research. A standard screening method for determining suitable candidates in the plant pool of about fourteen thousand in total; it is not yet available in determining both the type of plant and the effective concentration of acceptable toxicity. In this study, different methodologies were used to investigate the anti-cancer activity of an Anatolian plant (R. Ribes), which has the richest plant pool in the world, in breast cancer cell lines. Among these, it's aimed to determine the appropriate screening method.
MATERIALS and METHODS: Total extract was prepared with methanol. The effective concentration range of this extract was tested in breast cancer estrogen (positive) and (negative) cell lines. Cell cycle and apoptosis analyzes were performed at the IC50 concentration obtained. Plant anticancer efficacy: compared with Doxorubicin, a standard chemotherapeutic agent. 3D mass formation analyzes were performed on agarose gel in each group with the determined effective concentration.
RESULTS: Effects of effective concentration on total extract; Compared to Doxorubicin in MCF7 and MDA-MB 231 cell lines, the extract used showed cells in apoptosis and necrosis; It was observed that it took a statistically significant ($P < 0.005$) difference. Solid structures formed in agarose gel analysis performed; compared between groups with their numbers and sizes. The effect of the extract in agarose was found to be significantly different in hormone (+) cell lines ($P < 0.005$).
CONCLUSIONS: Total extract content in the chemopreventive dosage range has an anti-cancer potential. Anti-cancer activity is more pronounced in the hormone receptor (+) tumor line.
Keywords: Breast Cancer, Total Extract, Agarose Gel, Anticancer Activity

OP-129
THE ANTIOXIDANT EFFECT OF OLEASTER FRUIT ON SACCHAROMYCES CEREVISIAE SOME MOLECULAR AND BIOCHEMICAL PARAMETERS

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OBJECTIVES: The spindle, whose latin name is *Elaeagnus angustifolia* L. is a drought-resistant plant species. It begins to bear fruit at the age of 5-6. It is fruit similar to cranberry and the inside of the fruit is like flour. The fruits of the spindle have a rich content in terms of carbohydrate, protein and vitamins A, B, C, magnesium, potassium and iron minerals. In this study, the protective role of oleaster fruit against oxidative damage in *Saccharomyces cerevisiae* with copper chloride ($CuCl_2$) was investigated.
MATERIALS and METHODS: In this study 4 groups were formed. Groups: (i) Control Group: Yeast only cultivated group (ii) Oleaster Fruit Group: Oleaster fruit (% 8) given group (iii) $CuCl_2$ Group: $CuCl_2$ (30 mM) given group (iv) Oleaster Fruit +$CuCl_2$ Group: Oleaster fruit (% 8) + $CuCl_2$ (30 mM) given group. *Saccharomyces cerevisiae* cultures were grown for 1 hour, 3 hours, 5 hours and 24 hours at 30°C. Cell growth (1 hour, 3 hours, 5 hours and 24 hours), lipid peroxidation MDA (malondialdehyde) analyzes, GSH (glutathione) level and catalase activity were determined by spectrophotometer. Total protein changes were detected by SDS-PAGE electrophoresis and calculated by the Lowry protein method.
RESULTS: According to the results obtained, cell development, GSH levels, catalase activity and total protein synthesis increased, while MDA level decreased in oleaster fruit groups compared to the $CuCl_2$ group.
CONCLUSIONS: As a result, in addition to reducing oxidative damage in the culture of *Saccharomyces cerevisiae* oleaster fruit has an increasing role in increasing cell growth and synthesis of total protein.
Keywords: Catalase, Copper Chloride, Oleaster, Oxidative Damage, Saccharomyces Cerevisiae

OP-130
PROGRAMMED CELL DEATH SUBROUTINES INDUCED BY TEMOZOLOMIDE IN SCHIZOSACCHAROMYCES POMBE

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OBJECTIVES: The aim of this study is to develop *S. pombe* model, which is planned to be used in molecular cell death study, and, to understand the potential roles of the genes suggested for programmed cell death mechanisms by using molecular biological tools. Also, the cell death pathway along with toxic effects that are induced by temozolomide, is aimed to be enlightened.
MATERIALS and METHODS: *S. pombe* wild type (*ED666 h- ade6-M210/ura4-D18 leu1-32*) and mutant cells (*pca1, aif1, pnu1, rad9*) were used in this study. Gene expression analyses were performed using RT-PCR method. Cells were grown on standard media and all treatments were done at 30 °C and shaking at 180 rpm. Nuclear morphology was assessed by DAPI staining. Apoptosis was monitored by Annexin V/FITC staining. Spot and colony forming assays were performed in plates containing solid agar supplemented with amino acids.
RESULTS: 1-10 mM temozolomide caused a dose-dependent cell death. The number of apoptotic cells was calculated nearly the same as of the results from spot and colony assays (20%-60%). While nuclear fragmentations were monitored by DAPI staining, 4-fold increments in expressions of the genes suggested to play roles in apoptosis (*pnu1* and *rad9*) were calculated. A variation in cell death rates was observed in mutant cells. The results from mutants other than *pnu1* were found very close to those of wild type cells, however, apoptosis was not observed in *pnu1* cells treated with 2 mM temozolomide.
CONCLUSIONS: The contribution of proapoptotic genes to temozolomide-induced cell death in addition to their transcriptional regulation were clarified in *S. pombe*.
Acknowledgements: This study was supported by a grant (#119Z186) from the Scientific and Technological Research Council of Turkey (TUBITAK).
Keywords: {S. pombe}, temozolomide, apoptosis, {pnu1}

OP-131
INVESTIGATION OF GPER-1 LEVELS IN ISCHEMIC HEART TISSUE OF OVERECTOMIZED RATS

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OBJECTIVES: In this first study, the biochemical and histopathological effects of overeoctomized rats on ischemic heart tissue were investigated in 32 adult female rats. Rats were randomly divided into four groups; group 1; Control (n = 8), group 2; Overectomy group (n = 8), group 3; Ischemia-reperfusion only group (n = 8), and group 4; Overectomy + ischemia-reperfusion group (n = 8). Overectomy groups were surgically removed 14 days before cardiac ischemia-reperfusion. In order to exclude surgical stress, only the abdomen was opened and closed without overectomy. After menopause, rats in the whole group were applied to the heart of ischemia and reperfusion for 10 minutes. Blood was collected from all groups after reperfusion and plasma creatine kinase (CK-MB), estrogen and progesterone levels were measured. GPER levels were measured in tissue samples.
MATERIALS and METHODS: Biochemical parameters (CK-MB, estrogen, progesterone and GPER) were measured by commercial kits on the ELISA device.
RESULTS: At the end of biochemical examinations; CK-MB levels did not show statistically significant differences between the groups ($p > 0.05$). Estrogen levels were significantly lower in the other groups compared to the control group ($p < 0.05$). However, there was no statistically significant difference in progesterone levels between the groups ($p > 0.05$). GPER levels were significantly higher in the overectomy and overectomy + ischemia-reperfusion groups compared to the other groups ($p < 0.05$).
CONCLUSIONS: As a result, elevated GPER levels result from impaired and inadequate estrogen synthesis after overectomy, which leads to cardiac dysfunction.
Keywords: Estrogen, GPER, Overectomize, Cardiac Ischemia-Reperfusion Injury

OP-132
DEVELOPMENT OF METHAMPHETAMINE SPECIFIC DNA APTAMER

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OBJECTIVES: Methamphetamine abuse is a serious public health problem in many countries. It ranks second after cannabis as the most commonly abused illicit drug in the world. The aim of this study was to develop a DNA aptamer that could recognize methamphetamine with high affinity and specificity, which can be used in further biosensor studies. Nucleic acid aptamers are short, single-stranded DNA or RNA oligonucleotides that exhibit similar binding properties with monoclonal antibodies. Aptamers are used in various applications as alternative to antibodies due their stability and low-cost properties.
MATERIALS and METHODS: Graphene oxide SELEX (GO-SELEX) method was used to develop the aptamer. Secodary structures and sequence similarities of the sequences obtained by GO-SELEX were examined by using MEME suit and mfold softwares. Binding properties of methamphetamine aptamers were characterized by isothermal titration calorimetry (ITC). Thermodynamic parameters for the aptamer-ligand interaction were determined.
RESULTS: Based on the ITC measurements, Kd was found as 1,32µM, ΔH was found as -11,6 kcal mol, and ΔG was found as -8,02 kcal/mol.
CONCLUSIONS: Metamphetamine aptamer has the potential to be used as a recognition probe in biosensors that could be developed to determine methamphetamine levels in biological samples.
Keywords: Aptamer, Drug Abuse, Methamphetamine, GO-SELEX

OP-133
RECOMBINANT PRODUCTION OF THE VIRULANCE ENZYME FROM STREPTOCOCCUS PYOGENES AND DEVELOPMENT OF SPECIFIC DNA APTAMERS

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OBJECTIVES: *S.pyoges* is a gram positive bacteria that causes necrotizing fasciitis (flesh eating disease) and streptococcal toxic shoch syndrome with high mortality rates. In addition, it is known to cause sepsis and pharyngitis in humans. Mortality rates of GAS infection are high in developed and undeveloped countries.S.pyogenes causes nearly 500.000 deaths each year worldwide. Streptococcal pyrogenic exotoxin B (SpeB) is a cysteine protease found in most strains of GAS infection and plays different roles in its pathogenicity. SpeB contributes to pathogenicity by degrading many proteins such as immunoglobulin, plasminogen and fibrinogen. Aptamers are single stranded DNA or RNA molecules that can recognize their targets with high affinity and specificity. The first aim of the project is to produce recombinant active SpeB, the second goal is to develop DNA aptamers that can recognize SpeB in serum with high specificity.
MATERIALS and METHODS: Recombinant SpeB was produced in *E.coli Rosetta2*. SpeB was purified by cation exchange chromatography. Activity of SpeB was determined by azocasein assay.Aptamers were developed by bead-based SELEX. Candidate aptamers were selected using MEME-SUIT, MFOLD and CLUSTALW programs.
RESULTS: Approximately 1.5 mg of recombinant SpeB was obtained from 50 mL of bacterial cell culture. The activity of SpeB was calculated to be 270 U/mg. Five aptamers were selected for further studies and their secondary structures of these aptamers were determined.
CONCLUSIONS: As a result of the study, DNA aptamers were developed to recognize SpeB in serum.The aptamer which shows the highest affinity among the developed aptamers, can be used for the diagnosis of GAS infection.
Keywords: SpeB, SELEX, Aptamer, {Streptococcus Pyogenes}, GAS infection

OP-134
DIAGNOSTIC VALUE OF SERUM GALECTIN-3 IN ENDOMETRIOSIS

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OBJECTIVES: Endometriosis (EM), an estrogen-dependent inflammatory and immune-associated disease, is defined by the presence of endometrial glands and stroma grow in areas outside the uterus. A simple blood test for endometriosis-specific biomarkers would offer a more timely accurate diagnosis of the disease and could lead to earlier treatment intervention. The pathophysiology of endometriosis is still not fully understood. Galectin-3 is a essential protein that play vital roles in many biological processes, such as cell growth, differentiation, apoptosis, angiogenesis, inflammation, and tumour progression. The aim of this study is to evaluate galectin-3 expression levels on the development of endometriotic lesions in peripheral blood (PB).
MATERIALS and METHODS: PB samples from 70 female patients that underwent surgery were treated and were diagnosed with endometriosis according to the histopathological evaluation of the biopsy material and 50 healthy cases that had no concomitant malignancy or chronic inflammatory diseases were used in the study. Expression levels of galectin-3 were performed by quantitative real-time polymerase chain reaction (qRT-PCR) and Elisa assay.
RESULTS: All of the results showed that galectin-3 expression levels were increased significantly in the endometriosis patients compared to the control group ($p < 0.05$).
CONCLUSIONS: Serum galectin-3 level may have a potential role in the development of endometriosis and treatment target for endometriosis. It is clear that more work is needed in this area.
Keywords: Endometriosis, Galectin-3, Non-invasive Diagnosis

OP-135
PRODUCTION OF RNA-BASED SARS-COV-2 VIRUS REFERENCE MATERIAL FOR RT-QPCR TESTS

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OBJECTIVES: The purpose is the production of RNA-based reference material to meet the quality requirements in the measurements made with Reverse Transcription - Real Time Polymerase Chain Reaction (RT-qPCR) of SARS-CoV-2 (2019-nCoV) virus.
MATERIALS and METHODS: RNA-based reference material has been produced to be used in the measurements of the SARS-CoV-2 virus with RT-qPCR. The reference material produced contains fragments corresponding to 10 different SARS-CoV-2 gene regions and human RNaseP gene region published by the World Health Organization for RT-qPCR tests.
RESULTS: RNA-based reference material was produced for the control of both steps in the RT-qPCR measurements of the SARS-CoV-2 virus.
CONCLUSIONS: For RT-qPCR measurements of the SARS-CoV-2 virus, the RNA-based reference material produced is suitable for use as a positive quality control material in the laboratory's method development studies, method validation, method verification of test kits and comparison of different methods and PCR designs.
With the infrastructure and technical experience developed in TUBITAK UME Laboratories, production of new RNA-based reference materials can be completed in a very short time in case of;
i) a new RT-qPCR design containing a different gene region of the SARS-CoV-2

virus is required,
ii) mutations occur on the the SARS-CoV-2 virus,
iii) emergence of a completely new virus.
RNA-based reference materials available for sale in frozen (UME RM 2019) and lyophilized (UME RM 2020) form can be ordered from the link below. Lyophilized form can be delivered to customers without any cooling. (https://rm.ume.tubitak.gov.tr/urun_grup.aspx?p=4).
We would like to thank Eastern Marmara Development Agency for the project support with reference number TR42/20/COVID/0035.
Keywords: COVID-19, SARS-CoV-2, 2019-nCoV, RT-qPCR

OP-136
DETERMINATION OF SALIVARY LEVELS OF ALKALINE PHOSPHATASE (ALP), C-TERMINAL TELOPEPTIDE (CTX), OSTEOCALCIN AND SCLEROSTIN GEN EXPRESSIONS IN DIFFERENT AGE GROUPS BY REAL TIME PCR

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OBJECTIVES: The aim of this study was to investigate the levels of alkaline phosphatase, osteocalcin, C-terminal telopeptide as a destruction marker and sclerostin as a bone formation inhibitor in all individuals using saliva samples that do not require an invasive procedure.
MATERIALS and METHODS: In our study, tubes called Saliva RNA Collection and Preservation Devices, which prevent the degradation of RNA at room temperature for two months during the sample collection and storage phase, and which provide high analytical performance, are used. After saliva RNA isolation, cDNA synthesis was performed using qPCR and cDNA quantitation was performed. SOST for sclerostin, COL1A1 for C-terminal telopeptide, BGLAP for osteocalcin, APLP for alkaline phosphatase were designed and the amount of bone resorption biomarkers was determined by qPCR. In order to determine the optimum working range of each primer, melting curve analyzes were performed and the PCR method was validated accordingly. Melting point and gene expression were determined.
RESULTS: Before the polymerase chain reaction, we determined that cDNA concentrations of 300-700 ng / µL and OD 260/280 of all samples were in the range of 1.8 ± 0.1. According to the data analysis, although sclerostin, C-terminal telopeptide and alkaline phosphatase levels were found to be low, the presence of gene expression was observed from the saliva sample. However, the dimer formation occurring in the melting temperature curve indicates that primer design optimization should be made.
CONCLUSIONS: Sclerostin, C-terminal telopeptide and alkaline phosphatase were obtained from saliva regardless of age, and osteocalcin could not be detected. Although it was seen that new primers used for PCR should be designed, when evaluated within this scope, the emission of all parameters except osteocalcin was considered to be significant and it was decided that there were biomarkers to be detected in saliva. These data may have an effective role in the diagnosis and treatment follow-up of diseases associated with bone metabolism.
Keywords: Biomarker, Saliva, Sclerostin, Alkaline Phosphatase, C-Terminal Telopeptide

OP-137
INVESTIGATION OF THE EFFECT OF GONADOTROPIN TREATMENT FOR SUPEROVULATION ON THE EXPRESSION OF PROTEINS THAT HAVE A ROLE IN THE PIRNA PATHWAY IN A MOUSE MODEL

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OBJECTIVES: The piRNA pathway is crucial for early development, epigenetic regulation, gametogenesis, tumorigenesis, and silencing of transposons. The aim of this study is to examine whether there is an effect of different doses of PMSG / hCG and repeated ovarian stimulafion (OS) on the expression of the Mili, Miwi, Mael, Tdrd1, Tdrd9, Mitopld.
MATERIALS and METHODS: Female mice in the experiment I was injected with 5 i.u. (group I), 7.5 i.u. (group II), 10 i.u. (group III), 12.5 i.u. (group IV) PMSG followed 48 hour later by 5, 7.5, 10, 12.5 i.u. hCG to each group, respectively. Controls (group V) was injected twice with 0.1 ml sterile serum physiologic isotonic solution. Female mice in experiment II were stimulated with 5 i.u. PMSG/hCG at 1-week intervals for 3 weeks (Group 6-8). Mili, Miwi, Mael, Tdrd1, Tdrd9, Mitopld gene, and protein expression levels were determined in the M2 oocyte and ovarian tissues by qPCR and immunofluorescence method, respectively. Furthermore, plasma levels of 17-β estradiol of the study groups were determined by ELISA.
RESULTS: Plasma E2 levels were most increased in group III among dose-dependent groups and in group VI among repeated stimulation groups. It was found that Tdrd9, Tdrd1, and Mael expressions decreased significantly in groups III and VI, Mitopld, Miwi, and Mili expressions in group 5.
CONCLUSIONS: In conclusion, exogenous gonadotropin administration led to remarkable decreases in expression of Mili, Miwi, Mael, Tdrd1, Tdrd9, MITOPLD, and changes in the expression levels of Tdrd9, Tdrd1, and Mael may associate with plasma E2 levels.
Keywords: Gonadotropin, Ovarian Stimulation, In-vitro Fertilization, piRNA

OP-138
INVESTIGATION OF THE EFFECT OF R381Q IL-23 GENE VARIANT ON DISEASE OCCURRENCE IN CORONARY ARTERY DISEASE

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OBJECTIVES: More and more evidence is being presented that coronary artery disease (CAD), a clinical form of coronary atherosclerosis, is a chronic inflammatory disease. Interleukin-23 (IL-23), an important mediator and modulator of inflammation, is a proinflammatory cytokine. IL-23 plays a role in the regulation of immune responses against infections and tumor development through the activation of the IL-23 respector (IL-23R). As an essential part of the IL-23 / IL-17 axis, IL-23R may also play critical roles in atherosclerosis and diseases related to atherosclerosis. Specific polymorphisms in genes encoding IL-23 and its receptor subunits have recently been consistently found to be associated with chronic immune-mediated diseases. However, the number of studies investigating the relationship between CAD and IL-23R is quite limited. Therefore, in this study, we aimed to evaluate the relationship between R381Q IL-23 receptor gene polymorphism and atherosclerosis.
MATERIALS and METHODS: In this case-control study, a study group of 513 people was examined in terms of IL-23R R381Q polymorphism using the PCR-RFLP method.
RESULTS: Only AA and AG genotypes were observed in the study groups. The G allele was observed only in the patient group. This situation highlights the role of the G allele in the development of the disease. (P = <0.001)
CONCLUSIONS: Our study confirms the importance of hypertension, smoking, and hyperlipidemia in the pathogenesis of male CAD and indicates that R381Q IL-23 polymorphism is also a risk factor for CAD in the presence of these risk factors. In conclusion, determining IL-23 gene variants can be used as biomarkers for CAD risk.
Keywords: IL-23, Atherosclerosis, Coronary Artery Disease, Polymorphism

OP-139
DETERMINATION OF CANDIDA SPECIES BY REAL TIME PCR

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OBJECTIVES: The number of invasive candidiasis cases has risen especially with an increase in the number of immunosuppressed and immunocompromised patients in hospitals. This study aims to develop a new method for the detection, identification and quantitation of medically important Candida species through quantitative polymerase chain reaction (qPCR).
MATERIALS and METHODS: A couple of spesific primers were used for amplification of ITS-1 or ITS-2 fragments. Real Time Polymerase Chain Reaction (PCR) and consecutive High Resolution Melting Analysis (HRMA) was used for the detection and differentiation of Candida species from colony and oral rinse solutions.
RESULTS: Candida species were successfully detected, identified and quantitated based on the ITS-1 or ITS-2 genes. This procedure proved appropriate for discrimination of the 6 most relevant Candida species (C. albicans, C. Dubliniensis, C. Glabrata, C. Krusei, C. Parapsilosis, C. tropicalis) in one PCR tube.
CONCLUSIONS: Real-time PCR followed by HRMA is a simple, rapid and inexpensive tool to identify Candida species. Correct identification of this species is important for targeted antifungal therapy and for epidemiological purposes.
Keywords: Candidiasis, Real Time PCR-HRMA

OP-140
LONG-TERM STABILIZATION OF RNU6 USED IN NORMALIZATION IN MICRORNA MEASUREMENTS

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OBJECTIVES: The aim of this study was to investigate the long-term stability of RNU6 used in normalization as an endogenous control in micro RNA measurements at -80°C.
MATERIALS and METHODS: RNU6 levels were measured in the qRT-PCR device using Qiagen brand kits in 50 serum samples collected within the scope of a scientific study completed in 2013. Then, samples were stored for 5 years at -80°C. In 2018, measurements were repeated using the same brand kits. Whether there is a statistical difference between these two results was analyzed with the paired sample T test.
RESULTS: While the average threshold cycle (Ct) in RNU6 measurements was 32.74 in 2013, it was determined as 34.44 in 2018. In the measurements made in 2018, an increase of 5.69% was observed in Ct values. Therefore, the amount of RNU6 decreased in samples stored at -80°C for 5 years. This difference was found to be significant in the statistical analysis ($p < 0.001$).
CONCLUSIONS: In some studies in the literature, it was reported that the serum levels of miRNAs decreased within 24 hours at room temperature, but did not change even after 4 years at -80°C. However, the 5.69% increase in Ct values observed in our study showed that RNU6 serum levels decreased. It was evaluated that it would be more appropriate to use exogenous controls such as ce-miR-39 instead of endogenous controls such as RNU6 for normalization in miRNA studies to be carried out with samples stored for a long time.
Keywords: RNU6, Long-Term Stabilization

OP-141
ERYTHROCYTE REDUCED/OXIDIZED GLUTATHIONE AND SERUM THIOL/DISULFIDE HOMEOSTASIS IN PATIENTS WITH AGE-RELATED MACULAR DEGENERATION

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OBJECTIVES: Age-related macular degeneration (AMD) is characterized by a progressive degenerative disease of the macula. It was aimed to evaluate the relationship between AMD and oxidative damage by measuring extracellular disulphide/thiol (SS/SH) levels and intracellular oxidized/reduced glutathione (GSSG/GSH) levels, and to compare these parameters in non-exudative/exudative AMD patients and healthy individuals.
MATERIALS and METHODS: 30 non-exudative AMD, 28 exudative AMD, and 36 age-matched healthy control subjects enrolled to the study. Participants' serum native SH, total SH, and SS amounts and erythrocyte native GSH, total GSH, and GSSG levels were determined and expressed as µmol/L. SS/SH, GSSG/GSH percent ratios were calculated.
RESULTS: In comparison with the control group both non-exudative and exudative AMD patients had higher disulfide levels (20.5(4.8) vs 15.4(3.1), $p<0.001$ and 22.5(7.5) vs 15.4(3.1), $p<0.001$; respectively) and higher SS/SH (6.64(2.57) vs 5.4(1.9), $p=0,002$ and 7.05(3.14) vs 5.4(1.9), $p<0.001$; respectively), in addition to higher GSSG levels (64.6(40.8) vs 27.3(21.9), $p=0.015$ and 73.9(44.1) vs 27.3(21.9), $p=0.002$; respectively) and higher GSSG/GSH ratio (6.48(8.35) vs 3.14(3.31), $p=0,034$ and 10.21(10.28) vs 3.14(3.31), $p=0,003$; respectively). However, there was no significant difference between non-exudative and exudative AMD groups in these parameters. There was not significant difference between groups in term of total thiol; native thiol; total GSH and native GSH ($p>0,05$ for all).
CONCLUSIONS: Greater extent of both extracellular thiol and intracellular glutathione consumption occurred in AMD patients compared to age-matched healthy controls indicates the role of decreased antioxidant status in AMD development. Further studies are needed to confirm the pathophysiologic role of homeostasis in these buffer systems in AMD.
Keywords: Age-Related Macular Degeneration, Disulfide, Thiol, Glutathione

OP-142
RELATIONSHIP AMONG LIPID PEROXIDATION, ANTIOXIDANT ENZYMES AND TUMOR MARKERS IN VARIOUS CANCER TYPES

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OBJECTIVES: It has been reported that oxidant radicals and oxidative stress may be increased in patients with cancer studies on the oxidant-antioxidant balance status of the organism. In this study, relationships among lipid peroxidation, antioxidant enzymes and tumor markers in various cancer types were investigated.
MATERIALS and METHODS: Newly diagnosed without medical or surgical treatment ninety-two cancer patients [lung cancer n=12, breast cancer n=14, gastrointestinal cancer n=49 and genitourinery cancer n=17] and 39 healthy subjects were enrolled into the study. Erythrocyte glutathione, glutathione peroxidase, glutahtione reductase, superoxide dismutase and plasma total antioxidant status as antioxidant indicators and malondialdehyde as an erythrocyte lipid peroxidation and indicator were studied. CEA, AFP, CA 19-9, CA 15-3 and CA 125 as tumor markers were also evaluated in both healty and patient groups.
RESULTS: Plasma total antioxidant level in the cancer patients was significantly lower than the control group ($p<0.001$). Erythrocyte GSH, GSH-Px, GSH-Rx, SOD and malondialdehyde (MDA), levels in the cancer patients were significantly higher than the control group (respectively $p<0.001$, $p<0.001$, $p<0.01$, $p<0.001$). There were not found statistically relationships among tumor markers and antioxidant-oxidant parameters in cancer patients ($p>0.05$).
CONCLUSIONS: Although glutathione, glutathione peroxidase, glutathione reductase and superoxide dismutase levels were found elevated as well as malondialdehyde levels, it may be shown the presence of increased free radical and lipid peroxidation in excess of the adaptive protection system capacity of cancer metabolism. Whether the increased lipid peroxidation level is a cause or a consequence has not been fully eluciated. This may be shown the increased oxidative stres. Reducing endogenous sources and environmental carcinogens that will cause oxidative stress is very important for avoiding free radical formation and cancer prevention.
Keywords: Lipid Peroxidation, Antioxidant, Tumor Marker, Cancer

OP-143
ASSOCIATION BETWEEN OXIDATIVE DNA DAMAGE AND IRON STATUS IN WOMEN WITH GESTATIONAL DIABETES MELLITUS

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OBJECTIVES: To assess the relationship between oxidative DNA damage and iron status in women with gestational diabetes mellitus (GDM) compared to those with normal glucose tolerance in the first and the second trimesters of pregnancy.
MATERIALS and METHODS: In this prospectively designed cohort study, maternal serum and urine samples were collected in the 11th-14th weeks and the 24th-28th weeks of gestation. In addition to oral glucose tolerance test in the second trimester, fasting blood glucose, HbA1c, ferritin and hemoglobin levels were measured in blood samples. Urinary levels of oxidative DNA damage products 8-hydroxy-2′-deoxyguanosine (8-OH-dG) and 8,5'-cyclo-2'-deoxyadenosines (S-cdA, R-cdA) were determined using liquid chromatography tandem mass spectrometry.
RESULTS: In the first trimester, urinary 8-OH-dG levels were found higher in the GDM group (n=33) than in the control group (n=84) ($p = 0.006$). The increased 8-OH-dG level in first trimester was found to be associated with 2.71 times increased risk of developing GDM ($p = 0.028$). When the cases were stratified according to their first trimester ferritin levels, women with ≥50th centile (≥13,0 ng/mL) demonstrated higher levels of 8-OH-dG and R-cdA than those under <50th centile ($p = 0.034$, $p = 0.009$). In the GDM group, there was a positive correlation between the second trimester 8-OH-dG and ferritin and 1st-hour glucose levels ($p = 0.014$, $p = 0.020$).
CONCLUSIONS: This is the first study where oxidative DNA damage is evaluated in both early and late periods of pregnancy. Our findings reveal an association between GDM and iron status and oxidative DNA damage.
Keywords: Gestational Diabetes Mellitus, Oxidative Stress, Oxidatively Induced DNA Damage, Iron, Ferritin

OP-144
THE RELATIONSHIP BETWEEN SERUM APELIN LEVELS, THIOL-DISULFIDE BALANCE AND ALBUMINURIA IN PATIENTS WITH DIABETIC NEPHROPATHY

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OBJECTIVES: The aim of this study is to evaluate the levels of apelin, dynamic thiol / disulfide balance and albuminuria in patients with type 2 diabetes.

MATERIALS and METHODS: 87 patients and 24 control groups were included in the study. Fasting blood samples were taken from patient and control groups. Thiol levels were measured by the colorimetric method developed by Erel et al. Biochemistry parameters were measured by a spectrophotometric method in an autoanalyzer. GFR levels were calculated according to the creatinine-based CKD-EPI formula. Apelin levels were studied by ELISA method.
RESULTS: Native and total thiol levels were found to be significantly lower in patient group compared to the control group (p=0.001 for both). On the other hand, disulfide levels were found to be similar between the patient and control groups (p = 0.182, p = 0.119). Serum apelin levels were found to be significantly lower in patient group compared to control group (p <0.001). A negative correlation was found between native thiol, total thiol and apelin levels and age. Negative correlation was found between native thiol, total thiol, apelin levels and glucose, HbA1c and albuminuria. Besides, native thiol showed a positive correlation with total thiol, apelin levels and GFR.
CONCLUSIONS: Colorimetric measurement of thiol levels can contribute to diagnosis and follow-up of the disease as a marker due to its easy application in clinical biochemistry laboratories and its relationship with disease severity in CKD. The Apelin / APJ system is thought to play a role in the pathogenesis of diabetes and its complications.
Keywords: Dynamic Thiol / Disulfide Balance, Apelin, Diabetic Nephropathy, Microalbuminuria, Diabetes Mellitus

OP-145
THE PROTECTIVE EFFECT OF CARDAMOM AND BROCCOLI ON HEART ISCHEMIA-REPERFUSION INJURY OF RATS UNDERGOING OVARIECTOMY

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OBJECTIVES: In this study, it was aimed to evaluate the combined effect of cardamom and broccoli on cardiac ischemia-reperfusion (I / R) damage in rats undergoing ovariectomy.
MATERIALS and METHODS: 40 adult female rats were selected for the study. Rats divided into five equal groups; Control group, Ovariectomy group, Only I / R group, Ovariectomy + I / R + Serum Physiological group, Ovariectomy + I / R + Treatment group. Ovaries of the ovariectomy groups were removed 14 days ago. In other groups, the abdomen was opened and closed. For 14 days, 1 mL of cardamom (25 mg / kg) + broccoli (25mg / kg) extracts were combined to the treatment group. Group IV 1 mL 0.9% NaCl was given for the same period. After 14 days, 10 minutes of ischemia and 10 minutes of reperfusion were applied to the hearts of rats in the ischemia-reperfusion groups. Creatine kinase (CK-MB) levels in plasma were measured by taking blood from all groups. Animals were sacrificed, heart tissues were removed, and oxidative stress parameters were measured spectrophotometrically.
RESULTS: MDA levels increased, SOD and CAT activities decreased (p <0.001) and severe tissue damage was observed in the I / R group compared to the sham group (p <0.001). Combined therapy significantly improved heart damage, and MDA levels approached control group levels (p <0.001). Combined therapy also increased SOD and CAT activities.
CONCLUSIONS: It was thought that combined therapy may be effective in reducing oxidative stress and tissue damage due to cardiac I / R injury.
Keywords: Ischemia-Reperfusion, Heart, Ovariectomy, Oxidative Stress

OP-146
THE EFFECTS OF OXIDATIVE DAMAGE INDUCED BY BLADDER ISCHEMIA REPERFUSION DAMAGE ON FAR TISSUES AND THE PROTECTIVE ROLE OF CARDAMOM EXTRACT

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OBJECTIVES: ischemia reperfusion injury is blamed for the etiopathogenesis of atherosclerosis, myocardial infarction, neurodegenerative diseases and chronic liver diseases. However, it is not fully known whether ischemia-reperfusion injury to the bladder cause distant tissue damage. in this study, the effects of oxidative damage induced by bladder ischemia reperfusion injury on distant tissue (heart and kidney tissues) and the protective role of cardamom extract were investigated.
MATERIALS and METHODS: Wistar rats were randomly allocated into three groups. Groups; only ischemia reperfusion group, sham group and treatment group (50 mg / kg cardamom). Cardamom extract and saline were given to the treatment and sham groups one day before the I/R injury was created. 30 minutes of ischemia and 30 minutes of repefusion were applied to the bladder with the aid of a clamp. At the end of the experiment, heart and kidney tissues were removed to detect distant tissue damage. Malondialdehyde (MDA) levels, catalase (CAT) and superoxide dismutase (SOD) activities were determined spectrophotometrically in these tissues.
RESULTS: Increased MDA levels including sham,decreased SOD and CAT activies (p <0.001) and severe tissue damage were observed in the I/R group (p <0.001). It was observed that cardamom treatment significantly reduced distant tissue damage (heart and kidney). MDA levels approached the levels of sham group (p <0.001). Cardamom treatment also increased SOD and CAT activities
CONCLUSIONS: It was thought that cardamom treatment might be effective in reducing distant tissue damage of oxidative stress induced by bladder ischemia reperfusion.
Keywords: Oxidative Stress, Bladder, Cardamom

OP-147
THE EFFECT OF S-ADENOSYLMETHIONINE ON LIVER LESIONS AND OXIDATIVE STRESS INDUCED BY A HIGH FAT AND HIGH CHOLESTEROL DIET

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OBJECTIVES: Steatosis makes liver susceptible to oxidative stress, inflammation, cytokines, and triggers the formation of NASH and advanced lesions. S-adenosylmethionine (SAM) is the main methyl group donor, has antioxidant and anti-inflammatory effects, and regulates phosphatidylcholine synthesis. It has been suggested that changes in hepatic SAM levels are related to NASH pathogenesis. However, experimental studies on effects of SAM in NASH are limited. In our study, changes in SAM levels in a high-fat and cholesterol (HFHC) diet-induced NASH model, and the effect of SAM in preventing NASH formation and progression were investigated.
MATERIALS and METHODS: Female guinea pigs under HFHC-diet for 6 weeks, were injected SAM (50 mg/kg; 5 times/week; intraperitoneally). Serum transaminases (ALT, AST), cholesterol, triglyceride, insulin resistance (HOMA-IR), inflammatory cytokines (TNF- α, IL-6) levels were determined. Hepatic cholesterol, triglyceride, SAM, reactive oxygen species (ROS), malondialdehyde (MDA), diene conjugate (DC), protein carbonyl (PC), glutathione (GSH) and antioxidant power (FRAP) levels were determined.
RESULTS: HFHC-diet increased ALT (p=0.005), AST (p=0.000), TNF- α (p=0.024), cholesterol (p=0.004), triglyceride ((p=0.001), levels in serum, but HOMA-IR did not change. Hepatic levels of cholesterol (p=0.000), triglyceride (p=0.000), ROS (p=0.000), MDA (p=0.010), DC (p=0.000), PC (p=0.035), and SAM (p=0.004), FRAP (p=0.004) decreased significantly. SAM treatment during HFHC-diet lowered ALT (p=0.000), AST (p=0.005) activities, hepatic triglyceride (p=0.019), ROS (p=0.000), MDA (p=0.004), DC (p=0.018), PC (p=0.046), and increased SAM (p=0.025), GSH (p=0.002) and FRAP (p=0.006) levels.
CONCLUSIONS: SAM treatment may be effective in preventing NASH formation by suppression of steatosis and oxidative stress.
Keywords: S-Adenosylmethionine, Nonalcoholic Steatohepatitis, Oxidative Stress, Liver; Guinea Pigs

OP-148
ION-BEAM RADIATION DAMAGE TO DNA BY INVESTIGATION OF FREE RADICAL FORMATION AND BASE DAMAGE

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OBJECTIVES: This work investigated the physicochemical processes and DNA base products involved in Ne-22 ion-beam (ca. 1.4 GeV) radiation damage to hydrated (12 waters/nucleotide) salmon sperm DNA.
MATERIALS and METHODS: For this purpose, approximately 12 small (10 mm x 4 mm x 1 mm) samples were stacked in a sample packet and then ion-beam irradiated at 77 K. Free radicals trapped in ion-beam irradiated DNA at 77 K were elucidated using electron spin resonance (ESR) spectroscopy. After warming the samples to room temperature, the measurement of DNA base damage by gas chromatography-tandem mass spectrometry (GC-MS/MS) and liquid chromatography-tandem mass spectrometry (LC-MS/MS) with isotope dilution revealed the formation of a plethora of products and also the formation of 8,5′-cyclopurine-2′-deoxynucleosides.
RESULTS: This work is the first to use the combination of ESR spectroscopy

and mass spectrometry, enabling a better understanding of the mechanisms of radiation damage to DNA along the ion-beam track in terms of the formation of DNA free radicals and products. ESR measurements showed that, as the linear energy transfer (LET) profile of ion-beam radiation increases, the production of cation, anion and neutral radicals of DNA increases along the ion-beam track. The yields of DNA damage products along the ion-beam track were in excellent agreement with the radical production.
CONCLUSIONS: The probability of recombination of DNA radicals in the core increases due to the rise in concentration of proximate ion radicals, the location of the highest energy deposition, the Bragg peak, may show different damage and may not be the location of the maximum damage.
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Keywords: Heavy Ion Therapy, Proton Therapy, Bragg Peak, DNA Damage, Free Radicals

OP-149
APOPTOTIC CELL INJURY IN BRAIN ISCHEMIA REPERFUSION MODEL INDUCED BY COPPER OXIDE NANOPARTICLE IN RATS

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OBJECTIVES: Brain ischemia/reperfusion (I/R) injury is an increasingly common cause of morbidity and mortality. Brain damage occurs when exposed to copper oxide nanoparticles (CuO-NP). CuO-NP is used for different purposes in many industries. In this study; making a partial (I/R) brain model in rats given CuO-NP, the damage caused was examined at the cellular level and the systems affecting this damage were investigated.
MATERIALS and METHODS: 40 male Wistar Albino rats, aged 6-8 weeks, 250-300 g were divided into 4 groups in the experiment: 1. Control, 2. Brain I/R, 3. CuO-NP (200 mg/kg), 4. CuO-NP (200 mg/kg) + Brain I/R. In the serum of all rats; Myelin Basic Protein (MBP), S-100 Calcium Binding Protein B (S100B), Neuro-filament light protein (NEFL), Neuron Specific Enolase (NSE) and in brain tissues; BCL-2, Cytochrome C (Cyt-C), Calpain (CAPAN1), TNF-α, Caspase-3, MDA, CAT levels were measured.
RESULTS: In the serum of the CuO-NP + Brain (I/R) group according to the CuO-NP and Brain I/R groups; In MBP, S-100, NEFL, and brain tissue; Cyt-C, CAPAN1, TNF-α, Caspase-3, MDA levels increased and BCL-2, CAT levels were decreased.
CONCLUSIONS: We investigated neuroapoptosis injury after CuO-NP and Brain (I/R). It was also concluded that in brain cells the mitochondrial pathway of apoptosis is activated. Based on our findings we have obtained from the results of this study, our goal in future studies; It will develop antiapoptotic treatment strategies to reduce the damages of CuO-NPs entering the organism through different ways such as water, food, cosmetic products, medicines, and drug delivery systems.
Acknowledgements: This work was supported by The Scientific and Technological Research Council of Turkey (TUBITAK) 3001.
Keywords: Copper Oxide Nanoparticle (Cuo-NP), Brain Ischemia Reperfusion (I/R), Rat

OP-150
EFFECTS OF BROMELAIN ON OXIDATIVE STRESS PARAMETERS IN METHOTREXATE-INDUCED CARDIAC OXIDATIVE DAMAGE

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OBJECTIVES: Methotrexate is an antiproliferative folic acid antagonist used in the treatment of various types of cancer. The serious side effects of methotrexate limit its clinical use. In this study, it was aimed to investigate the potential beneficial effects of bromelain against cardiac oxidative damage in rats treated with methotrexate.
MATERIALS and METHODS: Rats (n:28) were randomly divided into four groups. The first group was kept as a control. A single dose of 20 mg/kg methotrexate was administered intraperitoneally to the second group. To the third group, 200 mg/kg/day bromelain was given by gavage for 14 days. Methotrexate and bromelain were given together in the same doses to the fourth group. At the end of the study, heart tissues were taken and TBARS and GSH levels and CAT, SOD and GPx activities were measured.
RESULTS: Methotrexate administration didn't cause any change in TBARS and GSH levels compared to the control group, but caused a decrease in SOD, GPx and CAT activities. Bromelain administration with methotrexate resulted in a partial improvement in SOD and CAT activities, but no improvement in GPx activity. In rats treated with bromelain alone, there was an increase in GSH level and SOD, GPx and CAT activities compared to the control group.
CONCLUSIONS: Although methotrexate administration didn't cause lipid peroxidation in heart tissue, it caused a decrease in enzymatic antioxidant defense system activity. It was seen that the application of bromelain partially corrected this damage. Therefore, administration of particularly high doses of bromelain may be beneficial in methotrexate-induced oxidative cardiac injury.
Keywords: Methotrexate, Bromelain, Cardiac Injury, Oxidative Stress

OP-151
THIOL AND DISULFID LEVELS IN PATIENTS WITH METABOLIC SYNDROME IN THE POSTPRANDIAL PERIOD

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OBJECTIVES: Postprandial oxidative stress is caused hyperlipidemia and /or hyperglycemia due to lipid and carbohydrate-rich diets. In postprandial period, the increase of these circulating macromolecules affects the organism's redox potential and causes an increase in oxidative stress. Thiol/disulfide homeostasis is used to evaluate the oxidant-antioxidant status of the organism. It was aimed to evaluate oxidant-antioxidant status in postprandial lipemia by applying oral triglyceride tolerance test (OTTT) to Metabolic Syndrome (MetS) subjects.
MATERIALS and METHODS: OTTT was applied to 15 healthy controls and 15 MetS subjects. Blood samples were taken from these subjects at fasting and at 4th hour after OTTT. Serum thiol and disulfide levels were determined using method developed by Erel and Neselioglu.
RESULTS: The native-thiol levels in MetS in the fasting state were significantly lower than in 4th hour after OFTT ($p<0.05$). Native-thiol levels in MetS compared to control were found to be 11.5% (95% CI 178-189) lower in MetS in fasting state, and this decrease was 13.8% (95% CI 147-165) in postprandial 4th hour ($p<0.05$). Disulfide levels increased by 51.6% (95% CI 26.8-39.1) in MetS compared to control in fasting state and by 93.5% (95% CI 42.3-65.0) in postprandial 4th hour ($p<0.05$).
CONCLUSIONS: According to the results in this preliminary study, thiol/disulfide homeostasis, which is an increased oxidative stress marker, was in the direction of disulfide increase in MetS, while the most significant difference was observed in 4th hour of postprandial period. It was concluded Thiol/disulfide homeostasis may play important role in postprandial lipemia and dyslipidemia.
Keywords: Oxidative Stress, Sulfhydryl Compounds, Oral Triglyceride Tolerance Test

OP-152
A RARE INHERITED METABOLIC DISEASE: COMBINED MALONIC AND METHYLMALONIC ACIDURIA

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OBJECTIVES: To diagnose rare combined Malonic and Methyl malonic Aciduria (CMAMMA) by urine organic analysis.
Its incidence is at 1/30,000. It occurs on the 16q24 chromosome due to mutations in the ACSF3 gene. Although the excretions of malonic acid and methylmalonic acid are seen in the urine organic acid analysis of the patients, methylmalonic acid levels are higher than malonic acid levels. In addition, 3 hydroxypropionic acid, methyl citric acid and tiglylglycine are not typically seen in urinary organic acid analysis. Although the MA is high, Malonyl CoA decarboxylase enzyme activities are normal. B12 and homocysteine levels from routine laboratory tests are normal in these patients. Since the patients do not comply with MA or MMA clinic as clinical and laboratory findings, they are considered as CMAMMA and the diagnosis should be confirmed by molecular analysis.
MATERIALS and METHODS: 2 months old male patient was referred to our metabolism outpatient clinic with complaints of neuromotor growth retardation, inability to gain weight. Physical examination revealed a short mane neck, a low ear, a short length, a flat sole. Organic acid analysis was performed in urine with GC-MS.
RESULTS: Malonic acid 27.5 mg/g crea (N:0), MMA 736 mmol/mol crea (N:0), 3-hydroxybutiric acid 12.4 mmol/mol crea (N<11.1) and ethylmalonic acid 20.2 mmol/mol crea(N<14.6) levels were detected in GC-MS. Malonyl CoA decarboxylase enzyme levels were requested for further analysis.
CONCLUSIONS: CMAMMA is a very rare metabolic disease that can be healed by early diagnosis and treatment. A low protein, fat and high carbohydrate diet started for the patient.
Keywords: CMAMMA, GC-MS, Metabolic Disease.

OP-153
A RARE VARIANT IN THE ALPHA GLOBIN GENE

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OBJECTIVES: Hemoglobinopathies, caused by mutations in the globin genes, are one of the most common inherited disorders. Many of the hemoglobin variants can be identified by hemoglobin analysis using electrophoresis and high performance liquid chromatography; however Hemoglobin DNA analysis may be necessary in other cases for confirmation.
MATERIALS and METHODS: We report a case of an alpha chain hemoglobin variant, in a 39-year-old man who presented a routine screening test before marriage.
RESULTS: His medical history was no significant. Laboratory data showed hemoglobin (Hb) of 16.1 g/dL, a hematocrit of 47.0 %, a mean corpuscular volume of 92.3 fL, and mean corpuscular hemoglobin of 31.6 pg. Hemoglobin evaluation using capillary zone electrophoresis (CZE) revealed 87.6 % Hb A, 0.8 % Hb A2 and a significant amount (8%) of an abnormal Hb peak at the zone 10. The possibility of degraded Hb due to pending of the specimen was the initial impression and a repeat Hb electrophoresis was recommended. Repeat CZE showed 9.2 % of the abnormal Hb peak at the zone 10. The result of HbA1c was 5.2 %, measured by ion-exchange HPLC method. DNA sequencing of the whole blood sample detected a c.335C> A mutation, a globin gene variant in the HbA1/A2 gene.
CONCLUSIONS: Carriers of this single gene mutation are clinically normal with unremarkable hematological indices. Capillary zone electrophoresis revealed a significant amount of a hemoglobin variant, which was further confirmed by hemoglobin DNA sequencing.
Keywords: Hemoglobinopathies, Alpha Globin Chain Variant.

OP-154
POSTMORTEM DIAGNOSIS, ALKAPTONURIA: CASE REPORT

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OBJECTIVES: Alkaptonuria is a rare congenital metabolic disease that occurs as a result of homogentisate 1-2dioxygenase enzyme deficiency in tyrosine-related amino acid metabolism.Homogentisic acid accumulated due to deficiency especially settles in connective tissues and causes brown-black darkening called ochronosis.
MATERIALS and METHODS: In our study,a presumptive diagnosis of Alkaptonuria was considered when the black discoloration was detected,especially in the cartilage tissues of the autopsy case,and the diagnosis was made by examining the samples taken,and it was aimed to discuss the clinical features and the findings obtained from the autopsy.
RESULTS: 59-year-old woman found dead in her home and taken to autopsy.It was observed that there were atheroma plaques that narrow the coronary artery lumen slightly to moderately,there was black discoloration in the heart valves,the thyroid cartilage was black,there was a bleeding area on the inner side of the stomach wall corpus,they were black in the sternum and rib sections,and there was a black color change around the pubis.Black pigmentation accumulation was detected in the sternum and lymph node samples in the pathological examination.
CONCLUSIONS: Alkaptonuria is one of the rare congenital metabolic disorders. The most important causes of morbidity and mortality are arthropathy and cardiovascular involvement. Although clinical diagnosis is difficult,postmortem findings are remarkable.In our case, the diagnosis was reached, and the family was informed about this issue and they were directed to diagnosis and treatment. It has been observed that autopsy is not only related to determining the cause of death but also to preventive medicine, and biochemical diseases should be taken into consideration during autopsy.
Keywords: Postmortem Diagnosis, Alkaptonuria, Ochronosis

OP-156
INVESTIGATION OF SERUM APELIN, ELEBELA, ENDOGLIN AND METRNL LEVELS IN EXPERIMENTALLY APAP-INDUCED LIVER DAMAGE

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OBJECTIVES: Experimental models of hepatotoxicity induced by high-dose Acetaminophen (APAP) provide a useful model for studying the mechanisms of liver cell damage. For this purpose, in acute liver damage caused by APAP; Serum levels of endogenous peptides involved in various inflammatory, angiogenesis and immunity processes such as Apelin, Elabela, Endoglin and Meteorin-Like Protein (METRLN) were investigated.
MATERIALS and METHODS: In study, a total of 14 Wistar Albino female rats were randomly divided into 2 groups. Group I (Control): The group given only 0.9% NaCl orally. Group II (Toxicity): The group in which hepatotoxicity was created by giving a single oral dose of N-acetyl-p-aminophenol (paracetamol, 1gr/kg). At the end of the 24 hours, animals were sacrificed and blood samples were taken, to separate serum samples. Levels of ALT and AST enzymes were studied in an autoanalyzer to show heposellular damage from separated serum samples. Apelin, Elabela, Endoglin and METRLN levels were examined in the serum samples in accordance with the kits procedure by using Rat ELISA kits.
RESULTS: While serum ALT (125.4±9.87 U/L), AST (365.43±25.39 U/L), Apelin (264.75±90.87 pg/mL), Elabela (37.21±3.81 pg/mL) and Endoglin (1369.66±535.1 ng/L) levels increased significantly in the hepatotoxic group compared to the control group (25.9±4.21 U/L, 70.01±7.91 U/L, 178.07±21.56 pg/mL, 10.92±1.54 pg/mL and 678.15±108.8 ng/L, 3.62±0.4 ng/mL), METRLN levels (3.12±0.15 ng/mL) were found to be low.
CONCLUSIONS: This study is the first record in the literature revealing the association of mentioned peptides with APAP-induced liver injury. More detailed studies are needed to elucidate the role of these peptides in liver damage.
Keywords: APAP-induced Liver Damage, Apelin, Elebela, Endoglin, METRNL

OP-157
EVALUATION OF NEWBORN SCAN RESULTS WITH TANDEM MS

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OBJECTIVES: The main purpose of newbornscreening is to diagnosegenetic, metabolic, and other inherited disorders before clinical symptoms appear at the earliest to begin treatment. Understanding and monitoring biochemical data obtained from tandem massspectrometry is vital for earlydiagnosis of metabolic diseases associated with such disorders. In thisstudy, we aimed to share the result of newborn screening studied with tandem MS in our laboratory.
MATERIALS and METHODS: Acylcarnitine screening results of 100 newborns admitted to our laboratory were evaluated retrospectively by LC-MS/MS method and Tandem MS device. Age (mean ±sd) was 764 ± 1265 days (54% male, 46% female.)
RESULTS: MSUD (2), hereditary factor IX deficiency (1), aicardi syndrome (1), tyrosine metabolism disorder (1), galactosemia (1), neurofibromatosistype (1), merosine negative congenital muscular dystrophy (1), celiac (1), dravet syndrome (1), epilepsy (18), cerebral palsy (6), autism (1), growth retardation (4) liver failure (3) convulsions (3), neonatal sepsis (3) disease was diagnosed. Results with acylcarnitine values other than reference values were evaluated. 41 stearylcarnitine, 25 palmitoylcarnitine, 15 methylmalonylcarnitine, 8 propionylcarnitine, 2 free carnitine, 4 isovalerylcarnitine, 2 isovaleryl (3OH) carnitine (C5OH), 2 hexanoylcarnitine, 1dodecanoyl carnitine, 1 myristoylcarnitine, 1 decanoylcarnitine, 1 decenoylcarnitine, 1 octadecenoylcarnitine peaks were found in the Konya region.
CONCLUSIONS: Comprehensive studies on reference ranges, age, gender, birth weight and ethnicity of our region are needed.
Keywords: Newborn, Metabolic, Screening

OP-158
DETERMINATION OF REFERENCE RANGE OF CREATININE VALUES OF CHILDREN IN THE 0-1 AGE RANGE AT KARAPINAR STATE HOSPITAL

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OBJECTIVES: The reference range values are interpreted taking into account the results obtained in clinical laboratories. It is recommended that each laboratory establish its own reference ranges. The aim of this study was to estimate the reference intervals for creatinin in children from the data obtained from the analyses of the laboratory in a one year period.
MATERIALS and METHODS: The creatinine test results of the 213 children (0-1 ages) who applied to our laboratory in between 01.01.2018-01.01.2019 were analysed. Creatinine values were analyzed in Mindray BS-800 device using the Jaffe method.
RESULTS: Calculation of reference intervals with 90% confidence limits showed lower values than the defined reference values by manufacturer. The calculated reference interval for our data was significantly different from the provided by manufacturer. Calculated reference intervals for the creatinin assay were found as 0,1-0,5 mg/dL for 2,5th-97,5th percentile range.
CONCLUSIONS: There is a reference range determined by the manufacturer for each test. However, we cannot say how accurately this range reflects the reference values of the society we are addressing. Therefore, we must determine the reference values of our own population and use these values.
Keywords: Reference Values, Creatinin, Turkey

OP-160
DETERMINATION OF SERUM ATORVASTATIN AND ROSUVASTATIN LEVELS BY TANDEM MASS SPECTROMETERY

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OBJECTIVES: Statins are 3-hydroxy-3-methyl-glutaryl-CoA (HMG-CoA) reductase inhibitory agents used to reduce the risk of cardiovascular disease by lowering serum cholesterol levels. Although statins are generally well tolerated by patients, some patients may develop muscle-related toxic effects (rhabdomialysis and myopathy) or hepatotoxic effects. Therefore, monitoring of serum statin levels is important. Our aim in this study is to establish a measurement method in LC-MS/MS device for the analysis of atorvastatin and rosuvastatin levels.
MATERIALS and METHODS: Mass spectrometric analyzes were performed using an integrated Shimadzu LC-20-AD (Kyoto, Japan) chromatography system with ABSCIEX API 3200 triple quadrupole mass spectrometer (USA) equipped with an electrospray ion source (ESI) operating in positive mode. After adding 100 µL internal standard (200 ng / ml carbamazepine) and 2 mL ethylacetate to 250 µL sample, it was placed in the orbital shaker at 250 rpm for 15 minutes, then centrifuged at 3000 rpm for 10 minutes. Supernatants were evaporated with nitrogen gas. There sidues were dissolved in 200 µL of water: acetonitrile (25: 75;% v: v) mixture and injected.
RESULTS: The method was found to be linear between 1.22 and 2500 ng/ mL for atorvastatin and between 0.97 and 2000 ng/mL for rosuvastatin. Total run time was 5 minutes. % CV values for all analytes were lower than 6%.
CONCLUSIONS: A new sensitive, specific, accurate and reliable method has been developed. This study is very suitable for large-scale studies as it requires a small sample volume and a simple extraction procedure.
Keywords: HMG-CoA Reductase, LC-MS/MS, Toxicity, Statin

OP-161
DEVELOPMENT OF A TANDEM MASS SPECTROMETRIC MEASUREMENT METHOD FOR DETERMINATION OF HYDROXYCHLOROQUINE LEVELS

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OBJECTIVES: Hydroxychloroquine has been used for more than 50 years to prevent or treat malaria infections and is now widely used in the treatment of rheumatological diseases. Although hydroxychloroquine is thought to be effective in the treatment of the new type of coronavirus (COVID-19) disease, its clinical application in COVID-19 treatment is controversial. Although hydroxychloroquine is generally well tolerated by patients, it can cause serious adverse effects. Retinopathy, QTc prolongation and ventricular arrhythmias are the most common, serious side effects associated with high dose (> 5 mg / kg) and prolonged use (> 5 years). Therefore, measuring and monitoring hydroxychloroquine levels is important. Our aim in this study was to develop an LC-MS/MS measurement method for hydroxychloroquine.
MATERIALS and METHODS: After adding 100 µL of internal standard, 600 µL of acetonitrile to 250 µL of sample, it was vortexed for 30 seconds, then centrifuged at 13000 rpm for 10 minutes. 200 µL of supernatant was injected into the LC-MS/MS system.
RESULTS: The methods was linear in the range of 2.5 and 5000 ng/ml. Detection and quantitation limits were 1.25 and 2.5 ng/ml, respectively. The retention time was 0.55 minutes. The total run time was 5 minutes.
CONCLUSIONS: In the developed method, the ability to analyze only with precipitation without pre-treatment steps such as evaporation, extraction and short analysis time are the main advantages of the method, and it can be used for routine analysis in COVID-19 patients after necessary biosecurity measures are taken.
Keywords: Adverse Effect, COVID-19, Hydroxychloroquine, Tandem Mass Spectrometry

OP-162
DETERMINATION OF METHOTREXATE LEVELS BY LIQUID CHROMATOGRAPHY MASS SPECTROMETRY METHOD

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OBJECTIVES: Methotrexate is a folic acid antagonist and inhibits the dihydrofolate reductase enzyme. It is used in cancer treatment at high doses due to its anti-proliferative properties. It is also widely used in the treatment of rheumatoid arthritis due to its anti-inflammatory effect. Methotrexate used in cancer treatment; It has side effects that can lead to nephrotoxicity. Nephrotoxicity may progress with glomerular or tubular dysfunction, hypertension and impairment of renal endocrine function. Methotrexate determination; It helps to optimize dosage, minimize the risk of toxicity and investigate possible drug-drug interactions. Our aim in our study is to develop a LC-MS/MS method for measuring serum methotrexate levels.
MATERIALS and METHODS: 250 µl sample or standard was taken and 60 µl of pH 3 HCL was added to 100 µl internal standard (Sildenafil) for the last 500 µl methanol protein precipitation and was vortexed and centrifuged at 13,000 rpm for 15 minutes. After centrifugation, 200 µl of the upper phase was taken into vials and 30 µl of this mixture was injected into the LC-MS/MS system.
RESULTS: In our method validation study, 2500-0.305 ng / ml range was found to be linear for methotrexate. The CV% obtained in the intra-day and between day repeatability study were calculated as 5.1%, 6.0% and 4.6%, 3.4%, respectively. Total run time is 5 minutes.
CONCLUSIONS: The method we have established is a practical method with high accuracy and precision and can be used for routine analysis of methotrexate levels.
Keywords: Dose, LC-MS / MS, Methotrexate, Toxicity

OP-163
EVALUATION OF DRUG USE HABITS IN USAK PROVINCE

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OBJECTIVES: In this study, it was aimed to determine the demographic characteristics and drug use habits of people who were brought to or applied to Usak Training and Research Hospital for drug abuse detection.
MATERIALS and METHODS: The drug test results of those who applied to Usak Training&Research Hospital between August 1, 2019 and August 1, 2020 and whose urine integrity tests are suitable, and the demographic information of the patients were obtained from the hospital automation system and statistically evaluated.
RESULTS: 966 men and 95 women out of 1061 applicants. 85% of the total population is between the ages of 18-45, and 10.2% is under the age of 18. Of these individuals, 2213 urine drug test panels were studied. In 495 of 1061 patients,positivity was detected during one or more applications. At least one parameter was positive in 779 (35%) of the 2213 test panels studied. More than one substance use was found positive in 244 studies (11%). The most frequently detected drugs are Cannabinoids (20.8%) and Amphetamine/Methamphetamine derivatives(18.3%). It has been determined that the two most commonly used substances are Cannabinoids and Amphetamine/Methamphetamine derivatives.
CONCLUSIONS: The reasons that the most frequently detected drugs are Cannabinoids and Amphetamine/Methamphetamine derivatives are cheap and easily available,as well as their long half-life in the body. Although synthetic cannabinoids are less detectable,their use is known to be much more common. The fact that 10% of those who are found to be using drugs are under the age of 18 shows that the struggle against drugs in Usak should be preventive,especially by raising the awareness of this age group.
Keywords: Drug Detection in Urine, Drug Use Habits,

OP-164
RETROSPECTIVE DETERMINATION OF THE DISTRIBUTION OF ILLEGAL SUBSTANCE USE ACCORDING TO LABORATORY DATA

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OBJECTIVES: Our aim is to determine the frequency of illegal substance use in our region. Further to evaluate the incidence over the years.
MATERIALS and METHODS: Our study data were obtained from the Toxicology Unit of the Isparta City Hospital Central Laboratory. Data were obtained from the laboratory information system, retrospectively. The study covers data between January 1st, 2018 and September 30th, 2020. Amphetamine, barbiturate, benzodiazepine, buprenorphine, cocaine, opiate, synthetic cannabinoid and tetrahydrocannabinol tests were included in the study. In our laboratory, these tests are performed from urine samples in an autoanalyzer using the enzyme multiplied immunoassay technique (EMIT).
RESULTS: In our Central Laboratory, a total of 7924 samples were accepted and 63.392 tests were reported. Samples were taken from 7364 (92.93%) male and

560 (7.07%) female. In our study, substance use was detected in 2052 individuals in total. 1893 (92.25%) of the the substance users were male and 159 (7.75%) were female. Concerning age of the patients, mean ± standard deviation was determined as 26.46±6.58 and median (minimum-maximum) as 25 (14-56). The most frequent test positivity was observed for opiate (71.41%), amphetamine (10.93%) and tetrahydrocannabinoid (10.80%). 87.57% of the patients showed one test positivity, 11.11% two and 1.32% three test positivities. Substance use was found to differ significantly between the years (p <001).
CONCLUSIONS: In our study, the mean age of substance users increased. The most commonly used substance is opiate. The use of illicit substances has decreased, especially in the last year. There has been an increase in the rate of those receiving treatment over the years.
Keywords: Amphetamine, Cocaine, Opiate, Tetrahydrocannabinol, Illegal Substance

OP-165
INVESTIGATION OF THE EFFECT OF HIGH DOSE NEONICOTINOID EXPOSURE ON THE BRAIN GLYMPHATIC SYSTEM

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OBJECTIVES: Neonicotinoids, It is a very potent class of pesticides used in crop protection for flea control in plants and animals against puncture of sucking insects in cereals, vegetables, tea and cotton. The best known neonicotinoid today is imidacloprid. There is no known lymphatic system in the central nervous system (CNS). However, there is an alternative way defined as the glimphatic system to remove the toxins accumulated during neuro-physiological functions from the CNS. The aim of this study is to investigate the effects of neonicotinoid poisoning on the glymphatic system.
MATERIALS and METHODS: The study was designed as 2 groups (Control group and Imidacloprid group) with 10 rats in each group. At the end of the experiment, GFAP, NGF, TNF-alpha were analyzed by ELISA method, while SOD, GSH-px, MDA were analyzed by spectrophotometric method. In addition, histopathological and immunohistochemical examinations were performed on the tissues.
RESULTS: Histopathological examination revealed focal vacuolar degeneration (cases of abscess) in the brain tissue, excessive dilation of multiple pycnotic cell blood vessels and necrosis foci in the mice treated with imidacloprid. In the imidacloprid group, a significant decrease was detected in AQP-1 and AQP4 protein expressions, GFAP and NGF levels, SOD and GSH-px activities (p <0.05). Also, TNF-alpha and MDA levels were increased in the imidacloprid group (p <0.05).
CONCLUSIONS: In conclusion, toxin accumulation caused by high-dose acute imidacloprid exposure caused severe damage to the brain glymphatic system in edema and cellular deformation
Keywords: Imidacloprid, Brain, AQP-1, AQP-4, Glymphatic System

OP-166
INTERACTIVE TOXICITY ASSESTMENT FOR MN(II), CO(II), AND ZN(II) HEAVY METALS ON PHOTOBACTERIUM KISHINATII

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OBJECTIVES: The presence of non-biodegradable heavy metals in abundance amounts on environment interferes with the beneficial uses of water.These heavy metals will be emitted to the environment by different sources and this will brought a ecological biomagnification effect. So; the rational for the study was to investigate the toxicity associated with Mn(II), Co(II) and Zn(II) individually and as mixture on *Photobacterium kishinatii*.
MATERIALS and METHODS: Bioluminance *P. kishinatii* was cultivated in Marine Broth at 22°C, 120 rpm for 16 hours. After incubation, the culture was brought to standart turbidity value as 0.5 McFarland by micro-broth dilution method. The various individual and mixture concentrations (5-600 µmol/L) were added to bacteria culture mixture and bioluminance inhibition was examined at 475 and 540 nm by ThermoScientific VarioScan Spectrophotometer.
RESULTS: The results of Mn, Co and Zn individual toxicity on *P. kishinatii* indicated a linear correlation with increasing concentrations. The 15-min IC50 values of Mn, Co and Zn were 0.537, 47.93 and 35.41 µmol /L, respectively, and their toxic order was Mn>Zn>Co. Base on the mixture toxic index (MTI), the combined effects of Mn+Co, Mn+Zn were antagonistic. In the case of Co+Zn and Mn+Co+Zn mixtures partly additive effect was observed since 0<MTI <1.
CONCLUSIONS: Acccording to the environmental safeguard, antagonistic effect cannot be taken into consideration for discharge limits; due to the unexpected combinations of the toxicants. As the Microtox test is the most reliable for heavy metal toxicity assestment, the results of this study would be helpful for optimization of the bioreactors.
Keywords: Heavy Metals, Bioluminance Bacteria, Toxicity, Microtox, Mixture Toxic Index

OP-167
EFFECTS OF FUMONISIN B1 ON EPIGENETIC MODIFICATIONS

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OBJECTIVES: Fumonisin B1 (FB1) is a mycotoxin synthesized by Fusarium speciesin maize and maize-based products. Although it is one of the most common mycotoxins that frequently contaminates maize and maize-based products, it causes serious health problems for humans due to its toxicity among all fumonisins also. IARC has classified FB1 as Group-2B. FB1 hastoxic effects by causing accumulation of sphinganine and impairment of sphingolipid biosynthesis which of these play an important role in apoptotic regulation and pathways related to cancer development. Based on its non-genotoxic effect, it is thought that epigenetic mechanisms may play a role in the carcinogenic effect of FB1. It has been shown that in rat kidney and liver cells FB1 disregulates epigenetic modifications which are key in the expressions of many tumor suppressor genes.
MATERIALS and METHODS: In our study, it is planned to enlighten key molecular mechanisms that play a role in toxicity of FB1. For this purpose, the effects of FB1 on epigenetic modifications in in vitro human kidney cell line were investigated. 5-methylcytosine levels were measured using the Eliza kit and gene expression analyzes of DNA methyltransferases (DNMT1, DNMT3a, DNMT3b) were performed.
RESULTS: It was observed that FB1 caused changes in global DNA methylation and gene expressions of DNA methyltransferases decreased compared to control. Global histone modifications is underway.
CONCLUSIONS: Consequently, it has been thought that FB1 could show toxic effects through epigenetic modifications and the exposure of mycotoxins such as FB1 makes important for public health and risk assessment studies. Studies aimed at elucidating the mechanisms of chemical carcinogenesis also contribute to development of biomarkers suitable for early diagnosis of cancer.
Keywords: Cell culture, Epigenetics, Fumonisin B1, Toxicity

OP-168
EVALUATION OF ECSTASY TEST RESULTS IN URINE DRUG ANALYSIS

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OBJECTIVES: In the last Health practice communique it was stated that the financial reimbursement of urine ecstasy studies will be made only for amphetamine-positive patients. However, physicians state that, some users only use ecstasy without amphetamine, therefore the ecstasy should also be screened in every sample and they want to see the result.This study was planned to examine the coexistence and separate rates of ecstasy and amphetamine positive test results.
MATERIALS and METHODS: The study was planned retrospectively. In the medical biochemistry laboratory of Izmir Katip Celebi University Ataturk Training and Research Hospital, substance analyzes are performed by immunochemical method (EMIT, Dimension EXL, Siemens) or chromatographic separation method (LC-MSMS; Sciex,) according to the clinical demand, which is preferred between fast results and detailed test requests.
RESULTS: Substance analysis in 37035 urine has been performed with the immune chemical method. 1250 (%3,37) ecstasy was found above the threshold value of 500 ng/ml. In 62,7% of the ectasia positive samples, Amphetamine is above the legal threshold value of 500 ng/ml. In the 37.3% ecstasy positive sample, no Amphetamine was found or was below the threshold. Among these, 21 urine samples that were firstly reported as only ecstasy positive were found below the threshold value when they reworked with the our second method LC-MSMS.
Ecstasy was found above 500 ng/ml in 374 of 6669 other urine samples analyzed by chromatographic method, 32,0% of them were found to be amphetamine negative.
CONCLUSIONS: Although amphetamine is not positive in urine scanned by immunochemical method, we have ecstasy positive results. It is known that, sometimes false positive results can be reported with immunochemical methods in drug screening analyzes. For this reason, 21 samples which firstly studied by immunochemistry were reworked by chromatography. And none of them found above the threshold in terms of ecstasy. These results seem to support the idea that ecstasy should be studied only in amphetamine positive samples. However, only ecstasy tests were found positive even though the amphetamine results were negative in 32.0% of the cases in our screenings performed with the reference method LC-MSMS, which has a high diagnostic value. This proves that it is necessary to study ecstasy for amphetamine negative patients, otherwise, some ecstasy users cannot be detected because they are not tested. In this case, the necessity of updating this restriction in the Health application notification according to the method used should be discussed.
Keywords: Amphetamine, Ecstasy

OP-169
A BDNF AGONIST 7,8-DIHYDROXYFLAVONE REDUCES OXIDATIVE STRESS IN LIVER OF ELDERLY MICE

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OBJECTIVES: The elderly population of the world is increasing day by day and one of the underlying mechanisms of aging is thought to be oxidative stress. Since aging brings along many metabolic diseases, ways of healthy aging are sought. Our aim is to determine the effect of 7,8-dihydroxiflavone (7,8-DHF) on oxidative stress of elderly mice. Thus, it will be demonstrated whether 7,8-DHF, which is a member of the flavonid family and is known to have good antioxidant properties, has a protective effect on oxidative stress increasing with aging.
MATERIALS and METHODS: Three groups of C57BL/6 male mice, young, elderly and elderly drug group were formed. For the elderly group, 18-24 month old mice were used. The elderly drug group received 7,8-DHF (5 mg/kg/day) for three weeks. At the end of the experiment, superoxide dismutase (SOD), catalase (CAT) and malondialdehyde (MDA) were measured in the liver of the mice and biochemical parameters were measured in the serum.
RESULTS: 7,8-DHF reduced the MDA level and increased SOD concentrations significantly (p<0,05). Also, glucose and triglyceride levels significantly increased in elderly drug group (p<0,05).
CONCLUSIONS: 7,8-DHF showed a strong antioxidant effect on liver and reduced oxidative stress increasing by aging. Also, improved the blood glucose levels closer to young group. So, 7,8-DHF may be an agent used in healthy aging.
Keywords: Aging, 7,8-DHF, Liver, Oxidative Stress

OP-170
SERUM ALBUMIN LEVEL AND MORTALITY IN ELDERLY CHRONIC HEART FAILURE PATIENTS

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OBJECTIVES: Hypoalbuminemia is especially common in elderly patients and is associated with an increased risk of death in heart failure (HF).
MATERIALS and METHODS: This is a single-center observation study conducted in a tertiary hospital in Turkey. Patients who were followed up in the outpatient clinic with the diagnosis of HF were included in the study.
RESULTS: 465 patients >65 years old whose serum albumin levels were monitored in the heart failure outpatient clinic were included in the study. 35.1% of the patients included in the study were female and 64.9% were male. While the median ejection fraction of the patients were 30% (25-35), 69.5% were New York Heart Association (NYHA) I-II and 30.5% were NYHA III-IV patients. During follow-up, 21.3% (n:99) of patients died. These patients were significantly older [76 (71-82) vs 72 (68-78) years, p<001] and serum albumin levels were lower [3.7g/dL (3.2-4.1) vs 4.2g/dL (3.9-4.4), p<0.001]. In patients who died, creatinine (p<0.001), N-terminal pro-brain natriuretic peptide (NT-proBNP) (p<0.001), and C-reactive protein (CRP) (p<0.001), were higher, estimated glomerular filtration rate (eGFR) (p<0.001), total protein(p<0.001), total cholesterol (p<0.001), sodium(p<0.001), uric acid (p:0.005), calcium (p<0.001), hemoglobin (p<0.001), serum iron (p<0.001), transferrin saturation (p<0.001), and parathyroid hormone levels (p<0.014) were significantly lower. With multivariable analysis, serum albumin level (p<0.001), sodium (p<0.001) and being ex-smoker (p:0.008) as independent predictors of mortality. Serum albumin level had a hazard ratio of 7.45 (95% CI 3.78-14.70) for mortality in elderly HF.
CONCLUSIONS: These data showed that serum albumin level is associated with increased risk of mortality in elderly HF patients.
Keywords: Serum Albumin, Heart Failure, Elderly, Mortality

OP-171
ANALYSIS OF MTOR INHIBITORS AS SENOTHERAPETICS IN AGED LUNG FIBROBLAST CELLS

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OBJECTIVES: During aging process, accumulation of senescent cells results in increased inflammation and contributes to organismal aging, as well as the pathophysiologies of many age-related diseases. Therefore, the discovery of senotherapeutic drugs targeting cellular senescence might be an emerging strategy for the treatment of age-related diseases. The aim of the present study is to determine the senotherapeutic effect of mTOR inhibitors on aged cells.
MATERIALS and METHODS: mTOR inhibitors to be tested were predicted by the systems biology analysis of available aging transciptomics data and by using drug repurposing. Predicted drugs (10 µM) were applied to early passages of human lung fibroblasts (WI-38) and were serially passaged until p30, a lenght of time sufficient to induce cellular senescence. Senescent phenotypes of these cells were determined by the analysis of SA-β-Gal and immune markers of senescence by RT-qPCR. Viability of the cells are determined by MTT test. (n=4)
RESULTS: Among predicted drugs, an mTOR inhibitor KU-0063794 showed a consistent positive association with aging biomarkers ($p < 0.05$).
CONCLUSIONS: The study described new drug candidates that could potentially extend healthspan based on the concept of senotherapeutic.
Keywords: Aging, Cellular Senescence, Senotherapeutic, mTOR Inhibitor, Inflammation

OP-172
SERUM LDL CHOLESTEROL SIZES IN ELDERLY SUBJECTS

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OBJECTIVES: We studied LDL sizes in relatively healthy elder objects with our new method
MATERIALS and METHODS: We used polyacrylamide gradient gel electrophoresis to eliminate the interference by fatty acids and devised a simple, precise method of polyacrylamide gradient gel electrophoresis to measure the diameter of small, dense, low-density lipoproteins in serum. We used apoferritin and thyroglobulin, which have a molecular diameter of 12.2 nm and 17.0 nm, respectively, and standard low-density lipoprotein particles having a diameter of 25.7 and 27.0 nm as calibrators, estimated by measurement of negative staining of electron microscopy. The only stain used was Coomassie brilliant blue, and it was used for lipoprotein staining. When we used low-density lipoprotein of 25.73 nm in diameter as a quality control specimen, the coefficient of variation of the size measurements obtained by our method was less than 1.2%. The new method markedly improved the laboratory procedure for measuring the diameter of low-density lipoproteins. We used medcalc and SPSS programs for comparing results.Healthy 123 (between 65-94 years old) elderly people and 98 (between 20-44 years old) young people were chosen.
RESULTS: We found LDL size is lower than in young normal group (elderly group n:123 LDL size: 25.5 ± 0.9 nm, young group n:98 LDL size: 26.6 ± 1.1 nm.).Also we found LDL sizes in elderly people differs by gender (male elderly people n:63 LDL size 24.4 ± 0.6; female n:60 LDL 25.7 ± 0.8)
CONCLUSIONS: LDL size were lower in male elderly group than normal group.
Keywords: LDL Size; LDL Size in Elderly Objects

OP-173
INCREASED PUFA LEVELS IN KIDNEY EPITHELIAL CELLS IN THE COURSE OF DICLOFENACTOXICITY

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OBJECTIVES: This study evaluated polyunsaturated fatty acids (PUFAs) in human kidney epithelial cells exposed to diclofenac (DCL) toxicity.
MATERIALS and METHODS: Kidney cells were treated with DCL to induce cytotoxicity and thymoquinone (TQ) was administered to decrease cytotoxic effects. Levels of arachidonic acid (AA, C20:4n-6), dihomo-gamma-linolenic acid (DGLA, C20:3n-6), eicosapentaenoic acid (EPA, C20:5n-3) and docosahexaenoic acid (DHA, C22:6n-3) were determined by liquid chromatography coupled with tandem mass spectrometry. Cytosolic phospholipase A2 (cPLA2), cyclooxygenase 1 (COX-1) and prostaglandin E2 (PGE2) were measured to evaluate changes in enzyme activity. Immunofluorescence staining and western blot analysis was performed to determine protein levels of COX- 1.
RESULTS: Renal cell toxicity was accomplished by DCL and was alleviated by TQ treatment. Diclofenac significantly increased all measured PUFAs while pretreatment with TQ decreased PUFA levels in DCL treated cells. Cytosolic PLA2 and total COX activity was significantly decreased in DCL treated cells. Immunofluorescence staining and western blot analysis confirmed significantly decreased COX-1 levels in DCL and DCL+TQ treated groups. The results of this study reveal that DCL treatment is associated with accumulation of PUFAs in kidney cells.
CONCLUSIONS: We suggest that PUFA accumulation in DCL toxicity might be a consequence of both cPLA2 and COX-1 inhibition. Thymoquinone administration, along with DCL treatment alleviated the buildup of PUFAs and DCL-induced cell death in kidney cells.
Acknowledgements: This study was supported by a grant (#118Z874) from the Scientific and Technological Research Council of Turkey (TUBITAK).
Keywords: Diclofenac, Kidney Cells, Thymoquinone, Polyunsaturated Fatty Acids

OP-174
EFFECT OF ENDOPLASMIC RETICULUM STRESS ON SPHINGOLIPID LEVELS AND APOPTOTIC PATHWAYS IN RETINAL PIGMENT EPITHELIAL CELLS

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OBJECTIVES: We aimed to determine sphingolipid levels and examine apoptotic pathways in human retinal pigment epithelial cells (ARPE-19) undergoing endoplasmic reticulum (ER) stress.
MATERIALS and METHODS: Cells were treated with tunicamycin (TM) to induce ER stress and tauroursodeoxycholic acid (TUDCA), an ER stress inhibitor, was administered to decrease cytotoxicity. Cell viability was measured by MTT assay. Levels of C16–C24 sphingomyelins (SM) and C16–C24 ceramides (CERs) were determined by LC-MS/MS. Glucose- regulated protein 78-kd (GRP78) and nuclear factor kappa-b subunit 1 (NFκB1) gene expressions were evaluated by quantitative PCR analysis, while GRP 78, NF-κB p65, cleaved caspase-3 and caspase-12 protein levels were assesed by immunofluorescence. Ceramide-1-phosphate (C1P) levels were determined by immunoassay, while caspase −3 and −12 activity in cell lysates were measured via a fluorometric method.
RESULTS: Induction of ER stress in TM treated groups were confirmed by significantly increased mRNA and protein levels of GRP78. TM significantly decreased cell viability compared to controls. Treatment with TUDCA along with TM significantly increased cell viability compared to the TM group. A significant increase was observed in C22–C24 CERs, C1P, caspase-3, caspase-12, NFκB1 mRNA and NF-κB p65 protein levels in cells treated with TM compared to controls. Administration of TUDCA lead to a partial decrease in GRP78 expression, NFκB1 mRNA, NF-κB p65 protein, C22–C24 CERs and C1P levels along with a decrease in caspase-3 and -12 activity.
CONCLUSIONS: The results of this study reveal the presence of increased long chain CERs, C1P and apoptotic markers in retinal cells undergoing ER stress.
Keywords: Sphingolipid, Tunicamycin, Retinal Pigment Epithelial Cells

OP-175
LABORATORY WATER AND INSTALLATION CONSIDERATIONS ON WATER PURIFICATION SYSTEMS

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OBJECTIVES: Laboratory reagent water and water purification systems are components and essential equipment used in all clinical and analysis laboratories. The Turkish Biochemical Society Water Standards Working Group published a guideline in 2019. The aim is to evaluate the Cam and Sakura City Hospital Core Laboratory's water purification system under this guide's leading.
MATERIALS and METHODS: Evaluation of the water purification system installed in Cam and Sakura City hospitals' central laboratory over the main features of the water purification systems of the "Guideline for the Preparation, Distribution, and Testing of Purified Water for Clinical Laboratories."
RESULTS: The water purification system has been installed and operated by the requirements of the Guidelines for Preparation, Distribution, and Testing of Purified Water for Clinical Laboratories.
CONCLUSIONS: The published guideline aims to bring standardization and awareness to laboratory water, a forgotten parameter. The use of required standards and control/measurement parameters in clinical laboratories should be sought, especially in newly established systems and large central laboratories.
Keywords: Water system; Water Purification System; Laboratory Reagent Water; Water Guideline

OP-176
THE PROCESS OF ESTABLISHING A NATIONAL STANDARD FOR THE PREPARATION, DISTRIBUTION AND TESTING OF PURIFIED WATER FOR CLINICAL LABORATORIES

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OBJECTIVES: Purified water is the main component of reagents, buffers and diluents used in clinical laboratory tests, as well as for washing and sterilization of devices and laboratory products. Purified laboratory water is necessary to obtain accurate and sustainable results in laboratory analysis. However, there was no guideline or standard for clinical laboratories in our country. In order to eliminate this gap, a guide covering water to be used in the clinical laboratory, water purification technologies, storage, distribution, installation, assembly, testing, validation, sanitation, monitoring methods, operation, maintenance and controls by the Turkish Biochemistry Association Laboratory Water Working Group in April 2019. prepared. In this process, a wide consensus was achieved with the participation of an international company producing purified water for laboratories and two domestic companies.
MATERIALS and METHODS: Pre-informative presentations about the "Preparation, Distribution and Testing Guide of Purified Water for Clinical Laboratories" were held at the 29th National Biochemistry Congress of the Turkish Biochemistry Association International Biochemistry Congress 2018 in Bodrum and a promotional symposium in Istanbul in June 2019.
RESULTS: Our water guide, which was prepared to create a national standard for clinical laboratories, was sent to the Turkish Standards Institute (TSE) by the Turkish Biochemistry Association in March 2020 with a justification report. It was held at a meeting with a committee formed later. At the meeting, a standard that we can take as an example was given for us to apply. According to this sample standard, a water standard reference text was prepared for clinical laboratories. It will be delivered to TSE next week.
CONCLUSIONS: TSE will evaluate our application with the technical committees it will establish. I wish this application to become a national standard and to be beneficial to the laboratory community in our country.
Keywords: Purified Water, Pure Water, Clinical Laboratory Reagent Water, Clinical Laboratory Water Standard

OP-177
DETERMINATION OF THE TARGET PROTEINS IN CHEMOTHERAPY RESISTANT BREAST CANCER STEM CELL-LIKE CELLS BY PROTEIN ARRAY

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OBJECTIVES: Breast cancer comes second among the causes of cancer deaths of women. Although new generation hormone therapy is a promising strategy, re-occurrence or emergence of drug resistance limits the success. According to the theory of cancer stem cells (CSCs); CSCs are immortal, tumor inducing and self renewing pluripotent cells and multiply as chemotherapy proceeds, making the chemotherapy inefficient. Emerging scientific reports indicate that the mechanisms of drug resistance are the main features that CSCs gain actually. Due to this fact, cancer stem cell markers should be clarified to target CSCs and this will play important role to reverse drug resistance.
MATERIALS and METHODS: In this study, MCF-7/Pac, a cell line resistant to microtubule inhibitor paclitaxel and multiple drugs permanently, was used as a reference cell line for drug resistant mammary cancer. It has some properties that breast cancer stem cells possess. The chemotherapy resistant breast cancer stem–like (BCSC-like) cells were sorted from MCF-7/Pac population by using markers CD44, CD24 and ALDH. At the next step the proteins that are up-regulated in BCSClike cells were determined by protein array analysis. Additionally the effect of paclitaxel on BCSC-like cell proliferation was determined.
RESULTS: The MCF-7/Pac population contains 12.4% BCSC-like cells. The cells bearing BCSC-like cell phenotype exhibited resistance to paclitaxel. Inhibition of P-glycoprotein may still be a good strategy to reverse drug resistance. Additionally FGF-5, Frizzled-3, -4, -6 and Glypican-5 may be proposed as other BCSC markers.
CONCLUSIONS: These results will contribute to both basic science and medical science.
Keywords: Breast Cancer Stem Cell, Protein Array, Drug Resistance, Frizzled, ALDH

POSTER PRESENTATION ABSTRACTS

PP-001
DETERMINATION OF IRISIN LEVELS IN SERUM AND PLASMA SAMPLES WITH AND WITHOUT APROTININ

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OBJECTIVES: Irisin is a myokine with 112 aminoacids and its level is regulated by PGC1-α. It is released into blood circulation from skeletal muscle tissue after a proteolytic cleavage of extracellular domain of FNDC5. Aprotinin is a polivalent serin protease inhibitor. It is added to the sample solutions such as serum, plasma or tissue extracts in order to inhibit the serine proteases found in the sample medium. So, degradation of the proteins to be measured can be prevented. These study has been made to get a preliminary information whether it is neccessary to add aprotinin in serum and plasma samples to prevent any irisin loss in samples which are needed to be kept at -80°C for a long time.
MATERIALS and METHODS: For this purpose, blood samples have been taken from 10 men and 10 women volunteers with ages between 25-40 and aprotinin has been added to the plasma and the serum samples and have been kept at -80°C for 3 months. At the end of 3 months, irisin levels of these samples with aprotinin and without aprotinin have been determined by ELISA.
RESULTS: Statistical analysis of the results has shown an insignificant differance between the plasma samples with or without aprotinin (p=0.525) and a significant decrease between the serum samples with and without aprotinin (p=0.009).
CONCLUSIONS: In conclusion, with the results of this study, no net decision could have been achieved to add aprotinin to the samples for irisin determination with ELISA in plasma and serum kept at -80°C for about 3 months.

PP-002
CALCULATION OF MEASUREMENT UNCERTAINTY OF PROCALCITONIN

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OBJECTIVES: Calculation of measurement uncertainty is especially important for tests in which clinical decision levels have been determined. In this study, it is aimed to calculate the measurement uncertainty of procalcitonin, which is a sepsis marker, and to compare it with the total allowable error % (TEa%).
MATERIALS and METHODS: Procalcitonin was analyzed with elecsys BRAHMS procalcitonin kit (Roche Diagnostics, Mannheim, Germany), which was manufactured to use immune analyzer Cobas e601 (Roche Diagnostics, Mannheim, Germany). The calculation model defined in the Nordtest guide was used to determine the measurement uncertainty. The component of the intermediate precision of the measurement uncertainty was calculated using the last three months of internal quality control data. The component of the u(bias) was obtained from the past 12 months of external quality control data. The expanded uncertainty was calculated according to the 95% confidence interval by combining all components.
RESULTS: Measurement uncertainty for procalcitonin was calculated as ± 10.24% at 95% confidence interval and it was not found to be higher than TEa% values (TEa%=20.3% for procalcitonin).
CONCLUSIONS: It is thought that giving the result and the measurement uncertainty of procalcitonin used as a risk biomarker in severe sepsis will contribute to the clinicians in clinical decision making.
Keywords: Measurement of Uncertainty, Analitical Performance, Procalcitonin

PP-003
EVALUATION OF PRE-ANALYTICAL AND POST-ANALYTICAL STAGES WITH SIX SIGMA PROCEDURE IN CLINICAL LABORATORY

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OBJECTIVES: We aimed to evaluate the effect of in-service training for phlebotomists on preanalytical and postanalytical processes by using the six sigma (sigmametric) protocol as a quality management tool in the laboratory.
MATERIALS and METHODS: The effect of the training given to phlebotomists of Istanbul Training and Research Hospital at the end of February was evaluated with the sigma protocol. For the pre-analytical process; Six sigma results were compared by calculating the error classification, parameter-based DPMO (defectspermillionopportunities) values for the reasons for rejection in the months before training (February) and after training (March2019). In the evaluation of the postanalytical process, the turn-around-time period was determined as 60 minutes for parameters of immediate clinical importance (Arterial Blood Gas, potassium, D-Dimer, INR (InternationalNormalizedRatio), high-sensitive troponin I).
RESULTS: According to the reasons and rates of rejection in February-March 2019, Sigma and DPMO values were determined as Biochemistry (4.24-4.29/3115-2653), HbA1c (4.6-4.9/1332-463), Hemogram (4,2-4.3/3555-3381), Hormone (4.6-4.8/1114-686), Urine Analysis (4.3-4.5/2616-1505), Blood-Gas (3.7- 3,5/17786-27507), Coagulation (4.11-4.17/4542-3807), respectively. In the postanalytical phase, according to the emergency TAT times, Sigma and DPMO values in February-March2019 were determined as Potassium (1.9-2/378832-341229), hsTnI (1.7-1.8/449278-394810), Blood-Gas (3.9 -4.1/10391-2706), D-dimer (1.9-1.9/346457-348348), INR (2.2-2.2/261514-252289),respectively.
CONCLUSIONS: It has been observed that the preanalytical errors in our laboratory are mostly insufficient sample, clotted sample, hemolyzed sample. Regarding rejection rates in sigma values before (February) and after (March) in-service training: Although there was a significant increase in sigma levels in HbA1c, hormone, urine tests, rejection rates were decreased in biochemistry and coagulation tests. For the tests, the error rate decreased in the D-dimer and INR tests.
Keywords: Sigmametric, Total Test Process, Analytical Performance

PP-004
COMPARISON OF HEMOGRAM PARAMETERS OF SYSMEX XN9000 AND MINDRAY BC-6800 PLUS

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OBJECTIVES: We aimed to compare some hemogram parameters with the Sysmex XN 9000 device that we routinely use to see the performance of the Mindray BC-6800 Plus device, which was newly installed in our laboratory.
MATERIALS and METHODS: 80 patient samples were studied simultaneously on Mindray BC-6800 Plus(Shenzhen Mindray Bio-Medical Electronics Co.,Ltd.) and Sysmex XN 9000(Sysmex Corp.) devices, including data below and above the lower and upper reference values. The Kolmogorov Smirnov test was used to evaluate whether the data were compatible with the normal distribution. Spearman correlation analysis and Passing-Bablok regression analysis, Bland-Altman analysis were performed with MedCalc program.
RESULTS: For erythrocyte; r = 0.995 (p <0.0001) in correlation analysis, y = 0.01346 + 0.9877x in Passing Bablok regression analysis (95% confidence intervals between slope 0.9759-1.0000, intercept -0.03000 – 0.06060 found.); For leukocyte; r = 0.997 (p <0.0001) in correlation analysis, y = -0.0331 + 1.016x in Passing Bablok regression analysis (95% confidence intervals between slope 1.0044-1.0275, intercept -0.1031 –0.0492 found.); For hemoglobin; r = 0.998 (p <0.0001) in correlation analysis, y = 0.0688525 + 1.0164x in Passing Bablok regression analysis (95% confidence intervals between slope 1.0000-1.0274, intercept -0.04589 – 0.3000 found.); For Platelet; r = 0.988 (p <0.0001) in correlation analysis, y = 4.2923 + 0.9692x in Passing-Bablok regression analysis (95% confidence intervals between slope 0.9462-0.9935, intercept -1.3366 – 9.8226 found.); For neutrophil; r = 0.995 (p <0.0001) in correlation analysis, y = 0.06362 + 1.0328x in Passing Bablok regression analysis (95% confidence intervals between slope 1.0221-1.0498, intercept -0.002711 – 0,1103 found.); For lymphocyte; r = 0.990 (p <0.0001) in correlation analysis, y = -0.0100 + 1.0000x in Passing-Bablok regression analysis (95% confidence intervals between slope 0.985-1.0152, intercept -0.03621 – -0.02688 found.); For immature granulocyte; r = 0.903 (p <0.0001) in correlation analysis, y = -0.007647 + 0.8824x in Passing Bablok regression analysis (95% confidence intervals between slope 0.7727-1.0000, intercept -0,01000 – -0,05455 found)
CONCLUSIONS: It has been shown that the intercept and slope values obtained as a result of the Passing Bablok regression analysis are within 95% confidence interval and 95% of the data in the Bland-Altman graph is within ± 1.96SD. It has been shown that the hemogram device newly installed in our laboratory is statistically compatible with the device we use routinely.
Keywords: Hemogram,Method Comparison,Regression Analysis

PP-005
CALCULATION OF MEASUREMENT UNCERTAINTY OF IMMUNOCHEMISTRY PARAMETERS

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OBJECTIVES: Aim in this study is to calculate measurement uncertainty (MU) of immunochemistry parameters, which are frequently analyzed in our hospital, according ISO / TS 20914; to compare obtained data with EFLM and Westgard's total allowable error (% TEa)values.
MATERIALS and METHODS: In our study,MU of TSH, fT3, fT4, Insulin,

hCG, Anti-TG, Anti-TPO, Ferritin, Parathormone, 25-OHvitamin D and VitB12 parameters analyzed on Cobas 6000 autoanalyzer was calculated. Calculations were made according to ISO/TS 20914 MU guide using formula U (y) = √ (Urw + Ucal) * Internal quality control data that were studied between 01.05.2020-30.10.2020 were used for Urw calculation. Ucal data are taken from Roche company. MU data we have calculated; It has been compared with % TEa values of EFLM and Westgard.
RESULTS: For T4, level 1 control uncertainty is 17.8% and level 2 control uncertainty is 43%. These values are outside % TEa rat for T4. Level 1 control uncertainty for 25-OH Vitamin D analyte was calculated to be 33.8%. This value is outof % TEa (20.5%) ratio for 25-OHVitamin D. Level 1 control uncertainty for VitB12 analyte was calculated to be 13.8%; this value is outside of %TEa (11.9%) ratio for Vit B12. Both levels of control uncertainty data for other parameters are below % TEa ratio.
CONCLUSIONS: All changes in laboratory can affect uncertainty. Therefore, uncertainty must be constantly monitored. In studies conducted in literature, comparison of uncertainty and% TEa values is mostly made. Although comparison of these two parameters gives us idea, it is debatable whether it is accurate.
Keywords: Measurement Uncertainty, Total Allowable Error

PP-006
EVALUATION OF MEASUREMENT UNCERTAINTY OF URINE PROTEIN TEST

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OBJECTIVES: Proteinuria is known as an important prognostic marker in renal and cardiovascular diseases. In nephrology practice, the amount of proteinuria is one of the parameters that are taken into consideration in the first place during the regulation of the treatment of patients. Measurement uncertainty is the quantitative expression of the quality of test results. The aim of our study was to calculate the measurement uncertainty of the urine protein test.
MATERIALS and METHODS: In the laboratory of our hospital, urine protein test was measured by using commercial kits from Beckman Coulter (USA) on an Olympus AU5800 (Hamburg, Germany) autoanalyzer with a turbidimetric method. Measurement uncertainty of urine protein test was calculated according to NordTest technical report 537. Standard uncertainty (ubias) was calculated. The expanded uncertainty value (U) was obtained by multiplying the calculated standard combined uncertainty (u) value by the k factor. The k value was accepted as approximately 2 (95% confidence interval). The total allowable error rate target was set as 10%.
RESULTS: Internal quality control% CV value was found as 3.1% and 2.1% for 1st level and 2nd level, respectively. Internal quality control uRW value was 1.8%, external quality control cost values were 3.39%, U value was 6.68% (95% confidence interval). The calculated uncertainty value was below the target% TEa value.
CONCLUSIONS: The measurement uncertainty of the urine protein test studied in our laboratory is appropriate according to the target value.
Keywords: Measurement Uncertainty, Nordtest Technical Report 537, Urine Protein

PP-007
COMPARISON OF COAGULATION TESTS ON COBAS T 511 AND STA COMPACT ANALYSERS

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OBJECTIVES: We compared Cobas t 511 coagulation analyser; before routine laboratory practice, with Stago Compact. We used activated partial thromboplastin time (aPTT) and prothrombin time (PT) tests for method comparison.
MATERIALS and METHODS: Method comparison was performed with 106 patient samples for PT and APTT assays on Cobas t 511(Roche Diagnostics) vs Stago Compact (Diagnostica Stago) analysers with the following reagents:(i)PT Rec vs STA Neoplastine R;(ii)aPTT vs STA Cephascreen 10 respectively. Sample tubes were 0.109Molar/3.2% Sodium Citrate Becton-Dickinson. The results were analyzed using the MedCalc statistical program.
RESULTS: Pearson's correlation coefficients were; i) aPTT vs STA Cephascreen(n:102), r=0.8325(0,761-0,883); ii) PT Rec vs Neoplastin R Based on INR results (n:106), r=0,9776 (0,9673-0,9848). Bias is shown in the Bland-Altman analyses for APTT sec mean % 6,3 (-11,3-23,8);for INR: mean in difference:-0,02 (-0,36-0,33). APTT Passing–Bablok regression analyses demonstrated y=-6,8001+1,1735 x where 95% CI i) intercept-12,525--1,9 as not including zero; ii) slope:1-1,375 including one. INR Passing–Bablok regression analyses demonstrated y=-0,1235+0,91 x where 95% CI i)intercept 0,03-0,18 as including zero ii) slope:0,8571-1 including one.
CONCLUSIONS: In compared samples;we observed that aPTTreagent results were 6.3% lower than Cephascreen 10 reagent results. Laboratories may not get the same APTT results as reagent contents differ in different analysers and are not standardised as INR results.
Keywords: APTT, Method Comparison, PT

PP-008
EVALUATION OF THE PERFORMANCE OF INDICES USED IN THE DISTINCTION OF IRON DEFICIENCY ANEMIA AND BETA THALASSEMIA TRAIT IN A UNIVERSITY HOSPITAL IN TURKEY

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OBJECTIVES: The aim of our study is to evaluate the performance of mathematical indexes that help distinguish between iron deficiency anemia and beta thalassemia trait, which are the most common anemias in our country.
MATERIALS and METHODS: Patients with ferritin<12ng/mL,HbA2<3%, MCV<80fl and/or MCH<27pg were selected for the diagnosis of Iron Deficiency Anemia (IDA). For the diagnosis of Beta Thalassemia Carrier(BTT), cases with HbA2> 3.5% and <10%, Ferritin and CRP within normal limits were obtained from the approved electronic records between 01.01.2020-18.11.2020 and included in the study. It was determined that there were 25 patients (20F,5M) who were fit with the diagnosis of IDA between the ages of 1 and 45 (median 28), and 48 patients (24F,24M) between the ages of 2 and 77 years (median 26) who were suitable for the diagnosis of BTT. Hemogram tests were performed on Sysmex XN1000 analyser, HbA2level, Ferritin and CRP tests were performed on TosohG8HPLC, Roche E801 and C701 devices, respectively. 10 different indexes (England-Fraser, RBC, Srivastata, Shina-Lal, Bessman, Ricerca, Green-King, Jayabose, Sirdah, Ehsani) were evaluated together with the commonly used mentzer index. Sensitivity (Sens), Specificity(Spsf), PPV, NPV, Positive and Negative Probability Ratio (PLR) and (NLR) were evaluated as performance criteria.The IDA group was accepted as the negative-patient-group, and the BTT group as the positive-patient-group. Microsoft-Excel-2016 was used for statistical data.
RESULTS: The strongest performance was found in the Sirdah index (Sens:0.92,Spsf:0.96,PLR:22.9,NLR:0.09). The weakest performance was found in the Bessman index (Sens:0.02,Spsf:0.68) and the Ricerca index(Sens:1, Spsf:0). Specificity was calculated as>0.9 in only 2 of the methods ((England-Fraser(1), Sirdah(0.96)). The Mentzer index method was calculated as (Sens:1,Spsf:0.84,PLR:6.25,NLR:0) and found to be weaker than new methods.
CONCLUSIONS: Simple mathematical indexes were found to be helpful in differential diagnosis.It is seen that no index alone is sufficient for definitive diagnosis.We think that it will be useful to add the appropriate indexes to the hemogram results in the preliminary evaluation before further examinations. The different results obtained in the studies suggest that each location should determine its own index.
Keywords: Discrimination Indices, Mentzer, Sirdah, England-Fraser

PP-009
MEDICAL BIOCHEMISTRY LABORATORY SUMMER PRACTICE LEARNING LEVEL ASSESSMENT: AN AFFILIATED HOSPITAL EXAMPLE

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OBJECTIVES: This study was planned to determine the Medical Biochemistry Laboratory Summer Internship is perceived by the students of the medical faculty and its contribution to the level of practical and theoretical knowledge of the clinical biochemistry laboratory.
MATERIALS and METHODS: Participating of the Medical Biochemistry Laboratory Summer Internship, Sakarya University Faculty of Medicine term 1 (D-I) and term 2 (D-II) students were pre-tested at the beginning of the internship and post-test at the end of the internship.A questionnaire form consisting of 26 questions was used in the study. By creating individual code for the students, changes in general and personal knowledge levels were determined in pretest and posttest.
RESULTS: The pre-test mean scores of D-I and D-II students were 60±24.1 and 70.3±24.6, respectively; the mean scores of posttest points was 68±23.6 and 78.8±25.2.When pretest and posttest scores were compared, it was found that posttest scores were significantly higher than the pretest scores(p=0,009). When students were separated by terms,both the pre-test and post-test scores of D-II students were significantly higher than the D-I students.
CONCLUSIONS: The fact that the students post-test scores are higher than the pre-test scores show that internship education increases the knowledge of students. Therefore, in addition to their theoretical education, making arrangements such as summer internship or elective internship to medical school students, that they can learn/understand the function of the clinical routine laboratory. In addition to contributing to students feeling more proficient in the profession of medicine, we think that it would be a guide in their choice of specialty in medicine
Keywords: Medical Biochemistry Education, Summer Internship, Education Level Assessment

PP-010
TURKISH BIOCHEMICAL SOCIETY BODY FLUID ANALYSES WORKING GROUP

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OBJECTIVES: The aim of this working group is to prepare an educational material for people who want to learn the information about biomarkers before their clinical or experimental studies. In addition, to produce chapters that are related to body fluids such as Cerebrospinal fluid(CSF), pleural and peritoneal fluid, cyst, intra articular fluid etc. in guidelines.
MATERIALS and METHODS: Firstly, relevant working groups of organizations such as IFCC and EFLM, if any, will be examined. Also, the relevant guidelines of the CLSI will be reviewed and inferences will be done. Finally, the updated literature will be searched for the consensus articles of the relevant body fluids if any. The guideline would be prepared by taking into consideration the status of laboratories in Turkey.
RESULTS: In 1998, The National Institutes of Health Biomarkers Definitions Working Group defined a biomarker as “a characteristic that is objectively measured and evaluated as an indicator of normal biological processes, pathogenic processes, or pharmacologic responses to a therapeutic intervention”. WHO has added and defined a biomarker as “any substance, structure, or process that can be measured in the body or its products and influence or predict the incidence of outcome or disease”. Moreover, Teunissen et al. prepared a protocol on CSF collection and storage for the first time.
CONCLUSIONS: We will evaluate the body fluids that have not been examined properly before in this guidelines. Additionally, we would be able to eliminate some uncertainties that were experienced before by this guideline. Neurobiomarkers have been the priority of this working group.
Keywords: Guidelines, Body Fluids

PP-011
INVESTIGATION OF THE RELATIONSHIP BETWEEN BRAIN DERIVED NEUROTROPHIC FACTOR AND ACETYL COA CARBOXYLASE IN DE NOVO LIPOGENESIS

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OBJECTIVES: De novo lipogenesis is a complex metabolic pathway associated with many metabolic disorders such as metabolic syndrome, diabetes, especially obesity. Brain-derived neurotrophic factor (BDNF) is a neurotrophin which important for energy homeostasis as well as neuronal functions. In the studies with BDNF heterozygous knockout (+/-)mice, these mice showed weight gain, diabetes, and sometimes disorders in eating behavior. Based on all these data, it was aimed to investigate the relationship between Acetyl CoA carboxylase (ACC), which is the control enzyme of de novo lipid synthesis and BDNF.
MATERIALS and METHODS: In our study, two groups of C57BL / 6J wild type (n = 8) and BDNF (+/-) (n = 8) male mice were formed. Genotyping was done. The presence of the transgene in each animal was confirmed by polymerase chain reaction (PCR) analysis in tail tissue. Mice were fed ad libitum with normal food for four months. Acetyl CoA carboxylase expressions in adipose tissues were measured by RT-PCR. Mann-Whitney U test was used to compare the groups.
RESULTS: When the weights were examined at the end of the experiment, it was seen that the weight of BDNF (+/-) mice (23.4 ± 1.39) increased significantly compared to the weight of wild type mice (21.63 ± 0.64) (p = 0.011). It was observed that the expression of acetyl CoA carboxylase enzymes (1.39 ± 0.10 Fold / GAPDH) was higher in adipose tissue of BDNF (+/-) mice compared to wild type mice (1.00 ± 0.00 Fold / GAPDH) (p = 0.000).
CONCLUSIONS: It was concluded that ACC, which is an important enzyme in de novo lipid synthesis, may have an effect on the increase in body weight observed in BDNF deficiency.
Keywords: ACC, BDNF, De Novo Lipid Synthesis

PP-012
ASSOCIATION BETWEEN THYROID HORMONE LEVELS AND LIVER FUNCTION TESTS IN LIBYAN POPULATION

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OBJECTIVES: Thyroid hormones are potent modulators of varying physiological functions and an imbalance in the function of thyroid hormones to maintain cellular homeostasis lead to different metabolic disorders that include cardiovascular diseases, chronic liver diseases and diabetes. This study was planned to understand the link between thyroid hormone levels and liver function enzymes in Libyan population.
MATERIALS and METHODS: Serum samples were collected from patients who applied to the National Centre for Diabetes and Endocrinology, Tripoli, Libya. COBAS INTEGRA 400 plus analyzer was used for biochemical analysis while Elecsys COBAS E411 was used for assessing the level of thyroid hormones. Thyroid hormone levels (TSH, T4, T3, FT3, and FT4) were used to divide patients into two groups (hyperthyroidism or hypothyroidism). Individuals with normal thyroid hormone levels were considered as the control group. For each group liver function tests and thyroid hormone levels were statistically evaluated.
RESULTS: As compared to control group, significant increase was observed in liver function enzymes (GGT, ALP, ALT and AST) both in hypothyroidsm and hyperthyroidism ($p<0.05$). In hypothyroidism TSH level was positively correlated with GGT, ALP and AST levels ($p<0.05$). In hyperthyroidism TSH level is only negatively correlated with ALP levels ($p<0.05$).
CONCLUSIONS: Libya is one of the countries where endocrine dysfunctions are very common. Regular monitoring of patients with thyroid dysfunction for liver function tests will be useful in the management of the thyroid disorders by preventing complications.
Keywords: Hyperthyroidism, Hypothyroidism, Liver Function Tests

PP-013
THE EFFECT OF THYROID FUNCTION TEST RESULTS ON LIVER FUNCTION TESTS IN HYPOTHYROID PATIENTS RECEVING LEVOTYROXIN TREATMENT

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OBJECTIVES: We aimed to evaluate the relationship between thyroid function tests (TFT) and liver function tests (LFTs) in hypothyroid patients receiving levothyroxine treatment.
MATERIALS and METHODS: 2308 individuals who were followed up with a diagnosis of hypothyroidism and using LT4 were included in the study. Patients were divided into 8 groups according to the drug doses (25, 50, 75, 100, 125, 150, 175, 200 mcg). Patients were divided into five groups according to TSH values [<0.1 mIU/L (group1), 0.1-0.35 mIU/L (group2), 0.36-4.5 mIU/L (group3), 4.6-10 mIU/L (group4) and> 10 mIU/L (group5)]. The variation of LFTs and FT3/FT4 ratio in TSH groups was examined by Kruskal Wallis and Mann Whitney U tests.
RESULTS: There was a significant difference between TSH groups for AST, DBIL, T3/T4 ratio (p values:0.001; 0.002; 0.000). When we compare the groups in pairs, it was observed that there was a significant difference for AST between 3th-4th; for DBIL between 1st-4th and 2nd-4th; for the T3/T4ratio between all groups except 1st-2nd and 4th-5th. In patients with TSH <0.1 mIU/L, a significant difference was found between the groups formed according to drug level in terms of AST, ALT, GGT parameters (p values 0.032; 0.029; 0.041, respectively). In patients with TSH> 10 mIU/L,a significant difference was found between ALT, GGT parameters (p values 0.001;0.030, respectively).
CONCLUSIONS: It was observed there was no significant difference in LFTs between TSH groups. This may be due to levothyroxine healing impaired LFTs in hypothyroid patients generally within a few weeks.The results obtained from drug dose groups can be explained by the fact that both hypothyroidism and hyperthyroidism cause liver damage. Especially in patients with TSH <0.1mIU/L, the significant difference in LFTs can be explained by the toxic effect of additive substances in LT4 on the liver.
Keywords: Hypothyroidism, Levothyroxine, Liver Function Tests

PP-014
SERUM LIPASE/ AMYLASE ACTIVITY RATIO FOR SCREENING INSULIN RESISTANCE

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OBJECTIVES: Early diagnosis of insulin resistance (IR) is important to prevent the development of type 2 diabetes mellitus (DM). Type 2 DM is an endocrine disorder however some recent studies show that exocrine functions of the pancreas are insufficient also. Our aim in this study to evaluate the relation of IR with pancreatic exocrine functions.
MATERIALS and METHODS: Datas were taken from the laboratory information system in this retrospective study. Included subjects were separated to three groups according to the insulin sensitivity status determined by homeostatic model assessment. 335 subjects in insulin sensitive (IS), 275 in moderate IR, 164 in severe IR group. The median of the age is 45 (34-54). Serum lipase and amylase levels were used and compared between groups as an indicator of pancreatic exocrine functions.
RESULTS: Serum amylase levels were 67.8, 63 and 65.3 U/L; serum lipase levels were 31, 31 and 25.5 U/L and serum lipase/amylase ratios were 47%, 50% and 38% in IS, moderate and severe IR respectively. There were significant differences in serum amylase between IS and moderate IR ($p=0.02$); in serum lipase between IS and severe IR, and also between moderate and severe IR ($p<0.001$); in serum lipase/amylase activity ratio between IS and moderate IR, IS and severe IR, and also moderate and severe IR ($p= 0.015$, $p<0.001$, $p<0.001$ respectively).
CONCLUSIONS: Our results show that the exocrine functions of the pancreas are affected in insulin resistance and serum lipase/amylase activity ratio can be used as a new parameter to define and screen insulin sensitivity status of the body.
Keywords: Exocrine Pancreatic Function, Insulin Resistance, Amylase, Lipase, Serum Lipase/ Amylase Activity Ratio

PP-015
COVID-19 AND LABORATORY: CENTRAL LABORATORY OF TERTIARY UNIVERSITY HOSPITAL EXPERIENCE

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OBJECTIVES: A clear question which is now engaging the minds of many scientists and healthcare professionals is whether and finally how laboratory medicine could adequately contribute to counteract this Coronavirus disease 2019(COVID-19) and other viral outbreaks.This study aims to evaluate our central laboratory experience at the beginning of the outbreak.
MATERIALS and METHODS: Data of this study have been obtained retrospectively from Central Laboratories of Gazi University.The time interval that we have scanned is determined as March 11,2020 and May 1,2020.The laboratory test results that was requested at the first admission of patients to hospital whom diagnosis was confirmed as COVID-19 by polymerase chain reaction test have used in our study.
RESULTS: Our data set consists of 83 people (Men=37, Women=46) and their laboratory results.We have found that,the most common laboratory abnormalities in patients are high CRP (median=5,24 IQR (2,37±14,85 mg/L) (50%) ,high fibrinogen (mean=366,58±147,23 mg/dL) (31.5%), lymphopenia (mean=1,93±0,89x10.e3/uL) (24%), respectively. Moreover, 19.76% of the patients have eosinopenia. Interestingly,17.72% of patients have high Cystatin C levels. However,only 4.87% of patients have high creatinine levels. In addition, correlation analysis were made between all tests.
CONCLUSIONS: Our preliminary study has shown findings such as high CRP, fibrinogen levels and lymphopenia which are compatible with the literature. Also we have very interesting findings as high Cystatin C levels and Eosinopenia in patients who have been diagnosed with COVID-19.It is now actually indisputable that laboratory medicine will progressively maintain an substantial contribution to the diagnostic reasoning, managed care and therapeutic monitoring of the vast majority of human diseases including COVID-19.We will expand our data pool by using the clinical characteristics of the patients in the near future.
Keywords: COVID-19, Laboratory

PP-016
EVALUATION OF FEATURED BIOCHEMICAL PARAMETERS AND VITAMIN D LEVELS IN COVID-19 DISEASE

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OBJECTIVES: Covid-19 now became pandemic in a short length of a lifetime and seriously threatens human health. Patients who will be hospitalized and taken to the intensive care unit must be carefully selected and laboratory parameters may be crucial for predicting the course of the disease and determining the patients to be admitted to the intensive care unit in advance. Ferritin, D-dimer, fibrinogen and recently 25-OH vitamin D have come to the fore in this field.
MATERIALS and METHODS: This study include 121 patients, with COVID-19. Standard distribution variables calculated using the Mann-Whitney U test. Multivariate analysis was managed via an unconditional logistic regression model. We compared our data between sets of two groups as PCR positivity (PCR+), CT positivity (CT+), or both (PCR+ and CT+) among COVID-19 cases.
RESULTS: Ferritin, and Fibrinogen levels were considerably higher in CT+ patients among all subjects, $p =0.001$, $p =0.001$, and $p<0.001$. There were no apparent differences in vitamin D levels between PCR+ and CT+, CT+, PCR+ and others, $p=0.277$, $p=0.350$, $p=0.397$. However, we found that vitamin D levels of all patients were deficient (<20ng/mL).
CONCLUSIONS: Ferritin, D-dimer and fibrinogen levels may be useful in predicting the severity of the disease and early treatment. Scientists commonly accept that vitamin D levels are low in the Turkish people, making comparison difficult. It is inadequate to distinguish whether low vitamin D levels cause COVID-19 or deficiency occurs randomly because of reflecting the general population. Besides, vitamin D deficiency is widespread worldwide, it is difficult to associate COVID-19 with deficiency.
Keywords: COVID-19, Vitamin D, Deficiency, D-Dimer, Ferritin

PP-017
INVESTIGATION OF LYMPHOCYTE RELATED RATIOS IN GENERALIZED ANXIETY DISORDER

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OBJECTIVES: Studies investigating complete blood count (CBC) parameters in psychiatric disorders are increasing gradually. Although there are studies related to CBC in generalized anxiety disorder (GAD), lymphocyte-related ratios have not been investigated sufficiently. In this study, we aimed to examine the values of neutrophil to lymphocyte ratio (NLR) and monocyte to lymphocyte ratio (MLR) in GAD.
MATERIALS and METHODS: In this retrospective study, NLR and MLR of patients diagnosed with GAD (n=32) were compared with the data of healthy subjects (n=35). Measurements were performed with "CELL-DYN 3700 SL Analyzer".
RESULTS: The patient and healthy control groups consisted of females and their mean ages were similar ($p=0.298$). Neutrophil count ($p<0.001$), percentage of neutrophil ($p=0.008$), and NLR ($p=0.011$) were significantly higher in the patient group. The percentage of lymphocyte was significantly higher in the control group ($p=0.018$). Monocyte count, lymphocyte count, percentage of monocyte, and MLR were similar between the groups ($p>0.05$). According to the correlation analysis, there was no relationship between age and CBC parameters in the patient and control groups.
CONCLUSIONS: It is known that psychiatric disorders are associated with inflammatory processes. CBC is an easily accessible and quickly applicable test that shows inflammation. This study is important in terms of showing the increase in neutrophil-related parameters in GAD. Further studies examining the relationship between GAD and inflammatory processes are needed.
Keywords: Generalized Anxiety Disorder, Neutrophil to Lymphocyte Ratio, Monocyte to Lymphocyte Ratio, Hemogram, Complete Blood Count

PP-018
COULD IL-6 PREDICT THE CLINICAL SEVERITY OF COVID-19?

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OBJECTIVES: The inflammatory response plays a key role in COVID-19 and an excessive inflammatory response to SARS- CoV-2 is thought to be a major cause of disease severity and death in patients with COVID-19. The aim of this study is to investigate the role of IL-6 levels in diagnosis and treatment of the COVID-19.
MATERIALS and METHODS: In this retrospective, single-centre study, all data were collected from a total of 115 (mild n=24, moderate n=52, and severe n=39) patients enrolled from March 11th 2020 to April 4th 2020 in Antalya Education and Research Hospital.
RESULTS: The median age for mild group was 46,04 years, while 56,42 years for moderate group, as well as 62,92 years for severe patients (p = 0,001). There was significant difference inpatients who hospitalised clinic to intensive care unit ratio among mild, moderate or severe group.(p<0,001).
The values of IL-6 were significantly higher in severe patients than in mild (p = 0.04) and moderate patients (p=0,043). The baseline IL-6 levels in all COVID-19 cases was positively correlated with the baseline CRP, D-dimer, erythrocyte sedimentation rate, neutrophil count, neutrophil to lymphocyte ratio and ferritin levels. The area under the ROC curve for IL-6 as predictor of the severe clinical condition was 0,864 (95% CI 0,765–0,963 p= 0,000). Our longitudinal analyses showed that severe group presented significant increase in serum concentrations of IL-6 during hospitalization.
CONCLUSIONS: In conclusion, IL-6 is an key marker of inflammation and may be a guide in the early diagnosis of patients with severe COVID-19 clinic.
Keywords: Interleukin-6, COVID-19, Cytokine Storm, Inflamatory Parameters

PP-019
ANTI-INFLAMMATORY EFFECTS OF A NEW SERIES OF 6-ARYLIDENE-6,7-DIHYDRO-5H-INDENO[5,6-D][1,3]DIOXOL-5-ONES

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OBJECTIVES: Chalcones are important intermediates in the flavonoid synthesis pathway. Chalcones are natural compounds that have anti-inflammatory, antiproliferative, antifungal, and antibacterial effects. Recent studies on inflammation have shown that the modulating activities of chalcones are related to inflammatory pathways such as AP-1 and NF-κB transcriptional factors. Apart from this, it has been shown that the suppression of pro-inflammatory mediators such as cyclooxygenase-2 (COX-2), TNF-α and nitric oxide (NO) plays a pivotal role in anti-inflammatory effects of chalcones. Therefore, herein, it was aimed to investigate the anti-inflammatory effects of new chalcone derivatives
MATERIALS and METHODS: 6-Arylidene-6,7-dihydro-5H-indeno[5,6-d][1,3] dioxol-5-ones (1-10) were synthesized via the Claisen-Schmidt condensation of 5,6-methylenedioxy-1-indanone with aromatic aldehydes. The anti-inflammatory effects of the synthesized compounds were determined by measuring prostaglandin E2 (PGE2), TNF-α, IL-6 levels and COX-2 activity in LPS-treated Raw 264.7 cells.
RESULTS: All compounds were found to reduce PGE2, TNF-α, IL-6 levels and COX-2 activity. In particular, 6-(4-(4H-1,2,4-triazol-4-yl) benzylidene)-6,7-dihydro-5H-indeno[5,6-d][1,3]dioxol-5-one (9) stands out as the most effective anti-inflammatory agent on RAW 264.7 macrophages.
CONCLUSIONS: Our data indicated that 1,2,4-triazole scaffold at the 4th position of the benzylidene moiety enhanced anti-inflammatory activity.
Acknowledgements: This work was supported by Anadolu University Scientific Research Projects Commission (Project No. 1610S657).
Keywords: Anti-inflammatory, Chalcone

PP-020
THERAPEUTIC EFFECT OF CAPSAICIN ON 2,3,7,8-TETRACHLORODIBENZO- P-DIOXIN-INDUCED TESTICULAR TISSUE IN RATS

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OBJECTIVES: Capsaicin (CAP) has been found to have significant health benefits as analgesics, anti-cancer agents and anti-inflammatory agents. The mechanisms underlying these health effects have been attributed to their anti-inflammatory effects, including modification of macrophage function, in particular by reducing the production of pro-inflammatory mediators, reactive oxygen species, arachidonic acid metabolites, proteases, and lysosomal enzymes. The substance 2,3,7,8-Tetrachlorodibenzo-p-dioxin is extremely toxic to mammals with a wide variation of susceptibility between species. In this study, it was aimed to investigate the protective effects of capsaicin (CAP), 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) against oxidative stress in rat testis tissue.
MATERIALS and METHODS: Twenty-eight rats were equally divided into four groups; The first group was kept as a control. In the second group, TCDD was diluted in corn oil and administered orally at a dose of 2 µg / kg / week. The third group was treated with capsaicin (CAP group) suspended in corn oil at 25 mg / kg / every other weak gavage route. Rats in the fourth group were treated simultaneously with TCDD and CAP (TCDD +CAP group). Superoxide dismutase (SOD), catalase (CAT)acitviti and glutathione (GSH),thiobarbituric acid reactive substances (TBARS) levels were studied in testicular tissue
RESULTS: Our results showed that levels of TBARS were significantly ($p \leq 0.01$) decrease and the activities of SOD, CAT and level GSH were significantly ($p \leq 0.01$) increased in TCDD+ CAP group compared with TCDD group.
CONCLUSIONS: it was observed that there was a significant increase in SOD and Catalase activities and GSH levels, and a significant decrease in TBARS levels.
Keywords: TCDD, CAP, Oxidative Stress, Testicular Tissue, Rat

PP-021
A NEW SERIES OF CHALCONES AS POTENT CATHEPSIN D AND L INHIBITORS

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OBJECTIVES: Cathepsins are a class of lysosomal proteases that take part in proteolysis during physiological processes. Cathepsins B, D and L, which are able to cleave proteins in the extracellular matrix (ECM), including collagen, fibronectin, proteoglycans and laminin, are considered to represent causal factors in tumor invasion and metastasis. For this reason, cathepsins have emerged as potential therapeutic targets for cancer treatment. Inhibition of activity of cathepsins may slow down cancer progression. Chalcones display various pharmacological effects, including anticancer, antioxidant, anti-inflammatory, and anti-infective activities. Chalcone derivatives have shown potential as lead compounds for new drug discovery due to their biological activity and safety profiles. Therefore, in our study, it is aimed to evaluate the inhibitory effects of new chalcone derivatives on cathepsins.
MATERIALS and METHODS: To identify potent cathepsin inhibitors, new chalcones (1-10) were synthesized via the base-catalyzed Claisen-Schmidt condensation of 5,6-methylenedioxy-1-indanone with p-substituted benzaldehydes. The inhibitory effects of synthesized compounds on cathepsin D and L were invastigated using colorimetric inhibitor screening assay kit.
RESULTS: Among these compounds, 6-(4-(pyrrolidin-1-yl)benzylidene)-6,7-dihydro-5H-indeno[5,6-d][1,3]dioxol-5-one (4) was identified as the most effective inhibitor of cathepsin D and L with a 52.7±0.30% and 70.41±0.73% inhibition activity percentage, respectively.
CONCLUSIONS: Our results pointed out the importance of the pyrrolidine ring at the 4th position of the benzylidene moiety for cathepsin inhibitory activity.
Keywords: Cathepsin D, Cathepsin L, Chalcones

PP-022
SPECTROPHOTOMETRIC DETERMINATION OF MITOCHONDRIAL COMPLEX ACTIVITIES IN PATIENTS WITH INTENSIVE CARE UNIT ACQUIRED WEAKNESS

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OBJECTIVES: Intensive care unit–acquired weakness (ICU-AW) is the most common neuromuscular impairment in critically ill patients that increase mortality. Critical illness polyneuropathy, myopathy, and neuromyopathy contribute in ICU-AW, unfortunately critical aspects of ICU-AW that have not been completely defined and still under discussion. In this study, we aimed to evaluate mitochondrial respiratory complex activities of critically ill patients with intensive care unit–acquired weakness.
MATERIALS and METHODS: To determine mitochondrial respiratory chain complex activities, muscle biopsy samples were collected from critically ill patients in intensive care unit (n=7) and controls (n=5). Patients undergoing upper extremity or shoulder surgery due to non-malignant causes were involved in the control group. Frozen muscle biopsy samples were used for spectrophotometric analysis of Complex I, II-III, IV and citrate synthase (CS) activities. Tissues were homogenized with SETH buffer, centrifuged at 2000rpm for 15 minutes and the supernatant was used for enzyme activity measurements. Total protein measured by Lowry's method and complex activities reported as unit (U) per gram (g) protein. The data was evaluated with the Mann-Whitney U test.
RESULTS: Complex I activity was significantly low in patients (8.81 U/g) compared to controls (17.56 U/g) ($p<0.005$). Complex II-III activities were 7.03 U/g in patients and 10.49 U/g in control group ($p>0.05$). Complex IV activity was significantly low in patients (59.2 U/g) than controls (120.15 U/g) ($p<0,05$). Significant difference in Complex I/CS ratio was observed between patients and controls (0.12 and 0.30 U/g, respectively)($p<0.05$).
CONCLUSIONS: During critical illness, functional and structural changes in mitochondria play an essential role in the development of ICU-AW. Studying these parameters in larger cohorts is essential to understand ICUAW pathogenesis better.
The study protocol was approved by Hacettepe University ethics committee (2018/04-56(KA-180022). Written informed consent was obtained from participants or guardians of participants. The study was funded by Hacettepe University Scientific Research Projects Coordination Unit (Project ID: THD-2018-17114).
Keywords: Stroke, Neurological Damage, Mitochondrial Complex Activity

PP-023
CALCULATING THE RISK OF NEURAL TUBE DEFECTS - CASE

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OBJECTIVES: Increased AFP concentration increases the risk of neural tube defect (NTD). In the study where we calculated the measurement uncertainty of the AFP analyte and analyzed the risk again considering the worst probability, we observed that the risk was further reduced in some patients (although the AFP concentration was higher).The aim of this study is to investigate the reason for this risk reduction.
MATERIALS and METHODS: Analytes were studied on Beckman-Coulter Access2 analyzer and risk analysis was performed in Benetech PRA software. The risk of NTD was calculated again by changing only the AFP concentration without changing the clinical information of the patients (age, weight, race, pregnancy status, presence of diabetes, BPD value).
RESULTS: NTD risk was found to be low in 6 of 200 patients for whom we measured uncertainty. We would like to present one of these patients. The patient's AFP concentration was 13.9 ng / mL (MoM = O.42), while the NTD risk was 1/19900. When the measurement uncertainty was calculated for the AFP analyte, the AFP value was 16.9 ng / mL (MoM = O.51). Although the AFP concentration increased, the risk of NTD decreased from 1/19900 to 1/32600.
CONCLUSIONS: Screening protocols calculate the patient's probability of being affected. This probability is called the Likelihood Ratio (LR). Although AFP concentration increased, LR was found to be low in patients with low risk.
Keywords: AFP, Prenatal Screening Test, Risk Estimation

PP-024
THE SERUM GHRELIN, OBESTATIN AND COPEPTIN LEVELS DURING ORAL GLUCOSE TOLERANCE TEST

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OBJECTIVES: In this study, it was aimed to (1) compare the serum insulin, ghrelin, obestatin and copeptin levels in pregnant and non-pregnant women and (2) compare these parameters measured before and at the second hour of the 75-gram (g) oral glucose tolerance test (OGTT) in pregnant women.
MATERIALS and METHODS: Thirty pregnant and 27 healthy non-pregnant women included in the study and 75 g- OGTT was also performed to pregnant women between 24 and 28 weeks of gestation. The venous blood samples of pregnant women at fasting and 2 h after a 75 g glucose loading and also fasting venous blood samples of non-pregnant women were obtained. The measurements of ghrelin, obestatin, copeptin and insulin were performed by ELISA method.
RESULTS: The serum ghrelin, obestatin and copeptin levels were similar between the pregnant and non-pregnant groups ($p>0.05$). In pregnant women, glucose and insulin levels measured in the second hour after glucose loading were significantly higher than the fasting levels of pregnant and non-pregnant women ($p=0.000$). However, when comparing the before and second hour values, 75 g-glucose loading did not cause a significant change in ghrelin, obestatin and copeptin levels in pregnant women ($p>0.05$).
CONCLUSIONS: The results of this study concluded that ghrelin, obestatin and copeptin levels did not differ between pregnant and non-pregnant women. Another result of this study was that 75 grams of glucose tolerance test in pregnant women could not cause a significant change in these parameters.
Keywords: Ghrelin, Obestatin, Copeptin, İnsulin Resistance, Oral Glucose Tolerance Test.

PP-025
SEMI-QUANTITATIVE AND QUANTITATIVE EVALUATION IN URINE PROTEIN ANALYSIS

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OBJECTIVES: Proteinuria is defined as the excretion of protein in the urine of more than 150 mg/day. An increase in the amount of protein in the urine is called proteinuria. Urine protein level is an important marker used in the evaluation of renal pathologies. In this study, it was aimed to compare the semi-quantitative and quantitative analysis results in the determination of urine protein.
MATERIALS and METHODS: Patients who were performed semi-quantitative and quantitative protein analysis from spot urine samples admitted to the biochemistry laboratory for routine analysis were evaluated retrospectively. DIRUI H-800 and Beckman Coulter AU680 autoanalyzer were used for semi-quantitative and quantitative analysis, respectively.
RESULTS: In the statistical evaluation, it was found that there was a significant ($p <0.001$), moderate agreement (κ: 0.471) among the results. Significant ($p <0.001$) and good kappa score(κ: 0.651) were found for results below 100 mg/dL. When 0-30, 30-100, 100-300, 300-2000mg/dL ranges were evaluated separately, 86%, 93%, 37% and 36% agreement was observed, respectively.
CONCLUSIONS: In our study, semi-quantitative and quantitative protein measurements were evaluated in spot urine. It was observed that the measurements were more consistent when the protein excretion was below 100 mg/dL. Especially in this group, compliance over 90% reveals the importance of semi-quantitative evaluation in the early stages of proteinuria. In addition to being useful in the early detection of preeclampsia in pregnant women and proteinuria in diabetic and hypertensive individuals, urine strips have an important place in routine laboratory practice, providing evaluation of different chemical markers.
Keywords: Proteinuria, Spot Urine, Urine Strip

PP-026
A NEW TANDEM MASS SPECTROMETERY APPLICATION FOR SERUM SEROTONINE MEASUREMENT

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OBJECTIVES: Serotonin (5-hydroxytryptamine) is an important monoamine neurotransmitter synthesized from the tryptophan and regulating neuronal activity. Drugs targeting serotonin receptors are widely used in psychiatry and neurology. Motility disorders, cardiac abnormalities, and neuropsychiatric disorders (such as depression, schizophrenia, anxiety) may be associated with dysfunction in the serotonergic system. Especially, neuroectodermal tumors are

associated with a significant increase in serotonin levels. Therefore, monitoring serotonin levels is important. The recommended reference range for serum serotonin levels is 101-283 ng / ml. Our aim is to establish a measurement method in LC-MS/MS device for determination of serum serotonin levels.
MATERIALS and METHODS: Mass spectrometric analyzes were performed using an integrated Shimadzu LC-20-AD (Kyoto, Japan) system with an ABSCIEX API 3200 triple quadrupole mass spectrometer (USA) equipped with an electrospray ion source (ESI) operating in positive mode. After adding 50 µL of 1 M NaOH and 2 mL of ethylacetate to 250 µL of sample, it was placed in the orbital shaker at 250 rpm for 20 minutes, and then centrifuged at 3500 rpm for 10 minutes. The supernatants were evaporated with nitrogen gas. The residues were dissolved in 150 µL acetonitrile: water (10: 90;% v: v) and injected.
RESULTS: The method was linear in the range of 5-5000 ng/ml. The intra- and inter- assay CV% values were less than 6%. The retention time for serotonin was 0.55 minutes, and the total analysis time was 5 minutes.
CONCLUSIONS: We have developed a highly accurate, fast, reliable and economical measurement method.
Keywords: Serotonin, LC-MS/MS, Blood Level, Neurotransmitter

PP-027
DEVELOPMENT OF LEUKOCYTE CYSTINE MEASUREMENT IN GRANULOCYTES BY LIQUID CHROMATOGRAPHY- TANDEM MS METHOD

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OBJECTIVES: Cystinosis is an autosomal recessive disorder characterized by accumulation of cystine in lysosomes due to CTNS gene mutations. We aimed to determine the level of cystine in granulocytes in patients with suspected cystinosis and develop a highly sensitive tandem mass spectrometer (MS) method.
MATERIALS and METHODS: Venous blood samples from patients and controls were taken into ACD-tubes; the granulocytes were isolated and after derivatization with N-buthanol cystine was determined in tandem MS
RESULTS: Assay was linear up to 41 µmol/L. Respectively limit of detection (LoD) and limit of quantitation (LoQ) was determined as 0.044 µmol/L 0.095 µmol/L.
CONCLUSIONS: The evidence obtained in this study indicates that this method is analytically sufficient and is suitable for determining the granulocyte cystine content. Clinicians can use the test reliably for routine measurements. However, it should be remembered that hemolysis causes significant interference in cystine measurement and samples should not be frozen for more than 4 weeks
Keywords: Cystinosis, Cysteamine, Granulocyte, Tandem-Mass Spectrometry

PP-028
ELEVATED SERUM ADMA LEVELS IN PATIENTS WITH MULTIPLE SCLEROSIS

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OBJECTIVES: Multiple sclerosis (MS) lesions are characterized by the breakdown of blood-brain barrier (BBB), multifocal inflammation, demyelination, oligodendrocyte loss, reactive gliosis, and axonal degeneration. experimental studies have reported conflicting roles of NO in the pathophysiology of neuroimmunological diseases such as multiple sclerosis (MS). Our aim in this study was to evaluate the role of ADMA and SDMA in MS pathogenesis and progression by measuring the levels of these metabolites in MS patients and healthy volunteers.
MATERIALS and METHODS: The study included 35 secondary-progressive MS (SPMS) patients, 49 relapsing- remitting MS (RRMS) patients and 50 healthy volunteers. Serum ADMA, SDMA levels were measured with liquid chromatography-tandem mass spectrometry (LC-MS/MS) device.
RESULTS: Serum ADMA (0.60±0.17 vs 0.54±0.19, p=0.031), SDMA (0.74(0.49-1.19)vs0.70(0.4-0.96),p=0.047)levelsoftheMSgroupwerefoundtobesignificantly higher than the control group. When MS subgroups are compared, ADMA (0.60±0.17 vs 0.54±0.19, p=0.042) levels were higher in SPMS group than RRMS.
CONCLUSIONS: Elevated serum ADMA might be related with the blockade of NO production and cerebral hypoperfusion. Methylated arginine levels might be candidate marker for monitoring of the disease's course.
Keywords: Multiple Sclerosis, Prognosis, ADMA, Tandem Mass.

PP-029
EVALUATION OF SERUM IMMUNOFIXATION ELECTROPHORESIS AND PROTEIN ELECTROPHORESIS DATA AT ONDOKUZ MAYIS UNIVERSITY MEDICAL FACULTY HOSPITAL CENTRAL LABORATORY

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OBJECTIVES: In our study, it was aimed to retrospectively examine IFE and Protein Electrophoresis data studied in Ondokuz Mayis University Medical Faculty Hospital Central Laboratory between January 2017 and December 2019 and compare the findings with the literature.
MATERIALS and METHODS: SIFE and SPE tests were performed on the INTERLAB G26 device. SRE602K kit is used for SPE and SRE 628K kit is used for SIFE. Agarose gel containing Tris-Barbital buffer was used.Acid Blue containing concentrated Acetic Acid solution was used as the staining solution.
RESULTS: As a result of serum IFI analysis of 6767 cases, paraprotein band was detected in 21.36%. In our cases, the most common diagnosis was Multiple Myeloma, the most common IgG kappa (29.46%) according to the paraprotein type, and the second was IgG lambda (12.66%). According to the results of SIFE, no band was observed in SPE in 47.91% of the patients with gammopathy. As a result of the evaluation of SPE data of monoclonal G-Kappa cases, paraproteinemia was not found in SPE in 53.84% of cases with positivity in SIFE.No paraproteinemia was detected in SPE in 37.5% of monoclonal G-Lambda cases detected by SIFE. When Ig G concentrations were compared, it was found that there was a statistically significant difference. Of the patients with gammopathy with SIFE, 55.1% of the patients had gammopathy with urine IFE and 22.22% with urine protein electrophoresis.
CONCLUSIONS: It was concluded that SPE is a useful first-step test in gammopathy screening, but SIFE is the gold standard for diagnosis.
Keywords: Immunfixation Electrophoresis, Protein Electrophoresis

PP-030
THE PATHWAY TO CANCER DIAGNOSIS FROM DIRECT BILIRUBIN: A REFLECTIVE TEST EXAMPLE

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OBJECTIVES: If the laboratory specialist examines the patient's age,clinical diagnosis,current laboratory,imaging results and requests a new test from the patient,it is called a reflective test.In this case,we aimed to evaluate whether there is paraproteinemia interference as a result of negative direct bilirubin test by applying reflective test.
MATERIALS and METHODS: Serum direct bilirubin,total bilirubin levels and total protein,albumin levels required for interference research were studied in the Biochemistry Laboratory autoanalyzer(Beckman Coulter AU5800)in a 75-year-old male patient who applied to Gazi University Faculty of Medicine Oncology outpatient clinic.Serum protein electrophoresis was studied on Helena SAS 1 plus.
RESULTS: Total Bilirubin(TB)=0.83(mg/dL);when Direct Bilirubin(DB)=-0.2(mg/dL),serum index and whether there was a warning in the device were evaluated.The advanced age of the patient with Albumin=3.9(g/dL),Total protein=8.2(g/dL) suggested the possibility of paraproteinemia interference in direct bilirubin measurement.The patient's serum was allocated to study serum protein electrophoresis as a reflective test.A monoclonal peak in the gamma band was detected in serum protein electrophoresis.It was planned to conduct an immunofixation electrophoresis in order to evaluate it in more detail in terms of a hematological malignancy by contacting the doctor in the Oncology Department.
CONCLUSIONS: When interpreting laboratory test results,the possibility of interference specific to the analytical method,test and device should be taken into account,especially with inconsistent results.The use of reflective tests for this purpose,will be beneficial in terms of diagnosing patients earlier and not delaying their treatment.The importance of well-known analytical method, features of the device,evaluation of interference and cooperation with clinicians is clearly seen in the interpretation of test results by laboratory experts.
Keywords: Direct Bilirubin, Interference, Paraprotein, Reflective Testing

PP-031
INVESTIGATION OF INTERFERENCE EFFECT OF GLYHOSATE ON KINETIC UREA MEASUREMENT METHOD WITH UREASE IN SERUM

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OBJECTIVES: Urease (Urea amidohydrolase,E.C. 3.5.1.5.) is a metalloenzyme

containing nickel that catalyzes the hydrolysis of urea to ammonia and carbon dioxide. It is used to measure blood urea concentration. Glyphosate (N-phosphonomethyl glycine) is a broad spectrum herbicide that is frequently used all over the world. In recent years, intensive studies continue on its role in the development of many diseases, especially cancer. In Turkey, Cukurova region is increasing with exposure to glyphosate because it contains the most intensive agricultural areas. The aim of this study is to investigate the possible interference effect of glyphosate on the urease enzyme in in vitro serum urea measurements.
MATERIALS and METHODS: In this study, the effect of different glyphosate concentrations on urease enzyme was investigated. Enzyme activity was studied with the Urease-Glutamate Dehydrogenase dienzymatic system. Kinetic measurements were taken at 340 nm in the 1st, 2nd and 3rd minutes in direct proportional to the consumed NADH and urea amount. The urea content of each experimental step was calculated.
RESULTS: Different urea concentrations (0.3 mg/dL, 0.6 mg/dL, 0.9 mg/dL, 1.2 mg/dL, 1.5 mg/dL) were studied. Negative interference effect of up to 60% was observed in repeated urea measurements of 1,2x10-7 M glyphosate.
CONCLUSIONS: The use of glyphosate has increased in recent years and its acute effects continue. Because it binds minerals such as Manganese, Calcium, Magnesium, Copper and Zinc, it causes erroneous test results caused by interference and increases the risk of encountering malpractices. Therefore, hospital information management systems and clinicians should be warned in advance and be careful against interference.
Keywords: Glyphosate, Interference, Urea, Urease

PP-032
THE EFFECT OF QUININE MOLECULE TO GLUCOSE OXIDASE/ PEROXIDASE ENZYME SYSTEM USED FOR GLUCOSE MEASUREMENT

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OBJECTIVES: Quinine, a natural quinkona alcholoid, is a strong oxidant that has been used for prevention and treatment for malaria for centuries and it is similar to drugs like hydroxychloroquine which is utilized for Covid-19 pandemic. In clinical biochemistry laboratories, glucose oxidase / peroxidase dual enzyme system based on oxidoreduction is one of the most commonly used measurement methods, including automated systems and manual methods, to measure glucose concentrations. In this study, different concentrations of Kinin selected as a model to quinone alkaloids were added to the glucose oxidase / peroxidase enzyme system used to measure glucose concentrations in biological fluids and the effect on serum glucose values at different levels was investigated.
MATERIALS and METHODS: Manual glucose measurement method was used as an endpoint using glucose oxidase/peroxidase dual enzyme system. Measurements were made with a Shimadzu UV 260 spectrophotometer at 500 nm wavelength.Glucose measurements were made by adding varying quinine sulphate concentrations (10 mM-0.1 nM) on different glucose levels (50-200 mg/dL) and possible interferences were evaluated.
RESULTS: Varying concentrations of quinine at 50 mg/dL glucose level causes a low glucose measurement of about 15% on average,while it causes a 40% decrease in the blood glucose value of 100 mg/dL.However, disappearance of this negative interference is observed at high glucose concentrations of 200 mg/dL.
CONCLUSIONS: The data suggest that quinine sulfate reacts competitively with glucose,while high glucose concentration eliminates it. For this reason,it is striking that the use of kinkona derivative drugs,almost all of which have oxidant properties, should be shared by clinics with the laboratory.
Keywords: Glucose Oxidase/Peroxidase Enzyme System, Glucose Measurement, Quinine, Interferences

PP-033
IMPACT OF COVID-19 PROGRESSION ON THE PEOPLE WITH DEMENTIA IN RELATION TO SERUM BIOCHEMICAL PARAMETERS AND HEMOGRAM DATA

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OBJECTIVES: Patients with dementia are much riskier than the other elderly population especially home care nurses can transmit the COVID-19 people with dementia patients when they care elderly at home. Because by aging most of the elderly have one or more age-associated diseases such as mental health, depression and anxiety disorders, AD, asthma or chronic lung diseases, severe kidney disease, moderate or severe liver disease, coronary artery disease and diabetes mellitus, diabetes with end-organ damage, tumor and weak immune system.
MATERIALS and METHODS: We have collected hemogram and serum biochemistry data of the COVID-19 infected people with dementia. We have evaluated severity of the diseases in relation to serum biochemistry and morbidity.
RESULTS: Our clinical data showed that serum biochemical and immunological parameters including glucose, BUN, creatinine, cholesterol, d-dimer values significantly increased in patients have died compared to the healed ($p < 0.001$).
CONCLUSIONS: Our clinical data may reveal evaluation of the serum biochemical and hemogram parameters in relation to the disease severity and morbidity in the people with COVID-19 and having dementia.
Keywords: COVID-19, Dementia, Serum Biochemistry, Hemogram

PP-034
PNEUMATIC SYSTEM AND HOSPITAL INFORMATION MANAGEMENT SYSTEM INTEGRATION IN THE SAMPLE TRANSFER PROCESS

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OBJECTIVES: Pneumatic tube delivery system,widely used in modern laboratories,is specific to organization and allows turnaround times to be significantly reduced.In Yozgat City Hospital, operated with “Public - Private Partnership” model,with high technology in intra-hospital logistics services, a system has been set up with Hospital Information Management System (HIMS) and pneumatic system integration,in which every stage can be monitored from sampling to sending to laboratory.With this configuration,it is aimed to prevent the extension of turnaround times and sample loss.
MATERIALS and METHODS: After test request on HIMS,sampling is carried out and sampling time is read.Code of pneumatic capsule,along with barcodes of the samples added to it,were scanned and recorded together with processing time and personnel information.Laboratory staff, with “Pneumatic Process Screen” authorization defined to them,first scan pneumatic capsule barcode sent to the laboratory, then barcodes of the samples in it.While the sample acceptance process of samples that match with samples recorded in system during the drawing process is carried out,the mismatched samples are seen in a different color. In addition,a message warning system was developed in order to inform authorized persons in the presence of samples that did not reach laboratory within specified time period.
RESULTS: Sample tube losses are prevented with this integration. Sampling,transfer and acceptance times and keeping personnel information records have been a guide for the determination of problems and measures to be taken.
CONCLUSIONS: With this application,traceability of all stages of sampling,transfer and acceptance processes is ensured,sample losses and possible delays are prevented,response time to problems experienced is minimized and sample is transferred safely.
Keywords: Hospital Information Management System, Pneumatic Tube Delivery System

PP-035
COMPARISON OF BLOOD GAS ANALYSIS AND AUTOANALYZER SODIUM, POTASSIUM RESULTS

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OBJECTIVES: A blood gas analyzers (BGA) are vital equipment frequently used in emergency departments and intensive care units. It is clinically important that the measurements of a BGA and an autoanalyzer (AA) provide equivalent results, which is confirmed by their proximitiy to the absolute value. This study aimed to compare the sodium (Na^+), potassium (K^+) values in venous blood samples measured with a BGA and a standard AA with external quality control (EQC) values.
MATERIALS and METHODS: The results of patients that presented to our emergency department between April 1, 2019 and July 1, 2019 and underwent the measurements of Na^+ (n = 5,908), K^+ (n = 5,755) simultaneously by BGA and AA were retrospectively compared. Blood gas analysis was performed using a Siemens Rapid Point 500 device and the serum Na^+, K^+ values were assayed by a Beckman Coulter AU5800 AA. In most studies comparing electrolytes measured by BGA and AA, the mean acceptable differences specified by the United States Clinical Laboratory Improvement Amendment (US CLIA) (19) were used as reference, and total allowable error (TAE) values were taken into account.
RESULTS: In the Spearman correlation analysis between the two measurements, the correlation coefficient (r) was found as 0.78, 0.88 for Na^+ and K^+ respectively. According to the Bland-Altman analysis, in the comparison of Na^+, K^+ values, the average bias percentages at the 95% confidence interval were -0.8 (4.8 to -6.4), -9 (8.6 to -26.5), respectively. In the Bland-Altman plots, bias was observed to be very close to zero for Na^+, in the comparison of the BGA and AA values, while there was significant negative bias for K^+. In the study period, when the EQC analysis, of which the AA device is a member, was evaluated, the three-month EQC results were 8.6%, 12.3%, for Na^+, K^+, respectively considering four times of the root mean squares (RMS) of the %CV values for all participants. Ideally, the ratio of the differences in results to the mean would be expected to be less than these values for each parameter. The Bland-Altman analysis revealed that the ratio of differences to the mean values for Na^+, K^+ were 98.5%, 75.4% respectively,

indicating that all were within expected limits. For the test data on K^+, we evaluated that both the r value and the percentage of acceptable results being low (24.6% of the data were outside acceptable limits) were due to the significant negative bias. CONCLUSIONS: We concluded that Na^+ results obtained from BGA can be used instead of results obtained from AA, but K^+ results cannot be used.
Keywords: Acid-Base Balance; Autoanalyzer; Blood Gas Analysis; Electrolytes

PP-036
DETERMINATION OF THE EFFECT OF BORAX ON COLORECTAL CANCER CELL LINE (DLD-1) AND INVESTIGATION OF SYNERGISTIC EFFECTS WITH 5-FLUOROURACIL

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OBJECTIVES: Natural compounds are very important potential sources for cancer treatment today. One of the most important candidates among natural compounds is boron and its compounds. The aim of this study is to evaluate the proliferative, cytotoxic and apoptotic effects of Borax (Sodium-Tetraborate) on colon cancer cells (DLD-1) and synergistic effects with 5-Fluorouracil used in routine therapy.
MATERIALS and METHODS: Cytotoxic and proliferative effects of borax and 5-fluorouracil were investigated by 3-(4.5-dimethylthiazol-2y])-2,5-diphenyltetrazolium bromide (MTT) method. Physiological changes in the cell membrane and cytoplasm during apoptosis were evaluated qualitatively in fluorescence microscopy with the immunofluorescence DAPI staining method. Necrotic and apoptotic effects were investigated quantitatively with Annexin V / Propidium Iodide(PI) by flow cytometric method.
RESULTS: It was determined by MTT analysis that Borax inhibited the proliferation of DLD-1 cells with an IC50 value of 500 µM and 5-Fluorouracil 50 µM, and 48 hours of administration was more effective. Qualitatively, the nuclear structures of the cells and the cytoplasm ratio decreased as a result of the first 24 and 48 hours of the cells treated with Borax compared to the control groups. In addition, an increase in cellular apoptotic bodies was found. When the Borax and 5-FU groups were compared, it was seen that the synergistic effect was more effective. It was found quantitatively that Borax increases apoptosis and necrosis depending on time and concentration.
CONCLUSIONS: We think that the effects of borax, such as suppressing proliferation, increasing apoptosis and necrosis in DLD-1 cells, will contribute to future anti-cancer studies and will be supported by in vivo studies.
Keywords: Colorectal Cancer, Bor, Borax, 5-Fluorouracil, Apoptosis

PP-037
EVALUATION OF POTENTIAL TUMOR MARKERS THAT MAY PREDICT OF NEOADJUVANT TREATMENT EFFICIENCY IN RECTAL CANCER

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OBJECTIVES: The recurrence of disease or resistance to neoadjuvant treatment develops in locally advanced rectal cancer(RC) due to autophagy, apoptosis or adaptation to hypoxia. We aimed to evaluate potential tumor markers in these pathways that may help to monitor the response to neoadjuvant treatment in locally advanced RC.
MATERIALS and METHODS: Twenty-five patients with locally advanced RC were examined in the study. Gene expression and protein levels of Beclin 1, Survivin, hypoxia-inducible factor-1 alpha(HIF-1α) and Carbonic Anhydrase-9(CA9) were analyzed in fresh tissue specimens and blood samples. The relationship of these markers with tumor staging and regression grade, and the situation of these markers after neoadjuvant treatment were evaluated.
RESULTS: According to tumor regression grade, the group responding to treatment was 40% of the patients and the non-response group was 60% of them. Higher blood CA9 gene expression levels and lower blood HIF-1α protein levels were found in the response group. After neoadjuvant therapy, 36% of the patients had downstaging according to the T stage, and 72% of them had downstaging according to the N stage. No statistically significant change was found in gene expression and protein levels in patients who had T and N downstaging. After neoadjuvant treatment, tissue Beclin 1 and blood Survivin gene expressions, tissue CA9, blood Beclin 1 and blood HIF-1α protein levels decreased statistically significant.
CONCLUSIONS: It was considered that these molecules may provide benefit in the prediction of efficiency of the applied treatment approach because of the relations with the response to neoadjuvant treatment of them in our study.
Keywords: Beclin 1, Carbonic Anhydrase- 9, Hypoxia-Inducible Factor-1 Alpha, Rectal Cancer, Survivin

PP-038
THE EVALUATION OF METHYLTHIAZOLE DERIVATIVES ANTICANCER AND ANTIINFLAMMATORY ACTIVITIES IN A549 CELL LINES

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OBJECTIVES: Thiazole derivative compounds are very important in new drug design because they are in the structure of biologically active compounds used in cancer treatment. In this study, nine new compounds containing 4-methylthiazole-2-acetamide fragment in their main structure were synthesized and their analysis was carried out by high resolution mass spectrometry (HRMS, LC/IT-TOF), 1H-NMR and 13C-NMR methods. Then, with the activity studies, the potential of these compounds to be drugs and their effects on the mechanisms that play a role in the anticancer effect were examined.
MATERIALS and METHODS: The cytotoxicity values of the compounds on A549 cell lines were determined by MTT method and their anticancer activities were evaluated. Early/late apoptotic and necrotic cell ratio was evaluated by Annexin V-FITC method, mitochondrial membrane integrity was evaluated by flow cytometry and caspase-3 activation levels were measured.
RESULTS: It was observed that the activity of compound 3c containing 4,5-dihydrothiazole moiety was higher than the positive control cisplatin. The cytotoxic effect value of compound 3c was 30.67±2.31; the cytotoxic effect value of cisplatin was determined as 14.0±1.41. When the apoptotic effect experiment results were evaluated, it was seen that the percentage of compound 3c (44.9%) for driving cells to apoptosis was higher than the percentage of cisplatin to drive cells to apoptosis (29.8%).
CONCLUSIONS: The findings obtained from our study show that the 3c compound has anti-inflammatory and anticancer effect potential and will contribute to drug development studies based on thiazole derivative compounds.
Acknowledgements: This work was supported by Anadolu University Scientific Research Projects Commission (Project No. 1807S251).
Keywords: Methylthiazole Derivatives, Anti-Inflammatory, Anticancer, A549 Cell Line.

PP-039
DEVELOPMENT OF APTAMER BASED BIOSENSOR FOR PROSTATE CANCER CELL DETECTION

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OBJECTIVES: Determination and analysis of circulating tumor cells (CTC) also shed light on determining the origin of the cancer and the treatment to be applied. For this reason, determination of CTCs, especially with the presence of metastasis, is very important in monitoring cancer diagnosis, diagnosis and treatment. The determination of CTCs is difficult, especially since their rate of presence in blood is very low. Therefore, we have developed an aptamer-based system for CTC analysis that can provide more sensitive and faster analysis. To validate the concept, LnCaP cells containing prostate specific membrane antigen (PSMA) were targeted from prostate cancer cell lines and a biosensor was developed using aptamers selective to PSMA.
MATERIALS and METHODS: In this study, the gold nanoparticle electrodes were modified with SH-tipped PSMA aptamer and direct cell determination was determined impedimetrically (EIS) with PSMA-binding aptamers on LnCaP cells, and the results were confirmed by scanning electron microscopy.
RESULTS: With the developed biosensor, with linear measurement between 1 and 40 cells / mL, the LOD value was found to be 620 cells per liter. LnCaP determination was performed impedimetrically in 130 seconds. Cells with

aptamers bound to gold nanoparticles were verified by SEM and AFM. Analysis was performed within real samples by adding standard to serum samples.
CONCLUSIONS: As a result, a low cost, fast and selective CTC biosensor has been developed.
Keywords: Circulating Tumor Cells, Lncap, Aptamer, Biosensor, Impedance

PP-040
INVESTIGATION OF SERUM LEVELS OF TRYPTOPHAN AND ITS METABOLITES IN PATIENTS WITH GASTRIC CANCER

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OBJECTIVES: The aim of this study was to analyze the serum levels of tryptophan and its metabolites, kynurenine and kynurenic acid, in patients diagnosed with gastric cancer and in healthy individuals, and to evaluate the serum levels of these metabolites between the two groups together with the clinical and pathological findings of the patients.
MATERIALS and METHODS: 32 gastric cancer patients and 61 healthy controls were included in the study. For serum level analysis, blood samples taken from patient and control groups, were analyzed by liquid chromatographic method (HPLC-FD). Statistical significance analysis was performed by applying t test with the obtained data with SPSS21 statistical program.
RESULTS: The samples included in the study, the levels of tryptophan and kynurenine were found to be lower in the patient group compared to the control group, while the level of kynurenic acid was higher. When serum levels in the patient group were considered in terms of tumor stage and node metastasis, kynurenine levels and kynurenic acid levels were found to be higher in patients with advanced tumor stage. In patients with node metastasis, tryptophan levels were found to be lower than the control group and higher than the kynurenic acid levels.
CONCLUSIONS: Our research shown that the analysis of serum levels of tryptophan and its metabolites may play an important role in early diagnosis and follow-up of the disease. We believe that it is necessary to study with more samples in order to achieve statistical significance in the differences we have revealed. Acknowledgement: This study is supported by the I.U. BAP (TYO-2020-29734).
Keywords: Kynurenine, Kynurenic Acid, Gastric Cancer, Tryptophan

PP-041
SYSTEMIC IMMUNE-INFLAMMATION INDEX: COULD IT BE A BIOMARKER IN LUNG CANCER?

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OBJECTIVES: Lung cancer remains the leading cause of cancer-related mortality in the World. This retrospective study aimed to investigate the association between Systemic Immune-Inflammation Index (SII) in patients with lung cancer.
MATERIALS and METHODS: A total of 140 patients admitted to the Oncology Outpatient Clinic between 2013 and 2018 and diagnosed with lung cancer and 30 healthy control matched for age and sex were included in the study. C reactive protein (CRP) and Complete Blood Count(CBC) results were investigated from electronic archives. Neutrophil / lymphocyte (NLR) and platelet/lymphocyte (PLR) ratios were calculated. SII was defined as platelet count × neutrophil count/lymphocyte count.
RESULTS: The mean age was 62.61±8.29 in the patient group, and 54.93 ± 10.79 in the control group. CRP, leukocyte, monocyte, neutrophil, and platelet counts were found significantly higher in the LC group compared to the control group ($p < 0.05$). Also, SII, NLR, and PLR were significantly higher in LC patients than in the control group ($p < 0.001$). Among all indices, SII showed the highest diagnostic accuracy (84.12%) with a receiver operating characteristic (ROC) curve at a 95% confidence interval and an optimal cut-off value of 546.96 with an AUC of 0.892 ± 0.025.
CONCLUSIONS: SII is an inexpensive, non-invasive, useful index that can be used as an inflammatory biomarker in LC patients. Researches in larger groups are needed to better define its effects and role in LC patients.
Keywords: Lung Cancer, Small Cell Lung Cancer, Systemic Immune-Inflammation Index(SII), Platelet-Lymphocyte Ratio(PLR), Neutrophil-Lymphocyte Ratio(NLR)

PP-042
COMPARISON OF HOMOCYSTEINE, VITAMIN B12, FOLIC ACID AND COAGULATION PARAMETERS IN PEDIATRIC STROKE PATIENTS

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OBJECTIVES: Stroke in childhood is diagnosed more frequently in recent years and it has a potential for life-long morbidity and mortality. The aim of this study is to investigate homocysteine, vitamin B12, folic acid, activated partial thromboplastin time(aPTT), prothrombin time(PT), INR and fibrinogen, which play an important role in the mechanism of thromboembolism in pediatric stroke patients.
MATERIALS and METHODS: 26 arterial ischemic stroke (AIS) patients (mean age=9.08± 5.34), 16 cerebral venous thrombosis (CVT) patients (age=11.06±5.45) who applied to Pediatric Neurology outpatient clinic between March 1 and September 1,2020 and 34 healthy controls (mean age=10.15±4.08) were included. Homocysteine levels were measured by LC-20 (Shimadzu Corporation, Tokyo, Japan) with HPLC system, Vitamin B12, Folic Acid levels were measured by Cobas c600 (Roche Diagnostic, USA) with electrochemiluminescent method and aPTT (sn), PT (sn), INR, fibrinogen were measured by the Stago STA RMax with viscosity-based mechanical method. Statistical analysis of the outcomes was performed in SPSS 18.0 program. The distribution of the groups was analyzed by Shapiro-Wilk test. To test for statistical significance, one-way ANOVA and t-test were used for normally distributed variables whereas Krusskal Wallis and Mann-Whitney U tests were used for non-parametric variables. Chi-square test was used for categorical variables.
RESULTS: When compared with AIS, SVT and control group, only homocysteine test was found to be significantly different among groups ($p<0.001$). A significant difference ($p<0.005$) was found among all groups regarding whether they have homocysteine levels above or below the clinical decision limit of (<15 umol/L) with chi-square test.
CONCLUSIONS: This study shows that hyperhomocysteinemia is a risk factor for ischemic stroke in children.
Keywords: Cerebrovascular Stroke, Child, Homocysteine

PP-043
THE EFFECT OF SILIBIN ON HYPERLIPIDEMIA IN RATS FED HIGH CHOLESTEROL DIET

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OBJECTIVES: The most common cause of myocardial infarction is atherosclerosis. Atherosclerosis is also a known fact that hyperlipidemia develops. Silybin is a type of flavonoid and has antioxidant properties. The effect of silybin on hyperlipidemia and the release of silybin by oxidative stress in the rats that started to work were aimed.
MATERIALS and METHODS: The rats were divided into four groups as control, high cholesterol, high cholesterol+ 50 mg siliybin and high cholesterol+ 100 mg siliybin. High cholesterol diet (HCD) was prepared with egg yolk. Two groups were then injected with 50 and 100 mg of silibin for 10 days. Blood lipids were measured spectrophotometrically. Colorimetric TAS and TOS kits were used to assay of oxidative stress levels. Oxidized LDL levels were measured using ELISA kits (Rat OxLDL / Oxidized LDL Kit).
RESULTS: According to Kruskal Wallis analysis for the four independent groups, the results are the same as in the table. LDL, cholesterol, HDL,TG, VLDL, OxLDL,TAS parameters, a significant difference was found between the groups ($p < 0.05$).
CONCLUSIONS: In our study, cholesterol, LDL and TG, VLDL levels were significantly increased between the groups fed with HCD and the control group, while a significant decrease was observed in HDL level compared to the control group. There was also a significant difference in OxLDL and TAS levels. Since the formation of OxLDL is required in the development of atherogenesis. Silibin lowers TG, Cholesterol, VLDL and LDL levels, increases HDL levels and decreases hepatic lipid accumulation at a dose of 100 mg / kg in hypercholesterolemic rats.
Keywords: Silibin, Hyperlipidemia, Antioxidant, Atherosclerosis

PP-044
EVALUATION OF LIPID PROFILE AND T3 / T4 RATIO ACCORDING TO TSH GROUPS IN HYPOTHYROID PATIENTS RECEIVING HORMONE REPLACEMENT THERAPY

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OBJECTIVES: Serious disorders occur in the composition and transport of lipoproteins in cases where thyroid hormones are secreted less or more than normal levels. In this study, our aim is to examine the relationship between different TSH levels and lipid profile in patients with hypothyroidism using LT4.
MATERIALS and METHODS: The study included 2934 patients diagnosed with hypothyroidism in 2019 and currently being treated with LT4. Results of simultaneous thyroid function tests (TSH,fT3,fT4) and lipid tests (total cholesterol(TC),triglyceride(TG),HDL-C and LDL-C) were obtained from the LIS. Patients were divided into 5 grups based on TSH values: <0.1 mIU/L (group 1), 0.1-0.35 mIU/L (group 2), 0.36-4.5 mIU/L (group 3), 4.6-10 mIU/L (group 4) and >10 mIU/L (group 5).The relationship between lipid profile and fT3/fT4 ratio was examined in these five groups.
RESULTS: While there was a significant relationship between TSH groups and TC,LDL-C,TG and fT3/fT4 ratio, no significant relationship was found with HDL-C. For each parameter,when TSH groups were compared within themselves, a significant difference was found for TG only between 2nd-3rd and 2nd-5th groups.There was no significant difference between any pair of groups for cholesterol and LDL-C. For the fT3/fT4 ratio, a significant difference was found between all groups except for 1st-2nd. No significant correlation was found between TSH level and any parameter other than fT3/fT4 ratio.
CONCLUSIONS: The reason that there was no significant correlation between TSH levels and any parameters other than the fT3/fT4 ratio may be due to the fact that patients were receiving LT4 treatment. We concluded that the low correlation between TSH levels and fT3/fT4 ratio and the lack of correlation with lipid parameters were due to the improvement in the levels of these parameters due to LT4 intake.
Keywords: TSH, Hypothyroidism, Lipoprotein, Triglyceride, Cholesterol

PP-045
ANALYSIS OF PIK3CA GENE POLYMORPHISM AND PI3K SERUM LEVEL IN BREAST CANCER

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OBJECTIVES: Breast cancer is a common type of cancer among women and that develops as a result of various genetic, environmental or hormonal factors. The PI3K (Phosphatidylinositol 3-kinase) signaling pathway has been studied mostly in human malignancies play important roles tumorigenesis and cancer development by triggering cell proliferation and angiogenesis. In our study; we aimed to evaluate the possible relationships between *PIK3CA* C>A gene variation (rs6443624) and PI3K serum levels in breast cancer risk with clinical, prognostic parameters.
MATERIALS and METHODS: 61 patients with breast cancer, 101 healthy individuals without benign or malignant tumors were included in the current study. All cases were treated at the Istanbul Training and Research Hospital Surgery Clinic. *PIK3CA* gene variation was detected with the Polymerase Chain Reaction-Restriction Fragment Length Polymorphism (PCR-RFLP) technique and ELISA method was used to determine serum PI3K levels. All statistical analyses were applied with SPSS 15 statistical package.
RESULTS: In conclusion of our study, no significant difference was observed between breast cancer patients and healthy individuals in terms of *PIK3CA* C>A genotype and allele distributions *(p>0.005)*. We also did not observe any significant correlation between the *PIK3CA* C>A genotypes distribution and the clinical and prognostic parameters of the patients. Serum PI3K levels were significantly higher in patients compared with those in the control group *(p=0.033)*.
CONCLUSIONS: In present study, it was concluded that serum levels of PI3K may play a role in breast cancer risk and *PIK3CA* C>A gene polymorphism should be examined among larger sample groups.
Keywords: Breast Cancer, PIK3CA, Polymorphism

PP-046
APOE GENOTYPING IN TURKISH PATIENTS DIAGNOSED WITH LATE-ONSET ALZHEIMER'S DISEASE

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OBJECTIVES: Alzheimer's disease (AD) is the most common form of dementia in developed populations. It is a neurodegenerative disease characterized by the combination of genetic, metabolic, cellular, epigenetic factors, and synapse losses as well as neuronal losses, and intercellular amyloid plaque and intracellular neurofibrillary structures. APOE gene polymorphisms are used in the diagnosis and treatment of late diagnosed AD disease. In our study, it was aimed to determine the genotype and allele distributions by APOE genotyping in individuals diagnosed with Alzheimer's Disease and / or susceptibility.
MATERIALS and METHODS: A total of 37 individuals (18 females, 19 males) between the ages of 42-83 participated in our study. DNA isolations were performed from peripheral blood, genotyping procedures were completed using real-time PCR (QuantStudio3, Thermo Fisher Scientific) and TaqMan Genotyping assays.
RESULTS: In our study, it was determined that 62% of the individuals were E3/E3, 22% E3/E4,14% E4/E4 and 2% E2/E4 genotype. When we look at allelic distributions, E2 allele was 1%,E3 allele 73% and E4 allele 26%. E3 was found to be 67% in women and 79% in men. E4 was found as 33% in women and 18% in men. E2 was determined to be 3% only in men.
CONCLUSIONS: APOE genotyping is important as a biomarker in early diagnosis of Alzheimer's disease, directing treatment and determining susceptibility. In our study, the disease-related E4/E4 genotype and E4 allele are similar to the percentage rates in other populations. However, studies with higher data are needed to better understand the effect of the related alleles.
Keywords: Alzheimer's Disease, ApoE Genotyping, Dementia

PP-047
DETERMINATION OF BETA THALASSEMIA MUTATAIONS IN PREMARITAL COUPLES AT KOZAN

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OBJECTIVES: Beta thalassaemia trait in our country is given as 2% but at some region this ratio increase as to 10%. IVSI-110 is the most common beta thalassaemia mutation in Turkey, and IVSI-6, Fsc 8, IVSI-1, IVSII-745, IVSII-1, Cd39,-30 and Fsc5 mutations follow this. In this study, we aimed to determine genetic heterogeneity of beta thalassemia mutations in Kozan.
MATERIALS and METHODS: 5 ml blood samples was taken from 14 beta thalassemia trait in a year. Haematological datas were obtained by cell counter. HbA2 was determined by HPLC. Ten different mutations were screened by ARMS method.These common beta thalassemia mutations are -30 (T>A), Cd 8 (-AA), Cd 8/ 9 (+G), IVS 1-1 (G>A), IVS 1-5 (G>C), IVS 1-6 (T>C), IVS 1-110 (G>A), Cd 39 (C>T), IVS 2-1 (G>A), IVS 2-745 (C>G) in Cukurova region.
RESULTS: Five of the couples were detected IVS1-110 heterozygous. Two women and 2 men were charecterized by DNA sequencing. Ten chromosomes were detected as IVS 1-110 in 28.
CONCLUSIONS: IVS 1-110 (G>A) was seen the most common mutation in Kozan. Five different beta thalassemia mutations were found in this study.
This project was supported by Cukurova University Research Project Unit (Proje ID: FLY-2019-12225).
Keywords: Beta Thalassemia, IVS1-110 (G>A)

PP-048
OXIDATIVE AND NITROSATIVE STRESS IN PATIENTS WITH MENINGITIS

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OBJECTIVES: Meningitis is an acute inflammation of the protective membranes covering the brain and spinal cord, known as the meninges. Bacterial meningitis (BM) is a life-threatening disease with high mortality rates and bad neurologic sequelae especially in cases where diagnosis and antibiotic administration are delayed. In this study, oxidative and nitrosative stress were evaluated in CSF and blood samples were taken from patients with meningitis. Our goal was to identify

a fast and a reliable biomarker using these parameters in order to the diagnose of BM.
MATERIALS and METHODS: In this study, 37 BM, 30 tuberculous meningitis (TM) and 30 viral meningitis (VM) cases between the ages of 18-65 were included. Blood and CSF routine parameters of the cases were evaluated. Serum/CSF total oxidant status (TOS) and total antioxidant status (TAS) were measured by the Erel method. Nitrotyrosin (NT) was measured by using enzyme-linked immunosorbent technique (ELISA) in both serum and CSF.
RESULTS: Serum NT, CSF TOS and TAS levels were not significantly different in three groups (p>0,05). Cerebrospinal fluid NT levels were significantly higher in BM than TM group (p<0,05). VM patients had higher serum TOS and TAS concentrations than TM group (p<0,05).
CONCLUSIONS: As a result, we can say that the oxidative and nitrosative stress markers studied are not a rapid and reliable biomarker in BM's diagnosis.
Keywords: Meningitis, Oxidative Stress, Nitrosative Stress

PP-049
EFFECT OF OXIDATIVE STRESS INJURY INDUCED BY LIVER ISCHEMIA-REPERFUSION ON KIDNEY AND HEART: PROTECTIVE ROLE OF ISGIN (RHEUM RIBES L.)

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OBJECTIVES: The formation of reactive oxygen species (ROS) is frequently observed in distant tissue damage. In this study, it was aimed to show the effects of Isgin (Rheum ribes L.) application on distant tissue kidney and heart caused by liver ischemia-reperfusion (I / R).
MATERIALS and METHODS: 24 Sprague Dawley albino rats divided into 3 groups. Sham, I/R and Treatment group (50 mg/kg isgin). Only surgical stress procedure was applied to the sham group. In the I / R group, 30 minutes of ischemia reperfusion was applied with the aid of a clamp. Heart and kidney tissues were removed for detection of distant tissue damage. Catalase (CAT), superoxide dismutase (SOD) activity and malondialdehyde (MDA) levels were spectrophotometrically measured.
RESULTS: MDA levels were significantly higher in kidney and heart tissue of I/R group compared to sham group (p <0.05). MDA levels in the treatment group showed a significant decrease compared to the I/R group (p <0.05). The amount of reduced CAT and SOD in kidney and heart tissues was significantly lower in the I/R group compared to the sham group (p <0.05). CAT and SOD activities increased significantly in treatment group compared to I/R group (p <0.05).
CONCLUSIONS: Administration of Isgin after liver I / R induction may protect against I / R damage by regulating kidney-heart function. Due to the antioxidant properties of Isgin, it can be used as a protective agent that can reduce the MDA level on the kidney and heart against liver I/R and contribute to the regulation of kidney and heart functions.
Keywords: Ischemia-Reperfusion, Liver, Oxidative Stress, Rheum ribes L.

PP-050
PROSPECTIVE INVESTIGATION OF THE RELATIONSHIP BETWEEN LIPID PEROXIDATION LEVELS AND CLINICAL FINDINGS IN PATIENTS WITH RHEUMATOID ARTHRITIS

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OBJECTIVES: Rheumatoid arthritis (RA) is an autoimmune, chronic, and inflammatory disease. The treatment with disease-modifying anti-rheumatic drugs (DMARDs) is applied following the diagnosis. Reactive oxygen species, which occurs endogenous or exogenously, cause oxidative damage in macromolecules such as lipids, proteins, or DNA. These damaged products are associated with many diseases. In this study our aim is to examine how lipid damage vary in RA patients compared to healthy individuals, as well as to investigate prospectively the relationship between lipid peroxidation levels and patients' clinical findings such as DAS28 (Disease Activity Score), HAQ (Health Assessment Questionnaire), and inflammation parameters.
MATERIALS and METHODS: First urine samples in the morning of the 54 RA patients were collected at the time of diagnosis and in the sixth month of treatment as they applied to DEU Hospital Rheumatology Clinic. 29 healthy volunteers were included. The measurement of 8-Isoprostane level in the urine samples was carried out by ELISA (Cayman Chemical, USA).
RESULTS: 8-isoprostane levels of the patients were significantly higher than controls (p<0.001). A significant increment of 8-isoprostane levels was observed in the sixth month of treatment, compared to the pre-treatment (p=0.016). The decrease in DAS28 scores in the sixth month of treatment (p<0.001); revealed the effectiveness of treatment. There is a strong positive correlation between DAS28 and HAQ scores, which were evaluated at the time of diagnosis (r=0,714; p<0,001). No significant correlation was found between clinical findings and 8-isoprostane levels.
CONCLUSIONS: Our results showed that 8-isoprostane levels increased despite regression of the disease after treatment.
Keywords: Rheumatoid Arthritis, Oxidative Stress, Lipid peroxidation, Elisa

PP-051
EVALUATION OF LABORATORY TESTS IN PCR (+) HOSPITALIZED COVID-19 CASES ACCORDING TO AGE AND GENDER

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OBJECTIVES: Covid-19 pandemic, which threatens life globally, continues to maintain its seriousness. Defining laboratory tests in the diagnosis and follow-up of Covid-19 patients; It has gained importance in diagnosing Covid-19 and distinguishing severe or non-severe cases. In addition, it is very important in terms of identifying those with low or high mortality risk of the disease. OBJECTIVE: To determine whether the laboratory data used in the follow-up and severity of Covid-19 disease differ according to age and gender.
MATERIALS and METHODS: Laboratory data of PCR positive patients who received inpatient treatment at Tire State Hospital between March-August 2020 were evaluated using the retrospective method as a research method. Although PCR and CT are important in the diagnosis of the disease, laboratory data have gained importance in monitoring the disease and determining its severity. WBC, lymphocyte, thrombocyte, urea, creatinine, CRP, ferritin, D-dimer, troponin parameters were studied in the patients. These parameters were compared according to gender and age group.
RESULTS: Neutrophil lymphocyte ratio was found to be high in male and advanced age. Platelet 160 and below values are meaningful at most over 45 years of age. However, there is no difference between sex. Urea creatinine ratios are significant over the age of 45, but there is no difference between men and women. Ferritin values are also significantly higher in male patients over the age of 45. CRP values are also above the age of 45 and significantly exceeded the poor prognosis limits in men. Troponin is significantly higher over the age of 45. D-dimer was not significant.
CONCLUSIONS: Even if there is no chronic disease, laboratory data in patients with advanced age and male gender diagnosed with Covid 19 should be considered as indicators of poor prognosis.
Keywords: Covid 19, Laboratory Parameters, Pandemic

PP-052
RED COLORED URINE WITHOUT ERYTHROCYTHE, BROWN COLORED SERUM AND PLASMA SAMPLES: A LEPTOSPIROSIS CASE

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OBJECTIVES: This case report describes a 40-years-old patient diagnosed as leptospirosis; with dark brown plasma and serum samples, red color urine sample but no erythrocytes.
MATERIALS and METHODS: The patient admitted to infection disease clinic with a complaining of nausea, vomiting, fever.There was splenectomy in his medical history. Biochemical parameters, complete blood count (CBC) and urine analysis were performed in our laboratory.
RESULTS: Increased levels of hemolysis index (232), creatinine (1.70 mg/dL), procalcitonin (1.75 ng/ml), total bilirubin (19.01 mg/dL), indirect bilirubin (7.96 mg/dL), direct bilirubin (11.05 mg/dL), C-reactive protein (6.67 mg/dL), BUN (25.1 mg/dL), AST (330 U/L), LDH (700 U/L), CK (495 U/L) were obtained. CBC results showed low RBC (3.33* 106/µL), hemoglobin (10.8 g/dL) and platelet concentrations (85*103/µL). There was undescribed substances in red urine without any erythrocytes in microscopic examination and +++ proteinuria in chemical analysis. The microscopic agglutination test result was reported as 1/50 titration ratio. The direct and indirect Coombs tests were negative, haptoglobin level was normal (43 mg/dL). The patient was diagnosed as leptospirosis by clinician and started to treatment. The undescribed substances were decreased, and also +++ urobilinogen, + bilirubin, and ++ protein observed in chemical analysis of urine at 3th day of hospitalization.
CONCLUSIONS: Leptospirosis is a widespread zoonosis caused by spirochetes of the genus Leptospira. We must keep in mind to leptospirosis in patients who had abnormal renal and liver function tests, and also brown color serum and plasma samples and red color urine samples but no erythrocytes in urine analysis.
Keywords: Brown Color Serum, Leptospirosis, Red Color Urine.

PP-053
BIOCHEMICAL AND HEMATOLOGICAL FINDINGS IN A CHILD CASE WITH HAEMOLYTIC UREMIC SYNDROME

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OBJECTIVES: Hemolytic-uremic syndrome (HUS) is a disease characterized by progressive renal failure with microangiopathic hemolytic anemia and thrombocytopenia. We investigated biochemical and hematological tests for the diagnosis of HUS.
MATERIALS and METHODS: A two-year-old girl was admitted to the Emergency Department with nausea and vomiting symptoms. Five days earlier, she had diarrhea that lasted for three days. The patient's Biochemistry and complete blood Count tests were performed on the Roche Cobas 6000 biochemistry and Sysmex XN 1000 hematology platforms. Blood smears stained manually with May Grunwald Giemsa and Brilliant Cresyl Blue were investigated for cell morphology and reticulocyte count, respectively.
RESULTS: The most striking Biochemical findings were: Urea 163,4 mg/dl (8-40) and Creatinine 2,21 mg/dl (0,24-0,5) indicating kidney failure. Very high levels of LDH 2091 U/L (175-400), moderetly elevated AST 79,7 U/L (10-50), and a high frequency of schistocytes 2,5% (<0,5) and reticulocytes 8.2% (1-1,8) are evidence of in vivo hemolysis. Thrombocytopenia was evident as a low platelet count of 13 k/µL (150-450). The patient also had anemia with Hemoglobin 7,6 g/dl (11-14,5) and leucocytosis 13,5 k/µL (5-12). Three weeks later, the patient recovered with no laboratory finding of HUS.
CONCLUSIONS: Clinical presentation, anamnesis, basic biochemistry, and hematological findings are critical parameters for diagnosing HUS. The most crucial laboratory evidence of renal insufficiency is high levels of Urea and Creatinine. In vivo hemolysis is effectively detected by high levels of LDH and moderately elevated AST, and a high percentage of schistocytes and reticulocytes. Finally, low levels of platelets fulfill the triad criteria for HUS.
Keywords: Hemolysis, HUS, Renal insufficiency, Thrombocytopenia

PP-054
A CASE REPORT: THROMBOTIC THROMBOCYTOPENIC PURPURA TRIGGERED BY INFLUENZA A

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OBJECTIVES: Thrombotic thrombocytopenic purpura (TTP) is a life-threatening thrombotic microangiopathy characterized by thrombocytopenia and microangiopathic hemolytic anemia, in which ADAMTS13 enzyme activity is significantly low. ADAMTS13 is an important metalloprotease regulating VWF. It cleaves Tyr(1605)-Met(1606) bond in VWF-2 domain. Herein, we report a TTP patient associated with Influenza A.
MATERIALS and METHODS: A 39-year-old male patient was admitted to hospital with dark urine color and headache. In laboratory assessment, 14 g/dL hemoglobin, 11000/µL leucocyte, 9000/µL platelet, 350 U/L LDH and 3 mg/dL indirect bilirubin were detected. Schistocytes(%5) were detected in peripheral blood smear. Blood samples were collected for ADAMTS13 activity and its inhibitor, and daily plasma exchange was initiated. ADAMTS13 activity was measured by using enzyme immunoassay. For calculating inhibitory assay, the patient's plasma was mixed with pooled normal plasma (1:1), and incubated in 37° C for an hour then ADAMTS13 activity was measured.
RESULTS:Afterthreeplasmaexchangesessions,thrombocyteandLDHvalueswere normal. The diagnosis of acquired TTP was confirmed by detecting ADAMTS13 activity at 0.3%, ADAMTS13 antigen 0.07 U/mL, and ADAMTS13 inhibitor >90U/mL. Influenza A was detected in the swab from the upper respiratory tract.
CONCLUSIONS: Few cases of TTP associated with Influenza A have been reported before. Patients with influenza A symptoms and thrombocytopenia, even if they are not anemic, should be evaluated in terms of TTP. Plasma exchange decision should be made before obtaining ADAMTS13 activity test results with a suspicion of TTP.Availability of diagnostic tests will help clinicians to confirm the diagnosis of TTP and plan long-term treatments.
Keywords: ADAMTS13, TTP, Influenza A, Microangiopathic Hemolytic Anemia

PP-055
EVALUATING THE APPLICABILITY OF IRON(III)-SENSING, FLUORESCENT UROLITHIN DERIVATIVES TO LIVING-CELL IMAGING IN NEURODEGENERATIVE DISEASES

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OBJECTIVES: Iron is the most common transition metal in biological systems. Besides being a superior catalyst, it can also lead to the formation of extremely toxic free radicals. It is known that iron is essential for various brain activities ranging from mitochondrial respiration to neurotransmitter biosynthesis. Recent studies have shown that iron overload also plays a causal role in neurodegenerative disorders such as Alzheimer's and Parkinson's diseases. Here, using two different brain cancer cell lines as biological models, we aim at investigating whether two fluorescent urolithin derivatives could assist in monitoring/detecting iron(III) accumulation in living cells.
MATERIALS and METHODS: Urolithins are metabolites normally produced by the intestinal flora. First, natural urolithin (URO-B) and its synthetic analogue (THU-OH), both of which had fluorescent traits, were synthesized by chemical methods. Next, the cytotoxic activities of the two urolithin derivatives on neuroblastoma (SH-SY5Y) and glioblastoma (DBTRG-05MG) cell lines were tested by the MTT cell proliferation assay. Last, the quenching effect of iron(III) on brain cancer cells pretreated with the urolithin derivatives was imaged by fluorescence microscopy.
RESULTS: This study demonstrated that URO-B and THU-OH were not significantly lethal to cells in the low- to mid-micromolar range (≤50 µM). Also, the study determined that urolithin derivatives could easily penetrate the cell and turn off the fluorescent signal by binding to iron(III) in the intracellular environment.
CONCLUSIONS: Synthesized fluorescent urolithin derivatives can selectively and rapidly monitor/detect iron(III) accumulation in living brain cells. These chemosensors may prove useful in the early diagnosis of neurodegenerative diseases and in the prognosis of patients in the future.
Keywords: Neurodegenerative Diseases, Iron Accumulation, Urolithins

PP-056
ESTABLISHMENT OF PEDIATRIC REFERENCE INTERVALS FOR CERULOPLASMIN, A1AT, TRANSFERRIN AND SFTR TESTS USING STORED TEST RESULTS

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OBJECTIVES: Reference intervals can vary due to differences in age, gender, or used laboratory technique. The C28-A3 guideline approves the establishment of reference intervals based on stored test results, especially for circumstances where it is challenging to control preanalytical variables, such as in the pediatric population. Our study aimed to establish reference intervals for the pediatric population for ceruloplasmin, transferrin, soluble transferrin receptor (SFTR), and Alfa-1 antitrypsin tests using stored test results.
MATERIALS and METHODS: Tests were performed on a Siemens Bn-Prospect device in Acibadem Labmed laboratories between 2010-2020. The transferrin and SFTR results of patients with iron deficiency and ceruloplasmin and A1AT results of patients with known liver disease were excluded. Outliers were excluded with Tukey's method. Normality was tested with the Kolmogorov-Smirnow test. Box-Cox transformation was performed for data without normal distribution. Subgroups for age and gender were established according to Lahti criteria. Upper and lower limits of reference intervals with 90% confidence interval were calculated using parametric and robust methods according to the C28-A3 guideline for data with or without a normal distribution, respectively.
RESULTS: Reference intervals show a dynamic variation for different age and gender groups. Reference intervals of A1AT and ceruloplasmin tests were significantly lower in patients under one year of age. Transferrin reference intervals were different for male and female genders under one year of age. The upper limit of SFTR reference interval was lower compared to adults.
CONCLUSIONS: Pediatric reference intervals for given tests are different than adults. Age and gender-based reference intervals should be re-established for these tests.
Keywords: Pediatric Reference Interval, Ceruloplasmin, Alpha 1 Antityripsin, Soluble Transferrin Receptor

PP-057
DEVELOPMENT OF A FAST, RELIABLE, ROBUST TANDEM MASS SPECTROMETRIC METHOD FOR DETERMINATION OF QUETIAPINE LEVELS

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OBJECTIVES: Schizophrenia; is a chronic, recurrent, serious mental disorders. Quetiapine is an atypical antipsychotic used orally in the treatment of schizophrenia and bipolar disorders. Quetiapine has both serotonin 5HT2 and dopamine D2 receptor antagonist effects. The recommended serum concentration of quetiapine is 70-170 ng/ml. In schizophrenia, this range can be adjusted as 50-500 ng/ml. Common adverse events are dry mouth, sedation, drowsiness, dizziness and constipation. Less common and serious side effects are low blood pressure, seizures, hyperglycemia, tardive dyskinesia and neuroleptic malignant syndrome. Studies have reported that factors such as CYP3A4 polymorphism, age, gender and concomitant drugs affect the drug blood level. Therefore, monitoring of quetiapine blood level is important. Our aim in our study was to develop an LC-MS / MS method for the measurement of serum quetiapine levels.
MATERIALS and METHODS: After adding 75 µL of internal standard (donepezil), 600 µL of acetonitrile to 200 µL of sample, it was vortexed for 10 seconds, then centrifuged at 13000 rpm for 10 minutes. The supernatants were evaporated with nitrogen gas. The residues were dissolved in 200 µL acetonitrile: water (15: 85;% v: v), then injected into the LC-MS/MS system.
RESULTS: The method was linear for quetiapine in the range 2.5-5000 ng/ml. % CV values for intra-day and between day precision studies were 3.8% and 5.6%, respectively. Total run time was 5 minutes.
CONCLUSIONS: A robust, accurate and reliable measurement method has been developed for quetiapine levels.
Keywords: Adverse Effects, Quetiapine, LC-MS / MS, Therapeutic Range

PP-058
FAST DETECTION OF ENALAPRIL BY TANDEM MASS SPECTROMETRY

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OBJECTIVES: Hypertension and cardiovascular diseases are of the major causes of morbidity in the world. Antihypertensive drugs are a class of drugs that are used for treating hypertension (high blood pressure) and cardiovascular disease. Enalapril has been shown to be effective in the treatment of hypertension and congestive heart failure without causing significant side effects. Our aim was to detect serum enalapril with a liquid chromatography tandem mass spectrometry method.
MATERIALS and METHODS: After adding 100 µL of internal standard (carbamazepine), 750 µL of acetonitrile to 250 µL of sample, it was vortexed for 30 seconds, then centrifuged at 13000 rpm for 10 minutes. The supernatants were taken into clean glass tubes and evaporated with nitrogen gas. Residues in the tube were dissolved with 200 µL acetonitrile: water (15: 85;% v: v) mixture, 100 µL was taken into insert vials and 25 µL was injected into the LC-MS / MS system. A mixture of acetonitrile and water as mobile phase was applied by gradient elution. Phenomenex C18 column was used as column.
RESULTS: The method is linear in the range 1-1000 ng / ml for enalapril. The analysis time is 5 minutes. % CV values for intraday and between day precision studies are 4.2% and 6.8%, respectively.
CONCLUSIONS: The new mass spectrometric method for serum enalapril quantitation might be applicable for routine drug monitoring
Keywords: Drug Monitoring; Enalapril; Tandem Mass.

PP-059
ACCURATE QUANTITATION OF FAVIPIRAVIR: A POTENTIAL OPTION FOR COVID-19 TREATMENT

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OBJECTIVES: Favipiravir is an RNA polymerase inhibitor that has antiviral activity against various RNA viruses. It was first approved in Japan for the treatment of human influenza virus. In addition, favipiravir has been shown to be effective against various viruses such as Ebola, arenavirus, and bunyavirus, and it is thought to be effective against SARS-CoV-2. In our country, favipiravir is administered at a loading dose of 2x1600 mg / day on the first day and 2x600 mg / day for the next 4 days in the treatment of COVID-19. Hyperuricemia and increased transaminase levels are the frequently reported adverse effects. Few measurement methods have been reported for the measurement of favipiravir level, and there is a need for development of new measurement methods. Our aim in this study is to establish a measurement method in LC-MS/MS device for favipiravir.
MATERIALS and METHODS: After adding 100 µL of internal standard (atorvastatin), 600 µL of methanol to 250 µL of sample, it was vortexed for 30 seconds, then centrifuged at 12000 rpm for 5 minutes. 100 µL of the supernatants were injected.
RESULTS: The method was linear in the range 10-10000 ng / ml. Total run time was 5 minutes. CV% values for intraday and between day precision studies were 3.3% and 5.8%, respectively.
CONCLUSIONS: We have developed a fast and economical method for measuring favipiravir levels with high accuracy and reproducibility. The method can be used for determination of drug levels in COVID-19 patients by providing biosecurity measures.
Keywords: COVID-19, Drug Level Monitoring, Favipiravir, LC-MS / MS

PP-060
DEVELOPMENT OF A FAST, RELIABLE AND ACCURATE TANDEM MASS SPECTROMETRIC METHOD FOR DETERMINATION OF BISOPROLOL LEVELS

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OBJECTIVES: Bisoprolol is one of the most widely used beta blockers for heart diseases, especially hypertension, angina pectoris, and congestive heart failure. Bisoprolol is a cardioselective beta-1 adrenergic receptor antagonist. Bisoprolol binds competitively and selectively to the beta-1 adrenergic receptors in the heart and blocks them, resulting in a reduction in cardiac contractility and rate. Common and mild side effects associated with bisoprolol use are nausea, vomiting, abdominal pain, depression, itching, and rash. Rare but more serious side effects are rash, fever, hypersensitivity with eosinophilia, liver enzyme elevations, arrhythmia, bradycardia, feeling of weakness and respiratory problems. Serum bisoprolol concentration should be in the range of 4–77 ng / ml for an effective treatment. Measuring and monitoring the blood level of bisoprolol is necessary and important when side effects are considered. Our aim in our study was to develop an LC-MS / MS method for the measurement of serum bisoprolol levels.
MATERIALS and METHODS: After adding 100 µL of internal standard, 600 µL of acetonitrile to 200 µL of sample, it was vortexed for 10 seconds, then centrifuged at 13000 rpm for 10 minutes. 30 µL of the supernatant was taken and injected into the LC-MS / MS system.
RESULTS: The method was linear for quetiapine in the range 2.5-1000 ng/ml. % CV values for intra-day and between day precision studies were 3.9% and 6.8%, respectively. Total run time was 5 minutes.
CONCLUSIONS: A practical, economical and reliable measurement method has been developed to measure bisoprolol levels.
Keywords: Bisoprolol, LC-MS / MS, Therapeutic Range, Adverse Effects

PP-061
ENZYMATIC ETHANOL TEST KIT VERIFICATION FOR MEASURING SERUM ALCOHOL CONCENTRATION

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OBJECTIVES: We aimed to verify the performance characteristics of the enzymatic ethanol test kit used in alcohol analysis in our laboratory and to compare the analysis method with the reference method. We hope to contribute positively to solving problems caused by alcohol use and analysis by producing more reliable results.
MATERIALS and METHODS: In this study, "Thermo Scientific" brand analysis kit adapted to Beckman AU5800 autoanalyzer was used for enzymatic ethanol analysis. As verification parameters; accuracy, repeatability, linearity, LoD, LoQ, analytical measurement range (reportable range) values were calculated and compared with manufacturer's data. Additionally, the results we obtained with the enzymatic method were compared with the "Headspace Gas Chromatography Analysis Method", which is accepted as a reference method.
RESULTS: Except for the analytical measuring range values (11-562 mg / dL) obtained as a result of the study, all other verification parameters were found to be consistent with the manufacturer's data. According to the Bland-Altman graph evaluation; the difference between the reference and enzymatic methods was interpreted as meaningless, as the mean percentage difference (4.9%) was smaller than the total allowable error percentage (6.25%). According to the Passing-

Bablok linear regression analysis, it was found that the agreement between the methods was very good (y = 0,9662x + 2,0848; r2 = 0.999). Quality control level 1 and 2 samples were studied 4 times a day for 5 days for reproducibility. At the end of the calculations: sr (0.643 mg / dL) <σr (1.35 mg / dL) and sr (0.643 mg / dL) <Vv (1.828 mg / dL). sr (1.059 mg / dL) <σr (1.60 mg / dL) and sr (1.059 mg / dL) <Vv (2.166 mg / dL). Since the calculated sr is smaller than both the manufacturer's standard deviation (σr) and the verification value (Vv); The intraday precision value reported by the manufacturer is verified. CONCLUSIONS:Commercialenzymaticethanolassayperformancecharacteristics have been verified to be consistent with manufacturer's data. In addition, it was found that the tested method complied very well with the reference method.
Keywords: Ethanol, HeadSpace Gas Chromatography, Verification

PP-062
MASS SPECTROMETRIC APPLICATION OF SERUM SERTRALINE

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OBJECTIVES: Depression is one of the most frequent of all major psychiatric illnesses. It is a chronic or recurrent mood disorder that affects economic and social functions of people worldover. Antidepressant medication has been used to treat all forms of major depressive disorders. Sertraline, a potent and latest generation antidepressant drug, selectively inhibits serotonin uptake into presynaptic nerve fibers. Several analytical methods have been developed for the determination of sertraline individually or in combination with other drugs including high-performance liquid chromatography (HPLC). Our aim was to measure serum sertraline levels via liquid chromatography tandem mass spectrometry in this study.
MATERIALS and METHODS: After adding 100 µL of internal standard (valaciclovir), 700 µL of methanol to 250 µL of sample, it was vortexed for 30 seconds, then centrifuged at 12000 rpm for 5 minutes. 20 µL of the supernatant was taken and injected into the LC-MS / MS system.
RESULTS: The method was linear in the range 1.95-2000 ng/ml. Total run time was 5 minutes. CV% values for intraday and between day precision studies were 4.3% and 7.8%, respectively. Bias values for accuracy and matrix effect was calculated 5.1 and 11.3%, respectively.
CONCLUSIONS: A sensitive and rapid high-performance liquid chromatography tandem mass spectrometry (HPLC–MS-MS) method was developed to determine sertraline in human serum. By this method levels may be quantified in terms of therapeutic drug monitoring.
Keywords: Sertraline, Drug, Depression, Tandem Mass

PP-063
SUBSTANCE SCREENING OUTSIDE THE REQUEST PANEL IN CONFIRMATION URINE SAMPLES

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OBJECTIVES: 592 of the 727 samples sent to Hacettepe University Hospitals Forensic Toxicology Laboratory between 01/01/2016 and 31/12/2019 in order to confirm positive substances by AMATEM (Alcohol and Substance Addiction Treatment and Training Center) with immunoassay method were detected as positive. It is known that additional substances and drugs are also abused in people who abuse any substance, which are not included in the routine immunoassay screening panel. In addition to routine screening and subsequent confirmation, urine samples were subjected to a broad screening by GC-MS (gas chromatography-mass spectrometry) in order to investigate the presence of other abused substances.
MATERIALS and METHODS: 98 of the urine samples that came to our laboratory in 2018 with a confirmation request and were stored at -20°C after analysis were randomly selected and re-analyzed using the GC-MS method. Liquid-liquid and SPE extraction was applied to the samples.
RESULTS: Between 01/01/2018 and 31/12/2018, 301 samples were sent to our laboratory for confirmation, 237 of which were found positive. Additional substances such as Pregabalin, Gabapentin, Codeine, Naproxen, Pseudoephedrine, Ephedrine, Ibuprofen, Caffeine, Tributylamine, Theobromine, Cotinine, and JWH-073 were detected in the re-analyzed samples.
CONCLUSIONS: The substances detected in the immunoassay screening method used in AMATEMs are known by those who benefit from the probation facility and these people especially avoid these substances. As shown in our study, people under probation frequently use alternative substances. For this reason, questioning and including such substances in screening beside classical drugs will provide important information in the follow-up of drug addicts.
Keywords: Confirmation, GC-MS, Multiple Substance Abuse, Substance Screening

PP-064
METHANOL EXPOSURE VIA FOOD

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OBJECTIVES: Methanol has toxic effects in the body by metabolizing to formic acid and formaldehyde. Beside acute toxicity chronic methanol exposure may cause renal degenerative changes, non-alcoholic fatty degeneration in the liver, and impairment in biochemistry and hematology parameters. In addition, its effect on the pathogenesis of multiple sclerosis and Alzheimer's disease is also discussed. In this study, the determination of methanol amounts in frequently consumed beverages and foods and its reflection on blood levels were investigated.
MATERIALS and METHODS: The amount of methanol in fruits, juices, jams and marmalades, and tomato products was analyzed using a validated method in headspace gas chromatography.
RESULTS: In apple, pear and 72 h kept apple (under RT) methanol was detected 3.86, 13.61 and 1.95 mg/dL respectively. Methanol was found 5.76 and 2.32 mg/dL in apple juices, 5.17 and 4.96 mg/dL in peach juices, 3.43 and 3.91 mg/dL in apricot juices, 1.79 mg/dL in cherry juice, 1.38 mg/dL in apricot jam, 5.11 mg/dL in cherry jam, 7.72 mg/dL in aged orange jam and 4.4 mg/dL in diabetic cherry jam. It was 22.31 and 16.49 mg/dL in the aged hawthorn and cranberry marmalade respectively, and 26.31 mg/dL, 21.74 mg/dL and 14.1 mg/dL in canned tomatoes, glass and tin tomato paste, respectively. Calculated blood methanol (after consumption of these foods in appropriate amounts) ranges between 0.27 - 18.9 mg/dL.
CONCLUSIONS: Frequent consumption of foods with high methanol content may cause particularly sensitive individuals (e.g. children, elderly, pregnant, chronic patients) to be exposed to chronic toxic effects.
Keywords: Metanol, Food, HS-GC-FID

PP-065
ROLE OF OXIDATIVE AND NITROSATIVE STRESS IN NEPHROTOXICITY

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OBJECTIVES: Nigella sativa, is native to the Mediterranean area and has been used for thousands of years as a health and beauty aid. Nigella sativa oil (NSO) has been reported to possess activities of antioxidant and stimulatory effect on the immune system. The present study investigated the protective effects of NSO on CCl4-induced nitrosative and oxidative stress in rat.
MATERIALS and METHODS: 32 Wistar rats were divided into four groups. Control group (Group I, n=6), Group NSO (Group II, n=6), Group CCl4 (Group III, n=10), Group CCl4+NSO (Group IV, n=10).
Group I and III, 0.4 mL/kg oliveoil (ip) injection was performed daily for 14 days once a day. Group II and IV NSO for 14 days at 0.4 ml/kg (ip) applied. 1 hour after administration 14th day carbon-tetrachloride1 ml/kg (ip) applied at III and IV groups. 24 hours after the end of the experimental period blood samples were taken from the hearts and sacrificed.
Serum and kidney samples were collected.3-Nitrotyrosine(3-NT) levels were measured using HPLC and8-hydroxydeoxyguanosine(8-OHdG) levels were measured ELISA.
RESULTS: The data was assessed by Kruskal-Wallis analysis of variance.Urea and creatinine levels than the control group a statistically significant increase was observed in Group III.About 3-nt levels, there was significant difference between Group I–III and Group II-III p=0.000.8-OHdG levels, there was no significant difference between groups p>0.05.
CONCLUSIONS: CCl4 application has raised creatinine and urea levels produce kidney damage. Effect of CCl4 together with the NS has been shown to prevent kidney damage creation. But levels 3-NT and 8-OHdG weren't showed significant difference. Acut toxicity couldn't identify protectivity against free radical damages. Thus, we can suggest that long-therm application NSO and CCl4 can show out of antioxidant effect.
Keywords: 3-NT, 8-OHdG, Kidney

PP-066
INCREASING THE ACCURACY AND RELIABILITY OF THE NINHYDRIN METHOD OF CYANIDE DETECTION IN HUMAN PLASMA

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OBJECTIVES: The ninhydrin-cyanide complex can be used to measure cyanide human plasma; however, this method requires nitrogen purging as oxygen disrupts the binding between cyanide and ninhydrin. Our aim was to assess whether using an oxygen scavenger could prevent this effect.
MATERIALS and METHODS: The sample buffer was 2% (w/v) sodium carbonate and 1% sodium sulfite (oxygen scavenger). Ninhydrin and potassium cyanide were dissolved in this buffer (5 mg/ml and 1 mg/lt, respectively). The standards were 10, 20, 40, 60 and 80 µg/lt of cyanide. Plasma samples were spiked to obtain 1 mg/lt (toxic threshold) and 2 mg/lt of cyanide and 20µl were added to eppendorf tubes. Then, volume was topped to 800 µl in all samples and 200µl ninhydrin was added. Measurements were done after 5 minutes at 478 nm against blank. The standards were briefly vortexed and measured again (at 10 mins) to check for disruption of color (oxygen interference).
RESULTS: Comparison of 5 and 10 minute standards showed that sodium sulfite prevented oxygen interference, especially at higher concentrations (0.557 to 0.490 at 40 µg/lt; 0.866 to 0.845 at 60 µg/lt and 1.143 to 1.125 at 80 µg/lt). The plasma samples were calculated as 16.55 and 40.14 µg/lt (for 20 and 40 µg/lt original).
CONCLUSIONS: The addition of sodium sulfite as an oxygen scavenger greatly benefitted the accuracy of measurements at high concentrations. Since the linear measurement concentration is in the range of 10 to 80 µg/lt of cyanide, lower dilution (rather than 1:50) may yield better results.
Keywords: Ninhydrin, Cyanide, Sodium Sulfite

PP-067
DEVELOPMENT OF BIOSENSOR SYSTEM FOR FAECAL CALPROTECTIN DETECTION

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OBJECTIVES: Crohn's disease belongs to the inflammatory bowel disease class. One of the most important Crohn's disease markers for the diagnosis and prognosis of the disease is fecal calprotectin. The ability to measure this biomarker is extremely important for the diagnosis and treatment of the disease. Therefore, in our study, we developed an electrochemical biosensor system for rapid diagnosis of fecal calprotectin.
MATERIALS and METHODS: Graphene oxide electrodes (GPHOXE) were used as biosensors in this study. First, GPHOXE was activated and modified with anti-calprotectin and then the measurement was carried out by calprotectin binding. All these procedures were monitored by cyclic voltammetry (CV) and impedance (EIS).
RESULTS: In this study, using the data obtained by EIS, the calprotectin measurement at the microgram level per gram stool was determined in a linear range of 5 to 2000 µg/g and the LOQ was found to be 4.83 µg/g and LOD as 0.34 µg/g. According to the biosensor results compared with ELISA, the regression coefficient was found 0.9642.
CONCLUSIONS: As a result, a biosensor based on electrochemical impedance spectroscopy has been developed for the determination of calprotectin in stool.
Keywords: Calprotectin, İmpedance, Biosensor, Crohn

PP-068
PARKINSON'S DISEASE: DO SUMO GENE VARIANTS PLAY A ROLE IN ETIOPATHOGENESIS?

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OBJECTIVES: The etiopathogenesis of Parkinson's Disease (PD) is not fully known. However, molecular pathology in PD is thought to be in three main axes. The first of these is the ubiquitin / proteasome system, which is responsible for a significant part of protein degradation activity in the cell. The second major axis is mitochondria, which are central to energy metabolism in the cell. The third major axis is oxidative stress. The aim of this study was to investigate the role of ubiquitin-like SUMO genes in the pathogenesis of PD.
MATERIALS and METHODS: In this study, 54 patients and 74 control subjects who were followed up from Istanbul Medical Faculty Movement Disorders Neurology Outpatient Clinic and diagnosed with PD were included. The diagnoses of the cases were made on the basis of clinical PD criteria established by the UK Parkinson's Disease Association Brain Bank. DNA isolation and serum separation, library preparation, bioinformatics analysis, next generation sequencing method and sanger sequencing methods were used.
RESULTS: As a result of genetic analysis, 49 single nucleotide polymorphisms were determined. As a result of the new generation sequencing, 4 SNPs were found in the SUMO4 gene (rs237025 and rs237024) and two in the SUMO3 gene (rs180313 and rs235293) ($p < 0.05$).
CONCLUSIONS: Present study, it is valuable because it is the first genetic analysis made in the SUMO gene in the Turkish population and the SNPs detected for the first time in the literature are shown.
The present work was supported by the Research Fund of Istanbul University. Project No: 34229
Keywords: Parkinson Disease, SUMO, Sequencing

PP-069
EVALUATION OF TOTAL- AND PHOSPHO-TAU PROTEIN LEVELS IN CHILDREN WITH ATTENTION DEFICIT AND HYPERACTIVITY DISORDER

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OBJECTIVES: Attention deficit and hyperactivity disorder (ADHD) is a neurodevelopmental disorder. Recent studies suggest that biochemical factors play a role in the development of neurodegenerative and psychiatric disorders. Tau, one of the microtubule associated proteins, is known to reflect the rate of neuronal degeneration. We evaluated changes in total Tau (T-Tau) and phospho-Tau (P-Tau) levels in ADHD.
MATERIALS and METHODS: The study included 26 male children with ADHD and 26 healthy male children. T-Tau and P-Tau protein levels in serum samples were determined by commercial ELISA kits.
RESULTS: We observed a statistically significant difference in P-Tau levels in ADHD compared to controls ($p = 0.046$). However, there was no significant difference in T-Tau levels between patient and control groups ($p = 0.092$). In addition, there was a statistically significant negative correlation between P-Tau and T-Tau proteins in the control group ($p = 0.026$, $r = -0.435$). However, this correlation was not observed in the patient group ($p = 0.584$).
CONCLUSIONS: P-Tau, an excessively phosphorylated form of Tau, is known to be able to disrupt preformed microtubules. Due to its insoluble nature, P-Tau exhibits unhealthy behaviors and is responsible for the pathogenesis of many neurodegenerative diseases. Therefore, our results clearly show that neurodegeneration exists in ADHD, although the mechanism is unknown. Serum p-Tau may provide a benefit in differentiating between ADHD and healthy individuals and may serve as a predictive or prognostic protein marker for ADHD patients.
Keywords: Attention Deficit And Hyperactivity Disorder, P-Tau, Tau

PP-070
COMPARISON OF IMMUNOASSAY AND LIQUID CHROMATOGRAPHY- TANDEM MASS SPECTROMETRY METHODS FOR MEASURING SALIVARY CORTISOL

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OBJECTIVES: To develop a method for salivary cortisol measurement by LC-MS /MS and to examine its correlation by comparing it with ELISA method
MATERIALS and METHODS: Method development studies were carried out according to CLSI 62-A, calibration graph, linearity, accuracy, LoD and LoQ, intra-day and inter-day repeatability, recovery, transport, matrix effect parameters with LC-MS/MS (Shimadzu LC-20AD-AB Sciex 4000QTRAP). For testing the robustness of the method and method comparison studies; Salivary cortisol samples were collected at 08:00, 16:00 and 24:00 hours from people who came to whose hypercortisolemia status should be ruled out (Ethics committee: 29.03.2018 and 2018 / 08-34). Cortisol levels in the samples measured by LC-MS / MS and ELISA (Biovendor)

RESULTS: The R² value of the calibration graph (0.01-10 µg / L) was 0.9997, and the R² value of the linearity graph (0.5-200 µg / L) was 0.9999. Accuracy were 98.8 %, 102.2 and 106.7% after analyzing 0.1, 5 and 100 µg/L standards, repeatability within and between days calculated as 13.76, 8.27, 6.75 and 16.46, 2.32, 2.38%. LOD value was 0.01 µg/L and LOQ value was 0.1 µg/L. salivary cortisol samples taken at three different hours from patients with Cushing Syndrome (n = 20), Subclinical Cushing Syndrome (n = 52) and Non-functional adenoma (n = 49), significant positive correlations were found between both methods (r = 0.278 0.467, 0.590 p = 0.037, 0.000, 0.000).
CONCLUSIONS: it observed that the LC-MS / MS method was very sensitive and reliable for salivary cortisol measurement, and the findings were consistent with the results of the ELISA method
Keywords: Salivary Cortisol, LC-MS / MS, ELISA, Cushing Syndrome, Subclinical Cushing Syndrome

PP-071
EVALUATION OF THE SERUM BIOCHEMISTRY PARAMETERS AS A POTENTIAL BIOMARKERS FOR PROGNOSIS OF THE ALS

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OBJECTIVES: ALS is the most common fatal neurological disorder and incidence rate is 2 in 100,000. Clinical diagnosis of ALS is usually difficult and takes time since there are no definitive prognostic biomarkers existing, also drugs used to treat ALS are only early effective at the eraly stages. Therefore we aimed to evaluate prognostic biomarkers in the serum biochemistry in this study.
MATERIALS and METHODS: Male SOD1G93A mutated Sprague Dawley albino rats were followed every week by weighing and controlling their movements indicating disease progression. We divided our animals into 5 groups as 0 (40-45 days old), A (70-75 days old), B (90-95 days old), C (110-115 days old) and D (130-135 days old). Group C refers to early onset and group D refers late onset. We have started to observe disease symptoms in groups C and therefore we have indicated group C as early onset and D as late onset. Serum biochemical were investigated via IDEXX Vettest 8008 for each group.
RESULTS: Our data showed that weights of animals in group C and D significantly decreased upon disease progression compared to the other groups and their control groups respectively. Our data have proven weight loose in both early onset and late onset groups. ALKP, ALT, cholesterol, creatinine and phos levels ($p < 0.001$) significantly increased in the C and D groups. Albumin, TBIL, TP and globulin ($p < 0.05$) significantly increased in the
CONCLUSIONS: Consequently, ALS is hypermetabolic disorder and causes impairments in the protein, lipid and carbohydrate metabolisms. Serum biochemical parameters indicating nutrient metabolism and muscle destruction can be used for the rapid prognosis and evaluation of the pre-clinical stages of ALS.
Keywords: ALS, Serum Biochemistry Parameters, Hemogram, SOD1

PP-072
REMOVAL OF FEEDBACK REGULATION OF 3-DEOXY-D-ARABINO-HEPTULOSONATE-7-PHOSPHATE-SYNTHASE OF C.GLUTAMICUM

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OBJECTIVES: Shikimate pathway, the pathway required for the synthesis of aromatic amino acids for microbial survival is very tightly controlled by feedback inhibition. The overproduction of aromatiXc amino acids requires the removal of this regulation. 3-deoxy-D-arabino-heptulosonate-7-phosphate-synthase (DAHPS) is the first enzyme of this pathway that is under feedback regulation. The three type-1 DAHPS enzymes in E. coli undergo feedback inhibition by phenylalanine, tyrosine, and tryptophan, respectively. In Corynebacterium glutamicum, there are two DAHPS enzymes: type-1 and type-2. Although the inhibition mechanism of the type-1 enzyme in C. glutamicum has been elucidated, it has been reported that this enzyme is not necessary for the cells. On the other hand, although phenylalanine and tyrosine were shown to inhibit the type-2 DAHPS enzyme, its mechanism is not clear. In this work, the data obtained from MD simulations of phenylalanine-regulated E.coli DAHPS will be used to predict residues to remove to remove feedback inhibition of type-2 DAHPS in C.glutamicum, is aimed.
MATERIALS and METHODS: In this study, first, the amino acid sequences of E. coli and C. glutamicum DAHPS were compared with double and multiple sequence alignment tools. Using the information of feedback-regulation-resistant variants of E.coli phenylalanine-regulated DAHPS enzyme, molecular dynamics simulations of these variants and wild-type of the enzyme were performed after 50,000 minimization steps performed under NPT conditions at 1 bar pressure and 310 K temperature bu using the GROMACS program and CHARMM27 using the force-field function for 250 ns With the completion of the simulations, Root Mean Square Deviation (RMSD) and Root Mean Square Fluctuation (RMSF), Principal Component Analysis (PCA), Dynamic Cross Correlation Matrices (DCCM), RMSIP and further analysis will be performed.
RESULTS: It was observed that the feedback inibition of DAHPS enzyme found in E.coli and encoded by AroG was removed by S180F, P150L and D146N mutations. For this reason, MD simulations and analyzes were performed on the structure with inhibitor and PDB code of 1KFL. Analysis results shows that S180F, P150L and D146N variants of DAHPS comes to equilibrium after 70ns and they shows significant difference from WT-DAHPS. The S180F variant of DAHPS enzyme is the most distinctive variant according to the RMSIP analysis. After further analyses, the prediction of the residue for C.glutamicum will be proceeded.
CONCLUSIONS: Suggestions for mutations on the inhibitor binding site to make the C. glutamicum type-2 enzyme insensitive to feedback regulation will be proposed.
Keywords: Corynebacterium glutamicum, Escherichia coli, DAHPS, MD

PP-073
TEST REQUESTS COMPARISON OF HOSPITAL CLINICS AND FAMILY MEDICINE ON UNNECESSARY TEST REQUESTS; FINANCIAL BURDEN OF UNNECESSARY TEST REQUEST FOR TUMOUR MARKERS

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OBJECTIVES: Tumor markers are used in the diagnosis of cancer, determining the prognosis, processing the treatment and monitoring the response. Although these tests are not screening tests, they are used as screening tests and cause both unnecessary burden and incorrect test interpretations. In our study, it was aimed to evaluate the results of patients whose tumor markers were requested from various clinics, and to investigate the financial burden of unnecessary testing.
MATERIALS and METHODS: A total of 1078 patients who have requested the tumor marker panel (CEA, CA-19-9, CA125, and CA15-3) from our hospital's clinics (n=811) and family physicians (n=267) between 01.03.2020 and 01.06.2020 were retrospectively screened. Tumor markers in the patient groups were evaluated according to the diagnoses, gender, the clinics requested. the number of unnecessary test requests was determined and financial evaluation was made based on the current HPC (Health Practice Communiqué) prices for the tests.
RESULTS: When the results were examined, the rate of unnecessary test requests was found to be 97.7% for family medicine, and 7.1% of the unnecessary test requests from our hospital's clinics. When the current HPC notification prices are taken as basis, the financial burden arising from the request for unnecessary testing was calculated as 12 086 TL for 3-month period.
CONCLUSIONS: In our results, it was determined that the tumor marker panel requested from family medicine was used as a routine. We believe that this unnecessary test request burden will be reduced by creating restrictions and various algorithms according to the diagnosis of the disease and the clinic.
Keywords: Tumor Markers, Unncessary Test Request, Financial Burden

PP-074
DETERMINING THE OPTIMUM BUFFER ASSEMBLY FOR A NEW UREA BIOSENSOR

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OBJECTIVES: Urea is a harmful substance that is formed as a result of the use and breakdown of protein foods. This substance is excreted in the form of urine by draining by the kidneys. If the kidneys cannot remove this substance sufficiently, they begin to accumulate in the blood. Its elevation has a toxic effect on the body, and when it is too high it is impossible to live. Because of these reasons, urea determination is of great medical importance.
MATERIALS and METHODS: In this study, we aimed to design a new amperometric biosensor for urea determination. Determination of urea, urease enzyme was immobilized on the graphite electrode by using BSA/gelatin and crosslinking by glutaraldehyde. Measurements were carry out at 0.2 V. Optimization studies of the designed biosensor were carried out first for the bioactive layer components and optimum buffer concentration.
RESULTS: From the bioactive layer optimization studies; gelatin, bovine serum albumin amount and optimal percentage glutaraldehyde were determined as 0.45 gr, 0.030 gr and %2.5 for the Graphite/BSA- Gelatin/Urease/Glutaraldehyde modified biosensor.
CONCLUSIONS: The optimum acetate buffer concentration was found to be 100 mM for the designed urea biosensor.
Keywords: Biosensor, Urea, Urease

PP-075
DO CRITICAL VALUES HAVE TO BE RETESTED?

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OBJECTIVES: Repetition of critical values increases test costs with time loss, TAT prolongation, critical value notification delay and reagent loss.In our study, we aimed to evaluate whether repeat processing is required at critical values of glucose (Glu), total bilirubin, creatinine (Crea), magnesium (Mg), calcium (Ca), sodium Na), potassium (K), chloride (Cl), urea, uric acid (UA), AST, ALT and amylase (Amy) tests.
MATERIALS and METHODS: 1161 patients with critical value who were admitted to the emergency department between 1 July and 31 December 2019 were included in the study.Data were taken from the laboratory information management system (LBYS). The difference between the two test runs for each parameter was calculated as absolute and percentage bias.The calculated % bias was compared according to the allowable total error (TEa) limits specified in the Medical Laboratory Regulation by the Ministry of Health, General Directorate of Health Services, Medical Laboratory Department. Values exceeding TEa limits were considered to be significantly different.
RESULTS: Only 41 (3.5%) of the 1161 tests repeated in this study were found to be significantly different from the first test.The difference between repeat test results for all parameters was <10%.The Ministry of Health TEa limits were exceeded in glucose, urea, ALT and AST tests.The repetitions made did not eliminate the critical value feature of these tests.
CONCLUSIONS: Our findings suggest that routine retesting of critical values with advanced laboratory equipment has no effect on improving the accuracy of the results of these tests. By reducing repetition, we can report the result quickly, and also reduce additional testing costs.
Keywords: Critical Value, Emergency Tests, Laboratory Management

PP-076
THE EFFECT OF COVID-19 PANDEMIC ON LABORATORY TEST NUMBERS: A PUBLIC HEALTH LABORATORY EXPERIENCE

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OBJECTIVES: Antalya Public Health Laboratory meets the laboratory needs of 774 family physicians working in 253 family health centers in Antalya. Lifestyle changes and restrictions experienced during the COVID-19 Pandemic have affected medical laboratories as well as in all areas of life. In this study, we aimed to evaluate the effects of COVID-19 Pandemic on our laboratory test numbers and distribution.
MATERIALS and METHODS: The statistics of laboratory test numbers between January-August 2019 and January-August 2020 were taken from LIOS Software, a Laboratory Information Management System software. Test parameters were evaluated in four main groups as Biochemistry, Hormone, Hematological and Serological analyzes. The changes in the number of tests are expressed as percentages.
RESULTS: In January and February 2020 the total number of tests increased by 24,26% and 3,66% respectively. With the first case in our country in March 2020 and the start of restrictions, the total number of tests decreased by 30,69%. In April 2020, the highest decrease was determined with 82,51%. Again in May 2020, a 66,02% decrease continued; In June 2020, when restrictions were lifted gradually, only 5,45% decrease was noticed. In July 2020 3,34%decrease observed but in August 13,32% increased. The least affected test group was serological tests.
CONCLUSIONS: The rapid changes during the pandemic affected our test numbers dynamically and sharp declines occurred. With the start of the normalization process, our test numbers increased. In order to meet this increase, it is necessary to closely monitor administrative parameters such as personnel, consumables and kit procurement.
Keywords: Covid-19 Pandemic, Test Numbers, Clinical Laboratory

PP-077
THE RELATIONSHIP BETWEEN SERUM ALBUMIN AND MAGNESIUM LEVELS IN ANKARA UNIVERSITY CEBECI HOSPITAL PATIENTS

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OBJECTIVES: It has been reported that the deficiency of magnesium may be associated with increased morbidity and mortality in ICU patients. Hypoalbuminemia is frequently observed in intensive care unit and postoperative patients. In this study, the relationship between hypomagnesemia and hypoalbuminemia, which may be associated with increased mortality and morbidity, was investigated.
MATERIALS and METHODS: Data was obtained from Ankara University Faculty of Medicine Cebeci Biochemistry Laboratory automation system between January - March, 2019. A total of 32997 patients, including 16405 men and 16405 women were analyzed.
RESULTS: Among a total of 32977 patient results, the number of those under the age of 18 is 10683, the number of those between the ages of 18-65 is 14797, and the number of those aged 65 and over is 7497. The number of hypoalbuminemic patients was 5934, normoalbuminemic was 26876, and hyperalbuminemic was 167. The number of hypomagnesemic patients is 4355, the number of those with normomagnesemic is 28202, and the number of hypermagnesemic is 420.
CONCLUSIONS: A statistically significant relationship was not found between serum albumin and magnesium levels. Serum total protein and globulin levels were also found to be unrelated. We see the limitation of our study as the fact that the free form of magnesium in serum was not measured. There are studies stating that there is a linear relationship between serum albumin and magnesium levels, as well as studies indicating that there is no significant relationship. New studies on this subject will contribute to a better understanding of magnesium homeostasis in the body.
Keywords: Albumin, Magnesium, Total Protein, Globulin

PP-078
INVESTIGATION OF THE EFFECT OF ANKARA CITY HOSPITAL PNEUMATIC TUBE TRANSPORT SYSTEM ON ROUTINE BIOCHEMISTRY, HEMATOLOGY AND COAGULATION TESTS

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OBJECTIVES: Large and modern hospitals use pneumatic tube systems (PTS) to transport many samples within the hospital. However, there are different opinions about preservation of sample integrity during PTS transport. The aim of our study is to examine the effects of the PTS on the biochemistry, hemogram and coagulation tests.
MATERIALS and METHODS: Blood was collected from 50 volunteer participants into 3 biochemistry, 2 coagulation and 2 hemogram tubes. One of the tubes was transferred with PTS and the other with the porter, third biochemistry tube was transported with PTS after completed coagulation. Analyzed tests in these paired samples were compared with Student's paired t test, correlation and Bland-Altman analysis. The clinical significance of statistically significant differences was evaluated by comparing with the total allowable error.
RESULTS: No significant differences were found in lipemia, hemolysis and icteric serum indices, which are indicators of sample integrity ($p > 0.05$). In LDH and AST, there were a slight increase in PTS transportated ($p = 0.008$ and $p = 0.01$) and PTS transportated after coagulation samples ($p < 0.001$ and $p = 0.03$) compared to porter transportated. Apart from the LDH and AST, statistically significant differences were found in some biochemistry tests between different groups. However, all these differences, including LDH and AST, were not found clinically significant. An analyte with a clinically significant difference was not detected in the hemogram and coagulation tests also.
CONCLUSIONS: PTS used in our hospital can be used safely for these frequently requested analytes. Each hospital should definitely validate its own transport system.
Keywords: Pneumatic Tube System; Sample Integrity; Sample Transportation; Validation Study

PP-079
ASSESSMENT COLORIMETRIC TEST TO DETERMINE POLLEN VIABILITY AND POLLEN NUCLEI IN *PHASEOLUS VULGARIS* L

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OBJECTIVES: The colorimetric test is of higher importance than others because the effects of certain environmental variables, including temperature, moisture, and light, are minimized. The colorimetric test is fast and straightforward. In the anther culture study, the success of haploidization is influenced by the developmental stages of microspore cells and pollen viability. The most suitable stage for culture is the uninucleated stage of microspore cells. In this study, a colorimetric test was used to determine the microspore developmental stage and pollen viability. This study aimed to determine which dyes such as 4′,6-diamidino-2-phenylindole dihydrochloride (DAPI), and acetocarmine used in the colorimetric test are useful in detecting pollen viability and nuclei of pollens removed from the anther of bean genotypes.

MATERIALS and METHODS: Flower buds of 10 bean genotypes of different sizes were collected to determine the stage in which mononuclear microspore cells are cultured and the appropriate flower bud development stage where the anthers will be isolated. The buds were grouped according to their sizes, and the anthers were isolated from the buds of different sizes. Pollen grains have been pinched with a proper forcep. Two slides were prepared from each sample. One of the slides prepared with the same sample was stained with acetocarmine (a red-fluorescent stain), while the other was stained with DAPI (a blue-fluorescent stain) for 7 min. Under a fluorescence microscope, slides were evaluated.
RESULTS: Pollen dyed with red color due to acetocarmine staining and blue due to DAPI staining was accepted as alive. Mononuclear stages were detected in pollen grains in both acetocarmine and DAPI staining. In the mononuclear phase, it has been observed that the nuclei of microspore cells shift from the center of the cell towards the polar parts of the cell. It has been determined that the microspore cells of the anthers taken from the buds with a size of approximately 8-9 mm are in the mononuclear stage.
CONCLUSIONS: Although both DAPI and acetocarmine dyes were useful in staining bean pollens, pollen nuclei were better observed with the DAPI staining.
Acknowledgment: The study described here was carried out within the Project (No. 119O003) funded by the Scientific and Technological Research Council of Turkey (TUBITAK).
Keywords: Acetocarmine, DAPI, {Phaseolus vulgaris} L., pollen

PP-080
COPEPTIN LEVELS IN PATIENTS WITH MIGRAINE

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OBJECTIVES: Copeptin is secreted from the posterior pituitary simultaneously with vasopressin and reflects the level of vasopressin in the circulation. Copeptin is more stable in plasma and serum than vasopressin. Copeptin is a hypothalamic stress hormone that reflects the individual stress level more finely than circulating cortisone. In this study, our aim is to investigate the copeptin levels of patients with migraine.
MATERIALS and METHODS: It is a prospective and controlled study conducted at Haseki Training and Research Hospital between April 2019 and November 2019. 80 patients diagnosed with migraine;was included in the study group. Eighty healthy volunteers of similar age and sex made up the control group. For copeptin levels; Blood samples taken at patient admission and at the 4th hour of follow-up were stored at -80 degrees after centrifugation. Blood samples were studied with the Elabscience Human CPP (Copeptin) brand kit, using the Elisa method. Results were analyzed using SPSS 16.0. $p < 0.05$ was considered significant.
RESULTS: Mean copeptin levels were 2113 pg / ml in the patient group, and 1601 pg / ml in the control group, respectively. There was a highly significant difference between the mean copeptin levels of the patient and control groups ($p = 0.001$).
CONCLUSIONS: Although the diagnostic efficacy of serum copeptin levels for migraine is unsatisfactory, it may be helpful in the treatment of migraine patients.. Copeptin could be a promising new blood biomarker for risk stratification in patients with non-traumatic headache.
Keywords: Copeptin, Migraine

PP-082
ONLINE TRAINING COURSE OF TBD ACADEMY: DISTANCE EDUCATION FROM COURSE DESIGN TO ASSESSMENT & EVALUATION

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OBJECTIVES: Face-to-face education was suspended between April and June 2020 due to the COVID-19 pandemic, and the universities moved on to an 'urgent' distance education(DE). After observing difficulties and needs of this transition, we as the TBD Academy Education Team(TBDA-ET) designed an online training for the educators to help them cope with the knowledge and technological skill requirements of the 'planned' DE academic period (2020-2021). The aim of this training was to improve the knowledge and skills of undergraduate and graduate level educators regarding online course/educational activity preparation, online laboratory applications(OL) and online assessment/evaluation (A/E).
MATERIALS and METHODS: The aim and the learning objectives of the training were determined considering the target audience and the training was designed as 6 modules. Information regarding participants' educational experience, technological skill level, expectations and needs were collected via a pre-course survey, and after the content of the course was finalized, an agreement containing all the relevant information about the educational approach and technological infrastructure of the training as well as the ethical rules was signed by the participants. The training, consisting of effective DE opportunities such as short presentations-panels, interactive training methods, group work and one-on-one technological help sessions, was completed in 15-hours spread over a weekend in September 2020 and carried out entirely in an online environment (Moodle Learning Management System and Zoom Videoconferencing Platform).
RESULTS: The age distribution of the participant($n = 22$) was 30-54 years and half of the participants were women. Pre-training expectations mostly focused on interactive training tools, OL and A/E in DE. 40% of the participants had 1-5 years of experience as educators and 71% had post-pandemic DE experience. An increase was observed in pre-test and post-test average scores (11.57(8-15.33) and 16.24 (11.63-19.67)/20 points, respectively), which was designed in accordance with the course content. Feedback received at the end of the training and after 2 months both confirmed that the agreement, e-mail&whatsapp announcements (using multiple communication tools) as well as the the content of the training were appropriate. Feedbacks revealed that the use of Kahoot, Menti, Edpuzzle, Padlet and Jamboard applications were helpful and that these can be used in their lectures. The participants stated that the content and execution of the traning were very efficient and they would recommend the training to other educators.
CONCLUSIONS: This training was the first to aim improvement of online educator skills in our field (biochemistry and clinical biochemistry). It was also the only activity with such aim considering all the other medical disciplines and societies. Similar activities should be designed by societies and educational institutions for the effective and efficient implementation of DE at undergraduate and graduate levels. TBDA-ET is planning to repeat this training in following months to further its contribution to the higher education
Keywords: Distance Learning, Course Design, Educational Technologies, Electronic Learning