POSTER PRESENTATION ABSTRACTS

P-001
Determination of serum tryptophan and its' metabolites by tandem mass spectrometry

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OBJECTIVES:Tryptophan (Trp) is an essential amino-acid and the precursor of several biologically active compounds such as kynurenine (KYN) and serotonin (5HT). Its metabolism is associated with various physiopathological conditions, such as cardiovascular diseases, cancer, immunomodulation or depression. Our aim of this study is to determine and validate serum tryptophan and its' metabolites by high performance liquid chromatography tandem mass spectrometry (LC-MS/MS).
MATERIALS and METHODS:100 µL of internal standard (L-Kynurenine-d4) was added to 300 µL serum sample and 1000 µL acetonitrile (containing 1% formic acid) was added as a precipitating agent. Then the mixture was vortexed at 12 000 rpm for 10 min. 1000 µL of the supernatant was transfered into clean glass tubes and evaporated under nitrogen. The residues in the tubes were dissolved in 200 µL acetonitrile: water (25:75, v/v) mixture containing 0.1% formic acid and 40 µL was injected to ABSCIEX API 3200 mass spectrometry. Total run time was 5 minutes
RESULTS:Limit of detection-quantation levels were 1.62-3.25, 1.22-2.44, 0.48-1.95, 0.97-1.94, 1.56-3.12 µg/mL for tryptophan, kynurenine, kinurenic acid, 3-hydroxy kynurenine and 3-hydroxy- anthranilic acid, respectively.
CONCLUSIONS:Evaluation of tryptophan pathway with all metabolites may help to elucidate the role of this pathway in disease pathogenesis. For this purpose, the mass spectrometer technique can be considered as a suitable method.
Keywords: Tryptophan, Tandem mass spectrometry, Pathway

P-002
Determination of tryptophan and kynurenine by LC-MS/MS by using amlodipine as ınternal standard

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OBJECTIVES:Tryptophan (Trp) is an essential amino acid that plays an important role in cell metabolism and Kinurenine (Kyn) is its main metabolic pathway. By using ultra-high-performance liquid chromatography coupled to electrospray ionization triple quadrupole mass spectrometry (UHPLC-ESI-MS/MS), tryptophan (Trp) and kynurenine (Kyn) were determined using Amlodipine (Aml) as internal standard (IS).
MATERIALS and METHODS:The analysis was carried out on a ACE-C18 (4.6mm × 50 mm, 5 µm) reversed-phase analytical column using gradient elution mode. For quantitative determination, Amlodipine was used as an internal standard. Detection was performed using multiple reaction monitoring in electrospray ionization mode at m/z 205.1→117.7 for tryptophan, m/z 209.1→146 and 93.9 for Kyn, m/z 409.2 → 294.1 for IS (Aml). Good linearity of an analyte to internal standard peak area ratios was seen in the concentration range 1.25–4000 ng/mL for tryptophan, 0.5–1600 ng/mL for kynurenine.
RESULTS:The method showed excellent linearity with regression coefficients 0.99 for Kyn and 0.996 for Trp. The limits of quantification (LOQ) were 0.55 ng/ml for Trp and 0.47 ng/ml for Kyn. %RSD for all analytes ranged from 0.3–3.4% for intra-day and 0.4–8.9% for inter-day experiments.
CONCLUSIONS:A simple LC-MS/MS method has been developed and validated for measuring Kyn and Trp by using an affordable and more easily available IS (Aml).
Keywords: Tryptophan, Kynurenine, Amlodipine, LC-MS/MS

P-003
Relation between the oligoclonal band presence and IgG index in multiple sclerosis

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OBJECTIVES:IgG index and Oligoclonal Band research are the prevalent tests in the diagnosis of Multiple Sclerosis disease (MS). The goal of this study is to evaluate the relation between the IgG index levels and Oligoclonal band (OCB) presense in cerebrospinal fluid (CSF).
MATERIALS and METHODS:Serum and CSF samples of 58 persons who applied to our laboratory for the test due to suspicion of MS, were included in the study. In the evaluation IgG index and simultaneously OCB in serum and CSF, were studied. Presence of OCB in CSF were evaluated by using isoelectric focus method. Albumin and IgG levels in serum and CSF were measured by immunoturbidimetri method.
RESULTS:In 24 (%41) samples OCB presense was seen. In 16 (%67) OCB (+) samples IgG index referance range limit was calculated as 0,7 and over. In 8(%33) OCB (+) samples IgG index was calculated as < 0,7. In 34 OCB (-) samples IgG Index was found 0,55 on average; in samples with IgG index under 0,55. In 21 (%36) samples of 58 IgG index was found at 0,55-0,70 range. In 8 (%38) of them OCB (+) was seen and this is also %33 of all OCB(+) samples.
CONCLUSIONS:In this study relation between IgG index and CSF OCB, that are common tests which are used in MS researches, was studied independently of cllinic value. When the index exceed 0,70 there was always connection, that OCB presence would be available between OCB analysis result and IgG index size.
Keywords: IgG index, Multiple Sclerosis, Oligoclonal Band

P-004
Comparison of the novel Access procalcitonin assay with Radiometer AQT 90 Flex

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OBJECTIVES:Procalcitonin (PCT) is considered the most useful biomarker for severe systemic inflammation, infection and sepsis although not totally specific for sepsis. Elevated PCT concentrations have a high positive predictive value for the diagnosis of sepsis, severe sepsis or septic shock (PCT >0.5 to >2 µg/L). Currently, there are several different assays available for PCT measurement. This study compared the performance of the AQT90Flex immunassay time resolved fluorometric technology with a new immunassay Access sysytem technology
MATERIALS and METHODS:148 EDTA-anticoagulated blood samples of hospitalised patients and outpatients for routine laboratory testing were included. The samples were analysed in duplicate for procalcitonin with RadiometerAQT90 Flex () and Access (Beckmann Coulter)
RESULTS:The Radiometer and the Access showed good correlation for the measurement of procalcitonin. The correlation coefficient (r) was 0,99 with (95% CI: of 99,1 to 99,5%). There are very small differences at very low concentrations which are of no clinical significance. A good correlation between the two methods was observed also in terms of clinical classification as indicated 0.5 ng/Ml. In particular, the percentage of concordance between the two assays using a cut off of 0.5 ng/mL is 98.4% (95% CI: 96.5– 98.5%).
CONCLUSIONS:In our study, the fully automated Access PCT agrees well with the Radiometer PCT and is suitable for early diagnosis of sepsis, severe bacterial infection and guiding antibiotic therapy
Keywords: procalcitonin

P-007
Evaluation of precision and bias of 10 analytes on Alinity c and i systems: A user perspective

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Verification of analytical performance of measurands becomes an essential requirement for the laboratories before proceeding to patients' samples testing. In our study we have verified the performance of ten analytes on Alinity ci systems against manufacturers' claims using CLSI EP15-A3 Guidelines. Manufacturer precision claims were obtained from analyte specific assay files(ASAF), and analyte specific product requirements documents(ASPR). After familiarization period, selected analytes were measured for 5 days in 3 replicates by using third party internal quality control(IQC) materials. Two and three levels of IQC material were used for Alinity c and i respectively. "Repeatability" and "Within laboratory imprecision" estimates were calculated and compared with manufacturer claims for precision evaluation. Varying levels of proficiency testing (PT) samples were used as reference material for bias estimation.Peer group means were used as target values(TV). Standard deviations from PT and precision results from our study were used to calculate standard errors(sec).Finally verifications intervals(VI) were calculated as VI=TV±(mxsec).All calculations performed by using R statistical software. An additional R script file is also created for reproducible calculations. For Alinity c, repeatability was between 0.3-2.4% coefficient of variation(CV) and Within laboratory imprecision was between 2.4-5.0% CV. For Alinity i, repeatability was between 1.7-5.3% CV and Within laboratory imprecision was between 5.3-7.7% CV. All analytes except creatinine and HbA1c had lower precision estimates than stated in ASAF. Creatinine and HbA1c had lower precision estimates than stated in ASPR.All analytes bias estimates were between VI. Our preliminary results show that our calculated precision and bias estimates are consistent with manufacturer claims.
Keywords: Abbott Alinity, user verification, CLSI EP15A-3, R

P-008
25-Hydroxy Vitamin D2 and 25-Hydroxy Vitamin D3 in lyophilized serum, UME CRM 1308

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OBJECTIVES:Vitamin D is a fat soluble vitamin in the form of vitamin D2 and vitamin D3. Measurement of vitamin D in serum is used in the investigation of bone health and emerging non skeletal conditions. 25-hydroxy vitamin D2 and 25-hydroxy vitamin D3 are the most common metabolites measured in human serum. Number of available Certified Reference Material (CRM) to be used in these measurements is very limited. In this study, the production, certification, homogeneity, stability and characterization of UME CRM 1308 "25-hydroxy vitamin D2 and 25-hydroxy vitamin D3 concentrations in lyophilized serum" is described.
MATERIALS and METHODS:UME CRM 1308 was prepared by adding 25-hydroxy vitamin D2 and 25-hydroxy vitamin D3 standards into the horse serum containing 25-hydroxy vitamin D3 endogenously. Horse serum was purchased from Biochrom AG (Germany) and pure standards were purchased from Sigma-Aldrich (USA). NIST SRM 2972 "25-Hydroxyvitamin D2 and D3 Calibration Solutions" and NIST SRM 972a Level 3 "Vitamin D Metabolites in Frozen Human Serum" were used for traceability. Isotope Dilution Liquid chromatography Mass Spectrometry (ID-LC-MS) was used for quantification.
RESULTS:The certified value is the mean of the ID-LCMS results, which is a primary method traceable to the SI. The certified value of 25-hydroxy vitamin D2 in human serum was 50 ng/g with an expanded uncertainty of 2.9 ng/g. The certified value for 25-hydroxy vitamin D3 was 48.8 ng/g with an expanded uncertainty of 2.6 ng/g.
CONCLUSIONS:CRM is used as a useful tool for proving traceability of measurement result and enhances measurement quality.
Keywords: ID-LC-MS, vitamin D

P-009
The importance of to determine their own SD values in medical laboratories

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OBJECTIVES:During internal quality control applications,in order to statistically evaluate the performance characteristics of a test measurement,the actual values for mean and SD should be determined in the laboratory.In this study,we calculated our own mean, SD, TAE values for 25 biochemistry tests in our laboratory.
MATERIALS and METHODS:2 levels of internal QC was performed once a day for 20 days in AU5800 (Beckman Coulter) instrument for 25 clinical chemistry tests.Using the QC data,mean and SD were calculated to compare with commercial QC material's values.For calculating TAE, %Bias values from external quality control data (Biorad) was used. TAE calculated by the formula proposed by the Ministry of Health.(%TAE=%Bias+1,65x%CV)
RESULTS:%CV values for 25 tests are between 0.4% and 3.7%.When our own SD and mean values are used to calculate TAE,all tests were within the appropriate range.The SDs recommended by the manufacturers were 2 to 12 times higher than our calculated SD values.When calculated SDs are used,the control and calibration should be performed more frequently as the false rejection rate increases.
CONCLUSIONS:Although it was recommended to use the calculated own SD values in textbooks and guides,no studies were found in the literature on this subject.In the study,we obtained results quite different from the commercially recommended SDs. If the manufacturer's suggested target and SD values are used,it will be difficult to notice errors. Although not cost-effective, each laboratory should use its own mean and SD values, as it is different from the manufacturer's.
Keywords: Mean, SD, %CV, TAe

P-010
Evaluation of performance characteristics of ELISA method for NGAL

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OBJECTIVES:Seeking for new useful biochemical markers in diagnosis of various diseases is a goal for many years. So far, NGAL is generally used as an early marker in kidney diseases, but recently, it was suggested to be one of the new early markers for diagnosis and prognosis of multiple sclerosis (MS). The aim of our study was to calculate the performance characteristics of NGAL measuring by ELISA method in patients with multiple sclerosis (MS).
MATERIALS and METHODS:MATERIAL-METHODS: Material for our study was plasma obtained from 30 healthy subjects (control group) and 55 subjects with diagnosed MS. NGAL was measured using ELISA method with commercial kits manufactured by Bioporto Diagnostics. Performance characteristics of interest were: sensitivity, specificity, positive predicative value, negative predicative value, accuracy, diagnostic odd ratios and were calculated using statistical program WinStat for Windows.
RESULTS:Our results have shown that the sensitivity and specificity of the test were 100% and 93% respectively, with 93% of positive predictive value and 41% of negative predictive value. The accuracy of the test was 74, 7%and the diagnostic odd ratio was 10,3.
CONCLUSIONS:We may conclude that ELISA method for measuring the concentrations of NGAL in patients with MS has satisfactory performance characteristics in discriminating healthy subjects from the patients correctly. Further studies are needed with a larger number of subjects.
Keywords: NGAL, performance characteristics, multiple sclerosis

P-011
Biological variation of newly developed red blood cell and reticulocyte parameters

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OBJECTIVES:Reliable biological variation data is needed for safe clinical application of laboratory tests. The aim of this study was to calculate biological variation of newly developed red blood cell parameters and reticulocyte indices used for diagnosis of anemia and monitoring of anemia treatment.
MATERIALS and METHODS:Blood samples were drawn from 30 healthy volunteers (20 female, 10 male) and analyzed using a Sysmex XN 3000 instrument during the 10 weeks period. Data were assessed in terms of normality, tendencies, outliers and variance homogeneity prior to applying coefficient of variance (CV)- analysis of variance (ANOVA) test. Sex-stratified within-individual (CVI) and between-individual (CVG) BV estimates of Hb, RBC, MCV, RBC-He (Hypo-He, Hyper-He, Micro R, Macro R), reticulocyte, reticulocyte-He (IFR, LFR, MFR and HFR) and Delta-He were determined.
RESULTS:For RBC parameters, with the exception of MCV, RBC-He, Hypo-He and Micro-R, and Delta-He there were significant differences between female and male CVI. However no differences were found for reticulocyte indices between both sexes.
CONCLUSIONS:New techniques and hematological parameters may reveal important information about functional integrity of bone marrow, diagnosis of anemia and monitoring anemia therapy. However, biological variation of these newly developed parameters should be considered in reporting and interpretation.
Keywords: Biological variation, anemia, red blood cell, reticulocyte.

P-012
Experimental study for determinate Risk-Based SQC procedure in our clinical laboratory by using six sigma

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OBJECTIVES:Six Sigma Methodology; is a quality management tool that focuses on process variables and provides information about process performance, and widely used in clinical laboratories. For risk-based SQC procedures, “The goal is to use a QC strategy that can detect change in performance reliably before the clinical quality requirement is exceeded while also minimizing the frequency of false rejections.” We aimed to design Risk-Based SQC plan for our laboratory and determine QC frequency by using six sigma.
MATERIALS and METHODS:Sigma metrics were calculated based on internal and external quality data by using (%TEa-%bias)/CV formula. Total allowable error (%TEa) was determinated analyte-based to the quality expectations of our laboratory in line with Milan hierarchy. The analyte-based workload of our laboratory was calculated and SQC run size nomogram was used for estimating the QC frequency.
RESULTS:In our study, Amylase, AST, ALT, D.Bilirubin, Triglycerid, Uric acid had >6 sigma value. In this context, they had longest QC frequency run size with >1000 patient sample by using 1:3s N:2 rules. Albumin, Chloride, Calcium, Creatinin, Sodium and Total Protein had <4 sigma value and the shortest QC frequency run with <45 patient sample by using 1:3s/2:2s/R:4s/4:1s N:4 rules.
CONCLUSIONS:It is important that clinical laboratories should have SQC plan for each analyte in which determine the levels, run size of control materials, and procedures for evaluating obtained control results. Risk-Based SQC procedure was found to be costly and difficult for analytes with low sigma values. In addition, tolerance limits should be harmonized for ensure an objective SQC plan.
Keywords: Six Sigma, Risk-Based SQC Schedule, Quality Management,

P-013
Effects of transportation time and seasonal temperature changes on routine coagulation tests

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OBJECTIVES:Pre-analytical issues in hemostasis testing are an important cause of diagnostic error and can lead to significant adverse clinical events. The aim of the present study was to investigate the impact of transport times and seasonal temperature changes on routine coagulation test results, that is, PT and aPTT.
MATERIALS and METHODS:Coagulation tests results were examined in the biochemistry laboratory of Antalya Training and Research Hospital from central and peripheral districts out-patients clinics. Results were divided into two groups to evaluate the seasonal changes effect (January, July) Transport times were less than 30 minutes for the central samples and 2-4 hours from the peripheral samples. Patients who applied for pre-operative investigation were included. Cardiovascular surgery patients were excluded. Coagulation tests were performed using the ACL TOP 500 analyzer.
RESULTS:According to the chi square test results with SPSS v21; there was not any significant difference between central and district outpatient activated partial thromboplastin time(aPTT) results. and also different season (January and July 2019) results. ($p>0,05$) On the contrary there was statistically significant difference between the prothrombin time(PT) results of two groups (central and district out-patient) due to chi square test, and also different season results (January and July 2019) $p <0.05$ According to the One Way ANOWA test results,there was no difference in the aPTT test for age groups. ($p>0,05$) There was a statistically significant difference in PT test. ($p <0.05$).
CONCLUSIONS:Preanalytical phase standardization in coagulation testing is critical to prevent unreliable results which might finally jeopardize the patient’s health.
Keywords: Preanalytical effects, Coagulation tests, temperatue, transportation

P-014
Agreement of hemoglobin and hematocrit values determined by co-oximetry and SLS hemoglobin: a retrospective study

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OBJECTIVES:Hemoglobin can be measured on a variety of devices using different methods. Blood gas devices have recently been widely used as point of care testing devices (POCT) in intensive care and emergency services. The reliability of the results obtained from these devices should be statistically tested. In this study, we aimed to see concordance of Co-oximetry and SLS Hemoglobin methods in the term of measuring Hemoglobin and calculated Hematocrit.
MATERIALS and METHODS:Between January 2019 and June 2019, 12049 patients who applied to the emergency department of Istanbul Training and Research Hospital were requested for complete blood count and venous blood gas analysis simultaneously. Samples were analyzed with Sysmex XN-1000 (SLS Hemoglobin) and Siemens Rapidlab-1265 (Co-oximetry). Passing Bablok and Bland Altman analysis were performed to show analytical methods concordance.
RESULTS:The correlation coefficient of both method for Hemoglobin and Hematocrit was 0.89 and 0.87, respectively ($P<0.0001$). Passing and Bablok regression analysis indicated that there was significant deviation from linearity ($p<0.01$). The Bland-Altman plot indicated that the two methods did not have good agreement for each tests. Bias % was calculated as 4% for Hgb and 1.1% for Hct. The Total Error was calculated as 5.8 % for Hgb. The calculated bias for Hct and calculated total error for Hgb was lower than that reported in online database by Westgard (6% for Hct, 7 % for Hgb).
CONCLUSIONS:Although each tests show significant deviation from linearity when comparing the two methods, blood gas devices could be used for Hgb measurements since the calculated bias remains acceptable.
Keywords: Blood Gas Devices, Co-oxymetry, SLS Hemoglobin

P-016
Effects of sampling time on routine coagulation tests in emergency service

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OBJECTIVES:Pre-analytical issues in hemostasis testing are an important cause of diagnostic error and can lead to significant adverse clinical events. The aim of the present study was to investigate the impact of sampling time on routine coagulation tests in emergency service, that is, PT and aPTT.
MATERIALS and METHODS:Coagulation tests results were analyzed in the biochemistry laboratory of Antalya Training and Research Hospital from emergency clinic. In January 2019, routine coagulation test results of patients admitted to the emergency department of Antalya Training and Research Hospital were examined retrospectively. The test results were divided into 6 groups at four hour intervals. Coagulation tests were performed using the ACL TOP 500 analyzer.
RESULTS:In this period, routine coagulation tests were performed in 1168 patients admitted to the emergency department. According to the one way ANOVA test results with SPSS v21; there was not any significant difference between the prothrombin time(PT) results of six sampling time groups($p>0,05$). On the contrary there was statistically significant difference between the activated partial thromboplastin time(aPTT) results of six groups ($p <0.05$).
CONCLUSIONS:Studies on circadian rhytms show that such variability can be observed with regard to many blood parameters, including parameters of hemostasis systems. Due to the nature of the emergency department must accept the patient for 24 hours. The reference value ranges for coagulation tests should be revised considering the circadian rhythm.
Keywords: Preanalytical effects, Coagulation tests, circadian rhythm, emergency department

P-017
Unnecessary test requests of HbA_2 in a university hospital

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OBJECTIVES:Laboratory physicians should be aware of unnecessary test requests because of cost effects. One of the most important contributors of this is unnecessary test requests. In this study, we aimed to reveal unnecessary test requests of haemoglobin A2 in a university hospital.
MATERIALS and METHODS:We retrieved Hemoglobin Variant analysis test request from laboratory information system between 01.01.2018- 04.07.2019. Hemoglobin Variant analyses were done with Tosoh G8 HPLC systems (Tokyo, Japan). Recurrent test requests were determined. All data were analyzed with Microsoft Excel 2010 Excel program.
RESULTS:There were 931 test request; 6 samples were rejected (3 inadequate volume and 3 inappropriate sample). 889 samples were analyzed with Tosoh G8 HPLC systems for variant hemoglobin. In 66 patient recurrent test requests were detected; in 59 patients there were two recurrent requests and in 7 patients there were three recurrent requests.
CONCLUSIONS:In the present study, we revealed only three test needed to repeat. In one sample patients' HbA2 test result 3.2% previously and his clinic is in accordance with iron deficiency anemia (IDA). We recommended IDA treatment and repeating HbA2 test recurrent request. After therapy of regular iron patient HbA2 result raised to 3.7 with microcytosis (MCV=68 fl) with normal iron condition. In the other two samples there were a decreasing in HbA2 because of hemolytic anemia so test request recurrence may be meaningful. Consequently, in 56 samples recurrent test request is unnecessary. Unnecessary test requests in HbA2 might be a problem in clinic laboratory and needed to solve.
Keywords: Unnecessary test, unnecessary test request, Hemoglobin A_2

P-018
Comparative analysis of the number of leukocytes in two different haematological modules

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OBJECTIVES:Counting of leukocytes (WBC) is an important part of routine laboratory tests. The aim of this study is to compare WBC values obtained by measurements performed on two hematology analyzers with assessment of their parallel use in laboratory work.
MATERIALS and METHODS:50 whole blood samples were included in the study. For the counting of WBC (103/μL), we used Sysmex XT-1800i reference module (fluorescent flow cytometry) and module Siemens Advia 2120 (flow cytometry). The accuracy and precision of the analyzers were checked. The results were statistically analysed in MedCalc software.
RESULTS:A shortened analytical evaluation has determined the satisfactory accuracy and precision of the analyzers. The lowest number of WBC measured on the Sysmex XT-1800i was 2.24, and the highest 12.25. The lowest number of WBC measured on the Siemens Advia 2120 was 2.3, and the highest 13.00. The Scatter diagram points to the diversity of data distribution. Bland Altman graph shows that almost all values were distributed within ± 1.96 SD. In Passing-Bablok regression analysis, when comparing the Sysmex XT-1800i with the Siemens Advia 2120, the following results were obtained for WBC $y = 0.0997170 + 0.966038 x$. Intercept a = 0.09972 (95% CI -0.04517 to 0.2750). Slopes b = 0.9660 (95% CI 0.9375 to 0.9897). Results for the slope indicate that there is a discrete proportional error, with no clinical significance. Cusum's linearity test estimates that there is no deviation in linearity ($P = 0.89$).
CONCLUSIONS:Both haematological modules can be used simultaneously in a routine laboratory practice.
Keywords: Leukocytes WBC, Flow cytometry, Hematology

P-020
Detection of deletional alpha thalassemia by multiplex PCR

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OBJECTIVES:Alpha thalassemia is a common genetic disorder that is characterized by deficient or absent synthesis of α-globin chains of the Hb molecule (HbA:2α2β). Alpha thalassemia usually result from deletions involving the α-globin genes, less commonly they are due to point mutations. Most α-thalassemia determinants are deletions involving one (α-thal-2: -α/αα) or both (α-thal-1: --/αα) α-globin genes on the same chromosome. A person with three α-genes (-α/αα) is not anemic but a heterozygote who inherits two functional α-genes (--/αα) has mild hypochromic microcytic anemia. Combinations of α-thal-1 and α-thal-2 determinants (--/-α) cause HbH disease. A patient who inherited a single α-globin gene (--/-α) has HbH disease with a chronic hemolytic anemia. Five different gene deletions [α-thal-1 (-17.4kb, -26.5kb, -20.5kb) and α-thal-2 (-3.7kb, -4.2kb)] were reported in Turkey.
MATERIALS and METHODS:Blood samples with EDTA as anticoagulant were taken for hematologic and hemoglobin analysis. A complete blood count was taken using a cell counter. HPLC have been used for both determination of hemoglobin variants and quantification of the Hb levels. Alpha globin gene deletions were detected by using one tube multiplex PCR.
RESULTS:In this study, alpha gene deletions of 81 carriers were detected by Multiplex PCR. Genotypes and hematological parameters of different α-thalassemia carriers were analyzed and 54 of them had one gene deletion (α-thal-2) and 27 of them had two alpha globin gene deletions (α-thal-1).
CONCLUSIONS:Distribution of alpha globin gene deletions were detected in Çukurova region.
This project was supported by Çukurova University Research Projects Unit (FDK-2019-11888).
Keywords: Alpha thalassemia, Gene deletion, HbH disease

P-021
Frequency of Silent Beta Globin Gene Mutations in Çukurova Region

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OBJECTIVES:The β-thalassemias are characterized by a quantitative deficiency of β-globin chains underlaid by a striking heterogeneity of molecular defects. There are two main varieties of β-thalassemia; β0-, and β+-thalassemia. The diagnostic feature of β-thalassemia is an elevated level of HbA2 in heterozygotes. There are, however, less common forms of β-thalassemia, which the HbA2 level is normal in heterozygotes. Broadly, they are classified into two varieties; type 1 called 'silent β-thalassemia' is no associated hematological changes, and the hematological findings of type 2 are typical of β-thalassemia trait with a raised HbA2. In this study, we aimed to investigate the incidence of silent beta thalassemia between 2008-2019 in Çukurova population.
MATERIALS and METHODS:Samples were obtained from Çukurova University Medical Biochemistry Department. DNA was extracted from whole blood. β-globin gene mutations were detected by Amplification Refractory Mutation System (ARMS) method, Restriction Fragment Length Polymorphism (RFLP) method and Deoxyribose Nucleic Acid (DNA) sequence analysis.
RESULTS:In our study, 3324 patients were retrospectively evaluated for hematologic data. 119 of 3224 patients were found to have normal hematological data. Silent β-thalassemia mutations were investigated in these patients. 93, 22, and 4 of totally 119 patients were detected as to be -30, -101, and CAP +1 mutations, respectively.
CONCLUSIONS:Our study showed that more common silent beta thalassemia mutations were -30 (T→A) in Çukurova Region. Despite normal hematological data, the possibility of silent β-thalassemia should not be excluded. As a result, it should be careful when evaluating individuals with normal hematological data for β-thalassemia.
Keywords: β-Thalassemia, Silent Beta Gene Mutation

P-022
Practice of an autoverification application

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OBJECTIVES:Autoverificaton systems are getting more prevalent day by day and becoming essential for clinical laboratories. The laboratories intending to install these systems should answer several questions and make several calculations. Unfortunately, there are limited scientific documents for evidence-based studying.
MATERIALS and METHODS:Our laboratory has the know-how that can be used as a starting point to calculate autoverification ranges and delta check limits; and to create algorithms for automatic release of results.. We have calculated autoverification limits with four different approachs: 1- Shih MC and friends's suggestion: Distribution intervals of patient data between %2 and %98 2- Feitosa MS and friends suggestion: A formula using the midpoint of reference range and linearity range 3- Limits from Li, Jiancheng and friends's article for thyroid hormones. 4- Analytical range at Troponin I and CK-MB Mass tests.
RESULTS:The acquired experience suggests the necessisity to generate a procedure to evaluate the specimens that have failed delta check evaluation. In our laboratory, over 20 thousand biochemistry tests are studied in a day and more than 600 of this tests fail at delta check evaluation. Unfortunately there is no enough manpower in clinical laboratories to examine those samples. In order to make this procedure realistic and feasible, it is necessary to reduce the rate of false positivity and thereby decrease the number of samples to be controlled.
CONCLUSIONS:Thanks to the experience gained and the new technical capabilities at hand to implement the medical information, autoverification is assumed to have potential for continuous developing without an end.
Keywords: Autoverification, Delta check, Limit check

P-023
***In Silico* analysis of missense mutations in the gene for human glutathione reductase**

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OBJECTIVES:At the molecular level, mutations are alterations in the nucleotide sequence of genes, resulting in variants that can be transmitted to the next generation. Mutations for which the clinical significance is currently unresolved are known as variants of uncertain significance (VUS). VUS generally involve missense mutations or in-frame deletions. As a part of the enzymatic antioxidant defense system, the homodimeric flavoprotein glutathione reductase (GR; EC 1.6.4.2) serves to regenerate glutathione (GSH) from glutathione disulfide (GSSG). Given the crucial role of GR in maintaining the body's GSH pools, hereditary GR deficiency is likely to have a dramatic impact on human health.
MATERIALS and METHODS:Here, we aim at predicting the structural consequences of clinically relevant missense mutations in the gene for human GR. The identities of missense mutations were retrieved from the Human Gene Mutation Database (HGMD) and ClinVar, and their effects on GR stability, flexibility and function were estimated using a diverse array of *in silico* prediction tools.
RESULTS:The sequence- and structure-based predictors reveal that nearly all of the missense mutations in question have the potential to affect local protein dynamics or enzyme catalysis. This allows for more accurate classification of the VUS into several different categories ranging from benign to pathogenic.
CONCLUSIONS:Overall, our work provides new insights into the 'molecular phenotypes' of hereditary GR deficiency and allow for the rational design of further *in vitro* and *ex vivo* studies.
Keywords: Missense mutations, variants of uncertain significance, glutathione reductase

P-025
Correlation between blood gas glucose parameter and biochemistry autoanalyzer glucose

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OBJECTIVES:Blood gas analysis is a vital diagnostic method on both clinical and emergency&intensive care patients.This study aimed to investigate the usability of glucose parameters measured on blood gas analyzer instead of biochemistry analyzers.
MATERIALS and METHODS:Blood gas and glucose parameters in biochemistry devices which was requested simultaneously from 23297 patients who applied to Izmir Katip Çelebi University Atatürk Training and Research Hospital were examined retrospectively between 01.07.2018-01.07.2019.Blood gas parameter was studied on Radiometer ABL800 Flex device and Abbott C16000 device was used for biochemistry parameter.Statistical analysis of the outcomes was performed in SPSS 21.0 program.The distribution of the groups was analyzed on Kolmogorov-Smirnov test.Paired t test was performed to get the significance of difference between biochemistry and blood gas glucose.Pearson test was used for correlation.
RESULTS:The groups were suitable for Gaussian distribution.The mean value of glucose on the automatic analyzer was found as 153.19 ± 90.11.Blood gas device glucose mean value was found as 150.26 ± 76.59.It was found that there was a statistically significant difference between biochemical glucose and blood gas glucose arithmetic mean($p<0.001$).Correlation coefficient was($R=0.936$ $p<0.001$) and the significant positive correlation was determined between outcomes.
CONCLUSIONS:According to the results of our study; although the difference was statistically significant, the values obtained were similar so as not to affect the clinical decision.Therefore,it is thought that glucose can be examined by means of blood gas analysis method until biochemical glucose parameters are resulted.This process will gain time to clinician especially on critical patients. Thus the possibility of early intervention will be increased accordingly.
Keywords: blood gas, correlation, glucose

P-027
Chemical analysis of the cyst fluid is an option to be kept in mind

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OBJECTIVES:Anamnesis, physical examination and radiological examination are generally sufficient to diagnose a cystic lesion in the neck. When needed, Fine Needle Aspiration Biopsy(FNAB) is a diagnostic tool in the management of neck masses.
MATERIALS and METHODS:61 years old male patient admitted to our hospital because of a lesion in the neck region. Physical examination followed by ultrasonography revealed a 25x17 mm subcutaneous cystic lesion located in superior anterior midline, strongly suggesting a thyroglossal duct cyst(TDC). The patient was unwilling for the excision of the lesion that a FNAB was performed. 4 cc opaque white material was sent to pathology and a portion of 1 cc was separated for chemical analysis for thyroglobulin and thyroid hormones.
RESULTS:Results showed that the cyst material contained 0,72 ng/mL thyroglobulin (1,6-50 ng/mL serum normal values), a free T4 level (0,55 ng/dL) lower than the patients serum FT4 value (1,11 ng/dL) and a free T3 level (3,13 pg/mL) higher than the patients serum FT3 value (2,74 pg/mL). Pathology report confirmed a benign lesion.
CONCLUSIONS:If a FNAB is performed with any reason, it should be kept in mind that the aspiration material is probably suitable for chemical analyses of various parameters. Thyroglobulin measurement is already recommended by the American and European Thyroid Association guidelines to diagnose cystic thyroid cancer metastases. The levels of tiroglobulin and thyroid hormones were supportive for a diagnosis of a TDC in this case although a final diagnosis is still absent because the lesion was not excised.
Keywords: Aspiration biopsy, Cystic lesion, Thyroglobulin, Hormones, Biochemistry

P-028
Myeloproliferative syndromes and their association with lymphoid neoplasms

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OBJECTIVES:The association of myeloproliferative syndromes with lymphoid neoplasia is very rare. There are about 52 cases, worldwide, where these two syndromes coexist within the same patient.
MATERIALS and METHODS:This abstract will present 2 clinical cases presented at the Haemetology Department which were initially presented as myeloproliferative syndrome, specifically: polycythemia vera, and subsequently lymphoid neoplasia, specifically: CLL, and Non-Hodgkin malignant lymphoma.
RESULTS:First CASE: Male, 51 years old, showing the following hematological parameters: WBC: 15000/m3, HGB: 14.5g/dL, RBC: 4.74x106/mm3, PLT: 175000/mm3.A myelogram and Immunophenotyping were performed on the patient, which were compatible with Polycythemia Vera, and no immunophenotipically pathogenic clone cells were identified. 2 months after the examination the patient showed up an adenopathy. A bone marrow biopsy was performed. The latter showed infiltration to the bone marrow of lymphomas with small CD 20 positive cells.
Second CASE: Male, 49 years old. Presented with a hematological framework compatible with the myeloproliferative syndrome: WBC: 20000/mm3, HGB: 17.2g/dl, RBC: 7.01x106/mm3, PLT: 966000/mm3.
A myelogram, Immunophenotyping and bone marrow biopsy were performed on the patient. The myelogram and the immunophenotyping resulted compatible with Polycethymia Vera, and no immunophenotipically pathogenic clone cells were identified.
Based on the results of the biopsy and immunohistochemistry the patient resulted in lymphoid infiltration by non-Hodgkin's malignant lymphoma.
CONCLUSIONS:The association of myeloproliferative syndromes with lymphoid neoplasia happens, more frequently in males. age of the affected is about 50 years. (in both cases presented), although in literature cases with this occurrence prevail in young ages.
Keywords: myeloproliferative syndromes, lymphoid neoplasia

P-029
Anticancer properties of novel BODIPY compound bearing pyridine groups

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OBJECTIVES:Colorectal cancer (CRC) is a common cancer type and treated with applications such as surgery, radiotherapy and chemotherapy. However, it is known that these methods have serious side effects. Therefore, alternative treatment strategies and new therapeutic molecules with less side-effect are needed. Photodynamic therapy (PDT) has emerged as a new method in the treatment of many cancer types. In recent years, boron-containing BODIPYs which are the photosensitizers, have been used in photodynamic therapy due to high absorption coefficient,high singlet oxygen yield, good solubility, low toxicity in dark. In this study, anticancer effects of water soluble pyridine group containing BODIPY compound (1a) were investigated against CRC.
MATERIALS and METHODS:Singlet oxygen quantum yield and CT-DNA binding effects of 1a were examined using UV-Vis spectroscopy. The pBR322 plasmid DNA photocleavage activities of 1a were investigated using agarose gel electrophoresis. The cytotoxic and phototoxic effects of 1a were tested against human colorectal (HCT-116) cell line using MTT assay for 24, 48 and 72 h.
RESULTS:Singlet oxygen quantum yield of 1a was found to be 0.30. The DNA binding studies showed that 1a bound to DNA with non-covalent interaction. 1a cleaved pBR322 plasmid DNA via singlet oxygen pathway upon irradiation. 1a showed remarkable phototoxic effect against HCT-116 in a concentration and time-dependent manner.
CONCLUSIONS:The results claimed that 1a had a potential anticancer agent for CRC. Further in vivo studies are required to clarify the therapeutic effect of 1a.
This study was supported by The Research Fund of Karadeniz Technical University (Grant no: 8134), Trabzon, Turkey.
Keywords: BODIPY; colorectal cancer; photocleavage.

P-030
Effects of somatostatin, curcumin and quercetin on the fatty acid profile of breast cancer cell membranes

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OBJECTIVES:Breast cancer is one of the most common cancer diagnosed in women in the world. Among the polyphenols; quercetin (Que), curcumin (Cur) have been reported to have strong potential to prevent breast cancer. However, so far, no comprehensive study has been performed to demonstrate anticarcinogenic effects of Cur, Que and their combinations with somatostatin on the fatty acid profile of breast cancer cell membranes.
MATERIALS and METHODS:The doses of somatostatin, curcumin and quercetin to be used in the incubations were determined by MTT test. For fatty acid analysis, membrane lipids were isolated, extracted, derivatized to methyl esters and characterized using Gas Chromatography in two breast cancer cells incubated with somatostatin, curcumin, quercetin, SST+Cur or SST+Que for 24 hours.
RESULTS:In MDA-MB231 cells, incubations with Cur, Que and SST+Que

induced the most significant membrane remodeling with elevation of stearic acid, and diminution of omega-6 linoleic, arachidonicacids, omega-3 acids. In MCF7 cells, omega-6 linoleic acid in cells incubated with SST+Que, Que increased and omega-3 fatty acids in cells incubated with SST+Cur compared to SST decreased, and significant increases in docosapentaenoic acid levels were found in cells incubated with SST+Que compared to the control cells.
CONCLUSIONS:Based on our findings, lipid isomerization in breast cancer cells has been shown to change in response to Somatostatin, Cur, Que and their combinations. The results of lipidome analysis highlighted the role of SST+Cur and SST+Que induced fatty acid membrane remodeling, and suggest potential of lipid-based strategies for influencing cell response in breast cancer cells.
This study was supported and funded by TUBITAK (Project number: 217S253) and Akdeniz University Research Funds (TDK-2017-2096).
Keywords: Somatostatin; curcumin; quercetin; breast cancer; membrane fatty acid profile

P-031
Investigation of the effect of twist1 suppression on miRNA level in MDA-MB 231 breast cancer cells

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OBJECTIVES:MDA-MB 231, which has a more aggressive structure compared to other breast cancer cell lines, is metastatic and angiogenic cells. Metastasis and angiogenesis are regulated by transcription factors such as the Twist1 gene. Twist1 is a transcription factor (TF) that can bind specific DNA regions and control the activity of genes. Twist1 is effective in various differentiation processes of healthy embryos as a positive or negative regulator in the cell cycle. In studies, Twist1 gene has been shown to result in a poor prognosis in patients with protein re-expression after embryonic period. Twist1 also regulates the expression of micro-RNA (miRNA) genes associated with cancer. Many studies have shown that these small molecules are critical in cellular mechanisms such as metastasis, angiogenesis and apoptozis. In this study, the effect of silencing Twist1 TF gene which active in MDA-MB 231 breast cancer cell was affected by expression levels of miRNAs.
MATERIALS and METHODS:In the MDA-MB 231 cells, the regulatory Twist1 gene was suppressed by the anti-sense Twist1 vector transfection. Differences in miRNA expression levels were analyzed by Real Time PCR analysis.
RESULTS:As a 43 miRNA results examined in the study, it was found that miR-1-1 and miR-210-3p expressions were upregulated and miR-193b-3p, miR-181b-5p and miR-148a-3p expressions were downregulated.
CONCLUSIONS:The expression levels of some miRNAs associated with invasion, metastasis and apoptozis were changed by silencing Twist1 gene expression. It was concluded that silencing the Twist1 gene may effect invasion, metastasis and apoptozis in breast cancer.
Keywords: MDA-MB 231; miRNA; twist1

P-032
Molecular and cellular biofunctional analyses in Turkish patients with invasive bladder carcinoma

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OBJECTIVES: Bladder carcinoma (BC) is the most frequently seen urinary system malignancy among men all over the world. In this study, we aimed to identify specific gene-pathway relationships that could play fundamental role in the progression of bladder carcinogenesis.
MATERIALS and METHODS:Samples (n=12) of high-grade invasive bladder cancer patients and their non-tumoural paired controls (n=12) were collected at the Department of Urology of Istanbul Faculty of Medicine after getting ethical permission from Istanbul University. The genome wide expression levels of high grade BC patients and paired controls were profiled following to RNA isolation and hybridization steps. Ingenuity Pathway Systems (IPA), iPathway Guide and Cytoscape softwares were used to determine statistically significant genes, networks, biological pathways between tumor and control groups.
RESULTS:The most statistically significant biofunctions were post-translational modification, protein degradation, cell death and cell survival, cellular movement and intercellular signalling. These findings were supplied us understanding which molecular reactions were involved in bladder carcinogenesis. In regards to these results, we also identified the top canonical pathways that were included in the development of BC. The data showed that collagen degradation, activation of matrix metalloproteinases (MMPs), degradation of the extracellular matrix (ECM), inflammatuar response and BC signalling were the most important pathways in bladder carcinogenesis, as expected.
CONCLUSIONS:We showed that biological reactions including degradation of collagen and ECM as well as MMP activation reactions were found the most statistically significant pathways in BC. It was also determined that inflammation and cytokine signalling could be related with the progression of bladder carcinogenesis.
Keywords: Invasive Bladder Carcinoma, Biological Pathways, Matrix Metalloproteinases, Degradation of the Extracellular Matrix

P-033
Investigation of antioxidant and cytotoxic properties of Amphoricarpos Praedictus

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OBJECTIVES:Amphoricarpos Praedictus (Testiotu) is a member of the Asteraceae family. Many Asteraceae species are rich in secondary metabolites such as phenolics, sesquiterpenes and lactones. Asteraceae species are known as medicinal plants with antioxidant effect, and antimicrobial activities. Literature is limited about the biological activity of Amphoricarpos species.The aim of this study was to determine the antioxidant and cytotoxic properties of Amphoricarpos Praedictus.
MATERIALS and METHODS:The present study assessed total phenolic and flavonoid content, reducing antioxidant power, radical scavenging activity of Amphoricarpos Praedictus by using spectrophotometric methods. The cytotoxic effect of Amphoricarpos Praedictus on a normal human lung fibroblast (WI-38) cell line was assessed using the XTT assay.
RESULTS:Accordingly, the results of the Amphoricarpos Praedictus exhibited higher radical scavenging activity, and selective cytotoxic effect on WI-38 cells. These results showed that the Amphoricarpos Praedictus has power antioxidant properties and selective cytotoxic effect.
CONCLUSIONS:Thus, Amphoricarpos Praedictus appear to be a promosing source of new anticancer agent.
Keywords: Amphoricarpos Praedictus, Antioxidant activity, Cytotoxic Activity

P-034

Some critical gene genotypes belongs to coinhibitory and costimulatory signals ın the tumor microenvironment in laryngeal cancer

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OBJECTIVES:T cell regulated signals play an important role in maintaining peripheral tolerance immune homeostasis. Studies have also reported that the coinhibitory and costimulatory signals interact with each other like as PD-1 / PDL-1 interaction triggered cd28 inactivation in the suppression of T cell activation. In this study, we aim to investigate PD-1 (rs2227981), PDL-1 (rs2890658), CD28 (rs2267966) and CD27 (rs3116496) genotypes in laryngeal cancer (LC) patients.
MATERIALS and METHODS:We examined PD-1 (rs2227981), PDL-1 (rs2890658), CD28 (rs2267966) and CD27 (rs3116496) polymorphisms in 132 subjects (57 subjects with LC and 75 controls) by using PCR-RFLP.
RESULTS:We found an increased frequency of PDL-1 AA/CC genotypes in laryngeal cancer patients (p=0.04) than controls but not for PD-1 genotypes. There was a tendency toward a higher frequency of CD 28 T allele and CT genotype,respectively(p=0.034, Odds ratio (OR): 1,180; 95 %CI1,019-1,366; p=0.001, odds ratio (OR), 2,538; 95% CI 1,470-4,380). CD27 genotype results showed a higher incidence of A allele in patients versus controls, p=0.001, OR: 1.228; 95 %CI 1,091-1,382).The frequency of AT genotype was found to be increased in laryngeal cancer patients and this value was statistically significant p=0.002, OR, 1,888; 95% CI 1,258-2,833. We also found significant relationships between these genotypes and patient's clinical and histopathological findings, perineural invasion, the presence of reflux.
CONCLUSIONS: Our results suggest that CD27, PD1 and PDL1, especially CD28 are thought to be important candidates implicating some changes affecting this mechanism. These molecular markers may use to be target molecules for identifying subjects, better prognosis and response to treatments.
Keywords: Laryngeal Cancer, İmmune Checkpoints, Molecular Biomarkers, Carcinogenesis, Polymorphism

P-035

Investigation of in vitro and in vivo therapotic effect of curcumin and 5-FU on colon cancer

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OBJECTIVES:This study aimed to investigate the cytotoxic, genotoxic, apoptotic, and anti-cancer effects of curcumin – the active ingredient of turmeric – and 5-Fluorouracil in combination against in vitro and in vivo colon cancer while illuminating possible action mechanisms.
MATERIALS and METHODS:Initially, Luciferase transfection was performed in LoVo colon cancer cells to which curcumin, 5-FU, and combinations of different concentrations were given, and they were incubated for 24 hours. Cytotoxicity, genotoxicity, apoptosis, intracellular glutathione level, mitochondrial membrane potential are determined. Transfected LoVo cells have been injected subcutaneously to nude mice for the following: control, curcumin, 5-FU, and combined. 3 weeks of treatment with curcumin, 5-FU, and combined therapy have been initiated 3 weeks after the injection. At the end of this period, tumor size was measured with the IVIS device and caliper.
RESULTS:Compared to the monotherapy with curcumin and 5-FU on colon cancer, combined treatment has been found in low doses to increase cytotoxicity, DNA damage, apoptosis and intracellular reactive oxygen species in the cell culture studies, while decreasing mitochondrial membrane potential and glutathione levels. Also, the expression of apoptotic proteins increased while the anti-apoptotic protein expression decreased. Combination therapy was found to be more effective than mono therapies in vivo colon cancer, which was formed by the xenographic method. While tumor size decreased.
CONCLUSIONS:According to the data obtained through this study, in colon cancer curcumin has been found to increase the anti-tumor effects of the normal therapy of 5-FU in vitro and in vivo.
Keywords: curcumin, colon cancer, 5-FU, IVIS

P-036

Clinical significance of soluble DCR3 in breast cancer patients before and after radiotherapy

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OBJECTIVES:Breast cancer is one of the most important cancer type in the world. Radiotherapy plays an important role in the treatment of non-metastatic breast cancer. The DcR3 family, known as tumor necrosis factor receptor superfamily member (TNFRSF6B). It has emerged important regulators of various biochemical events as it has roles in various cancer and several inflammatory tissues. The aim of this study was to determine the effect of radiotherapy on soluble DcR3 protein, which has not been yet clarified as a tumor suppressor or promoter molecule.
MATERIALS and METHODS:22 women with non-metastatic breast cancer enrolled to the study. Blood samples were taken just before and after radiotherapy, soluble DcR3 proteins levels were determined with ELISA kit. Wilcoxon test was used for statistical analysis.
RESULTS:Soluble DcR3 protein level was significantly found to be decreased after radiotherapy treatment (p<0.011).
CONCLUSIONS:Our study demonstrated that soluble DcR3 could be considered as a novel follow up parameter for the treatment of breast cancer malignancy. In other words, modulation seen at the soluble DcR3 protein level suggests that it may also provide a new strategy for breast cancer treatment. This work is the part of project entitled 'Evaluation of the effect of radiotherapy on some biochemical parameters in breast cancer patients' supported by the grand from Erciyes University (Grand no:TYL-2019-8672).
Keywords: DcR3, Breast Cancer, Radiotherapy

P-037

Low dose Bisphenol A and Fulvestrant ıncrease the proliferation and migration of hepatocellular carcinoma increase

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OBJECTIVES:Fulvestrant (ICI 182 780), a selective estrogen receptor inhibitor, has been used in treating patients with hormone-sensitive breast cancer. Bisphenol A (BPA) has been considered as an endocrine disrupting chemical. In this study, we examined whether the effect of low dose BPA on fulvestrant treatment can lead to the proliferation and migration of HepG2 human hepatoma cells which may induce metastasis.
MATERIALS and METHODS:Human hepatocellular carcinoma cells (ATCC) were treated with certain concentrations BPA, ICI and the combination of ICI with BPA. MTT assay was conducted to examine the effect of BPA, ICI and BPA+ICI on cell proliferation of HepG2 cells. Effects on cell migration were examined by wound healing assay and results were analysed by Image J software. Additionally, the expression of N-cadherin were detected by N

Cadherin-Enzyme-Linked ImmunoSorbent Assay.
RESULTS:Low dose BPA and BPA+ICI significantly increased cell viability of HepG2 cells compared to vehicle control. Their effects on motility of HepG2 cells were measured by the use of wound healing test and as a result significantly increased wound closure was determined as compared to the control group. BPA also stimulated the migration of HepG2 cells. BPA+ICI increased N-cadherin expression which might be the indicator of epithelial to mesenchymal transitions.
CONCLUSIONS:According to these results, it was suggested that BPA and Fulvestrant may induce the proliferation and migration in HepG2 cells
Keywords: Bisphenol A, fulvestrant, HepG2

P-038
Regulation of intracellular ROS level under different stress conditions in HepG2 Cells

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OBJECTIVES:One of the main features of cancer cells is a persistent pro-oxidative state that leads to intrinsic oxidative stress. Additionally, the inflammatory condition of malignant tumors continually exposes cancer cells to reactive oxygen species (ROS) and the activation of the antioxidant defense system. Quercetin is an antioxidant flavonoid known to induce cell cycle arrest and apoptosis of hepatocellular carcinoma cells. Activation of several signaling pathways has been implicated in the pathogenesis, i.e. ROS which can trigger oxidative damage of biomolecules. The objective of the present study was to determine the effect of treatment with hydrogen peroxide and quercetin on HepG2 cells.
MATERIALS and METHODS:Effects of different stress conditions were evaluated. For this purpose, cells were cultured under two different stress conditions. Cell viability/apoptosis/cell cycle, proteasome and antioxidant enzyme activities were detected.
RESULTS:Hydrogen peroxide and quercetin resulted in decrease cell viability of HepG2 cells in 30 minutes. The percentage of total apoptosis were 9.66 and 10.93 for H2O2 and quercetin, respectively at 50 µM concentrations and 16.45 and 18.78 for H2O2 and quercetin, respectively at 200 µM concentrations. Quercetin decreased proteasome activity significantly. Quercetin also influenced cell cycle distribution and significantly decreased G0/G1 ratio.
CONCLUSIONS:Our findings demonstrate the pleiotropic effects of quercetin on liver cancer cells and open the possibility of utilizing it as a chemo-preventive agent in hepatocellular carcinoma.
This work was supported by The Scientific and Technological Research Council of Turkey TUBITAK (Project no: 21S963).
Keywords: HepG2 cells, hydrogen peroxide, quercetin

P-039
Antioxidant effect of static magnetic field on breast cancer cell line

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OBJECTIVES:Oxidative stress is thought to take part in the etiopathogenesis of many systemic diseases, including cancer. SMF plays a critical role in activating and/ or alternating the molecular mechanisms in cancer cells. The aim of this study was to find out the antioxidant effect of static magnetic field on breast cancer MCF-7 cell line.
MATERIALS and METHODS:Oxidative stress determinations were performed by total antioxidant status (TAS) (Relassay), total oxidant status (TOS) (Relassay) in MCF-7 cell line. Oxidative stress index (OSI) was calculated by TOS/TAS ratio. Statistical analyzes were evaluated by SPSS programme.
RESULTS:TAS levels were found to be significantly increased in SMF exposed group compared to controls [(0.201 ± 0.003 vs 0.183 ± 0.002 mmol Trolox Equiv./L, p<0.001)]. OSI levels were significantly lower compared to controls [(0.311 ± 0.005 vs 1.00 ± 0.117, p<0.001)].
CONCLUSIONS:Taken together, our results suggest that exposure of SMF on MCF-7 cell lines diminished oxidative stress parameters. According to these results, SMF administration can increase the antioxidant effect; this may offer a protective strategy for cancer therapy.
Keywords: TAS; TOS; MCF-7; Static Magnetic Field.

P-040
3-Aminopropyltriethoxysilane coated magnetite for using as support to reduce toxic effects of idarubicin on HL60 cell line

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OBJECTIVES:Cancer drugs are one of the most studied topics, especially since their half-life is very short, the disintegration products are toxic and they cannot distinguish between healthy or diseased cells. This increases the number of studies on immobilization by binding to many organic or inorganic support materials through intermolecular interactions or covalent bonds. The aim of this study was to immobilize idarubicin via imine band to 3-Aminopropyltriethoxysilane (3APTES) coated magnetite, to prepare a cancer drug with stability and low toxicity levels.
MATERIALS and METHODS:IDA was immobilized to 3-APTES coated magnetite and its activity in HL-60 cell line was studied. Synthesized materials were characterized by spectroscopic devices. IDA immobilized magnetite was administered to HL60 cell line with various doses, ATP and MTT cell viability analyzes were studied and compared to free IDA. In this study, idarubicin was immobilized to an amine group for the first time.
RESULTS:IC50 value of immobilized IDA was 4-folds lower than that of free IDA in HL60 cell line according to in-vitro cytotoxicity tests. Furthermore, idarubicin binding amount was calculated as 0.2 g/100 g magnetite/3APTES.
CONCLUSIONS:The results of this study showed that magnetite-induced idarubicin is effective in eliminating cancer cells even at doses 4 times lower. By applying this method in the clinic, patients will experience less toxic exposure. Using this structure for the first time and giving better results than free idarubicin will provide a new approach to cancer.
This study was supported by TUBITAK BIDEB 2218.
Keywords: Magnetite, HL60 cell line, 3-Aminopropyltriethoxysilane, idarubicin

P-043
Comparison of immunoassay methods (CMIA and ECLIA) for determination of tumor markers HE4 and CA 125

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OBJECTIVES:In our study, we investigate the performance of the Cobas e 601 HE4 and CA 125 compared with Architect and SR 2000.
MATERIALS and METHODS:The investigation included 200 serum samples that were investigated using Cobas e 601 (ECLIA) and Architect and SR 2000 (CMIA).
RESULTS:Using CMIA, the coefficients of variation (CVs) varied from 2.13 % to 4.16 % for CA 125 and from 1.10 % to 4.60% for HE4, and reproducibility from 2.60% to 5.20% for CA 125 and from 1.70% to 4.90 % for HE4. Using Cobas ECLIA, the CVs varied from 0.55 % to 2.09 % for CA 125 and from 0.36 % to 2.30 % for HE4, and reproducibility from 1.0 % to 3.50 % for CA 125 and from 070 % to 4.05 % for HE4. The CMIA and ECLIA regression equation for CA 125 was y (ARCHITECT) = 1.675 + 1.027 x(Cobas) and have intercept

(95% CI 0.418 to2.932) and slope (95% CI: 0.979 to 1.076). The regression equation between CMIA and ECLIA for HE4 was y (ARCHITECT) = 4.330 + 1.502 x(Cobas) and have intercept (95% CI -8.461 to 17.12) and slope (95% CI: 0.924 to 1.373). A high agreement was found between the two immunoassays for determination HE4 and CA 125.
CONCLUSIONS:The various immunoassay techniques using different monoclonal antibodies and methods of detection which leads to different results. The tumor markers CA 125 ad HE4 should be determined if it is possible in only one method.
Keywords: CMIA, ECLIA, HE4 and CA 125

P-045
Therapeutic potential of targeting miR-196a through proliferation and clonogenicity in human PDAC cells

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OBJECTIVES:OBJECTIVES: Pancreatic cancer is known to be one of the most lethal human cancers with 2-3% 5-year survival rate due to strong invasive and metastatic properties and high recurrence capacity. Pancreatic ductal adenocarcinoma (PDAC) is the most common type of pancreatic cancer with 95% of all pancreatic cancers. Therefore, the novel therapeutic agents urgently need to be developed for these patients. However, it is only possible when molecular mechanisms related to PDAC are investigated in detail. To be able to develop the new therapeutic approaches for PDAC, we aimed to investigate the role of miR-196a in cell proliferation and clonogenicity in Panc-1 and MiaPaCa-2 PDAC cell lines. The therapeutic potential of targeting miR196a was investigated using specific inhibitor because of high oncogenic properties of miR-196a in cancers.
MATERIALS and METHODS:MATERIALS-METHODS: For this purpose, MTS and cell colony formation assays were performed for the evaluation of cell proliferation and clonogenicity, respectively, followed by transfection of Panc-1 and MiaPaCa-2 cells with 50 nM negative miRNA or miR-196a inhibitor for 72 h under regular culture condition.
RESULTS:RESULTS: Our data clearly shown that miR-196a inhibitor decreased cell proliferation in both Panc-1 and MiaPaCa-2 cells as 38.6% and 42.1%, respectively, compared to negative miRNA. Additionally, cell clonogenicity were decreased when the both cells transfected with miR-196a inhibitor.
CONCLUSIONS:CONCLUSIONS: According our results, the downregulation of miR-196a might be the new therapeutic approach for PDAC. We believe that these data will help to guide both our further investigations and other researcher in this field.
Keywords: pancreatic cancer, PDAC, miRNA, miR-196a, cell proliferation

P-048
Curcumin inhibits the cell survival and induces apoptosis of human colorectal cancer HCT116 cells

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OBJECTIVES:Curcumin has been used as a medicinal plant and a food additive and has many different biological activities such as anti-inflammatory, anti tumor, anti-oxidant effects and induces apoptosis and inhibits cell proliferation in different cells. We aimed to investigate the effect of curcumin on HCT-116 colorectal cancer cell line.
MATERIALS and METHODS:Cells were treated with different concentration of curcumin for 24 h. Cell survival rate and cell migration was measured by MTT assay and scratch assay, respectively. Apoptosis was monitored by Acridine Orange and Propidium Iodide double staining. The expression level of MMP-9, P53 and Caspase 3 was analyzed by RT-PCR.
RESULTS:Curcumin decreased cell survival and migration rate after 24 h compared to control ($p<0.0001$). Curcumin down-regulated the expression level of MMP-9 and Caspase 3 and up-regulated the expression level of P53 ($p< 0.0001$). The highest percentage of apoptosis observed at concentration of 5 µM curcumin.
CONCLUSIONS:These results demonstrated that curcumin inhibits HCT-116 cells survival, migration and invasion and also curcumin could induce apoptosis through modulating the expression of apoptotic genes.
Keywords: cells survival, proliferation, apoptosis, invasion, migration

P-049
High levels of circulating undercarboxylated matrix Gla-protein found in patients with cardiovascular diseases

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OBJECTIVES:The aim of the current study was to assess whether serum undercarboxylated matrix Gla-protein (ucMGP) levels are associated with coronary artery calcium score (CACS) in a moderate-to-high risk patients without and with cardiovascular diseases (CVD).
MATERIALS and METHODS:A total of 67 patients (48 females and 19 males), mean age 69.4±11.9 years) who visited the Cardiology Clinics at the University Hospital of Varna between October 2018 - July 2019 were enrolled in the study. Moderate- and high-risk patients without CVD (n=33) served as controls. Patients with paroxismal and persistant atrial fibrillation and those with heart failure and sinus rhythm with ejection fraction >40% repesented the CVD group. All participants underwent a multislice computed tomography examination. Fasting venous blood was drawn for laboratory tests. The measurements of ucMGP were performed using a competitive mono-antibody ELISA kit (Cusabio Technology LLC, USA). The routine biochemical parameters (lipid profile and uric acid) were assessed on automated biochemical analyzer. Standard statistical methods (descriptive statistics, one way ANOVA, Spearman correlation analysis) were applied.
RESULTS:Increased ucMGP levels by 24.3% were found in the CVD group when compared to the controls (4.489±1.081µg/ml vs 3.612±0.508µg/ml). Significant positive correlation was established between ucMGP levels, CACS (r=0.29), total cholesterol (r=0.32), and uric acid levels (r=0.72).
CONCLUSIONS:This preliminary study shows that high ucMGP concentrations are associated with higher CACS in CVD patients. In this regard, our results are consistent with the findings of other studies and contribute to the hypothesis that ucMGP plays a pathophysiologic role in vascular calcification.
Keywords: undercarboxylated matrix Gla-protein, coronary artery calcium score, cardiovascular diseases

P-050
Evaluation of copeptin, ghrelin and proBNP levels in patients with metabolic syndrome

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OBJECTIVES:Metabolic syndrome (MetS) is characterized by the coexistence of systemic diseases such as abdominal obesity, insulin resistance, hypertension, hyperlipidemia, that increases the risk of diabetes and cardiovascular diseases. Arginine vasopressin (AVP) may be implicated in MetS by altering pituitary ACTH release, liver glycogenolysis, and secretion of glucagon and insulin. Copeptin is considered as an useful surrogate marker for AVP. It has been suggested that ghrelin with multiple functions including modulating appetite, control of energy metabolism and vascular function, is involved in the development of MetS. The pro-B-type natriuretic peptide (proBNP) has also been proposed as a promising cardiac biomarker for heart function. The aim of this study was to evaluate the relationship between MetS and three different bio markers that related to metabolism and cardiovascular system.
MATERIALS and METHODS:The present study enrolled a total of 44 patients with MetS and 30 healthy subjects. Serum copeptin and ghrelin levels were determined using the ELISA technique. The serum levels of proBNP were measured by using chemiluminescence method. The biochemical parameters including blood glucose and insulin levels, lipid profiles were also measured.
RESULTS:Copeptin and ghrelin levels were significantly lower in patients with MetS than controls. ProBNP levels were significantly higher in patients than in controls.
CONCLUSIONS:Depending on our outcomes it can be postulated that ghrelin, copeptin and proBNP may be associated with components of MetS and involved in pathogenesis of MetS. Therefore, these parameters are thought to be a guide in the follow-up of risky patients.
Keywords: Copeptin, ghrelin, metabolic syndrome, proBNP

P-051
Plasma levels of ApoB, ApoA1, and Apo B/A1 ratio are associated with coronary artery disease

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OBJECTIVES:Apolipoproteins play an important role in lipid metabolism. Dyslipidemia is well known risk factor for CAD, thus apolipoproteins are considered as risk factors for coronary artery disease, too. The aim of this study was to evaluate the association of higher apolipoproteins levels, ApoB/A1 ratio and coronary artery disease (CAD).
MATERIALS and METHODS:ApoA1 and Apo B were determined by immunonephelometric methods in plasma of 119 CAD patients and 182 healthy subjects; Apo B/A1 ratio was calculated mathematically.
RESULTS:Patients with CAD compared to healthy subjects had statistically significant higher levels serum levels of triglycerides (2.54 ± 0.79 vs. 1.32 ± 0.41, p<0.001), total cholesterol (5.49 ± 1.33vs. 4.65 ± 0.99; p<0.0001), LDL cholesterol (3.55 ± 1.02 vs. 2.79 ± 0.96;p<0.001), Apo B (1.27 ± 0.41 vs.0.78 ± 0.25, p<0.0001), and Apo B/A1 ratio (1.20 ± 0.37 vs. 0.65 ± 0.21 p<0.0001); decreased levels of ApoA1 (1.073 ± 0.21 vs. 1.19 ± 0.19, p< 0.002) and HDL cholesterol (0.89 ± 0.24 vs. 1.22 ± 0.27, p<0.0003) were found in CAD patients compared to control group
CONCLUSIONS:The results indicate that dyslipidemia and Apo B levels, apoB/A1 ratio and decreased apoA1 are associated with CAD.
Keywords: CAD, apolipoproteins, dyslipidemia

P-053
Hematological indices as biomarkers of early cardiac adverse events after acute myocardial infarction

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OBJECTIVES:This study's objective is to explore the value of hematological indices as biomarkers of major adverse cardiovascular events during the hospitalization after acute myocardial infarction (AMI).
MATERIALS and METHODS:230 patients with AMI were enrolled in this study. Venous blood was collected at admission. Total white blood cell (WBC), neutrophil, lymphocyte, monocyte, platelet (PLT) counts, MPV, PDW and RDW were calculated using an automated blood cell-counter. Neutrophil-to-lymphocyte ratio (NLR) was computed from the absolute values of neutrophils and lymphocytes. Patients were categorized in groups according to the occurrence or not of heart failure, rhythm disorders and survival. Statistical analysis was performed using SPSS/IBM. P-value<0.05 was considered statistically significant.
RESULTS:AMI patients (mean age 68+/-12, 73.5% males) had an average WBC count of 9611/mm3 despite their in-hospital outcomes. Major adverse cardiovascular events happened in 99 patients (43%). WBC, Absolute Neutrophil Count (ANC), NLR and Monocyte Count (P<0.001), PLT (p=0.046), MPV (p=0.003), PDW (p=0.042) were significantly higher in patients who developed heart failure compared to those who didn't. Cut-off values ANC 7120/mm3 and NLR 4.215 show high sensitivity and sensibility for heart failure. Nonsurvivors had higher WBC, ANC, MPV, PDW, RDW (p<0.001), NLR (p=0.005) at admission. Old age, female gender and ST-segment elevation (STEMI) had significantly higher mortality. Heart rhythm disorders were better predicted by higher WBC (p=0.019) and ANC (p=0.036).
CONCLUSIONS:Hematological indices are useful and cost-effective cardiovascular biomarkers for the occurrence of heart failure, rhythm disorders and death during the hospitalization after AMI, potentially impacting the clinical prognosis and management.
Keywords: hematological indices, cardiovascular biomarkers

P-055
Correlation between Troponin I and complexity of coronary lesions in patients with acute coronary syndrome

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OBJECTIVES:The aim of our study is to explore the correlation of Troponin I (TPI) with the complexity of coronary lesions in patients with Acute Coronary Syndrome (ACS) with evaluation according SYNTAX score, and to evaluate the correlation of Troponin I (TPI) with TIMI and GRACE clinical scores, as predictors of future cardiovascular events.
MATERIALS and METHODS:We studied a group of 107 patients: 31 females and 76 males with ACS who underwent coronary angiography. TPI is measured by chemiluminescent immunometric assay. Statistical analysis of clinical, laboratory and coronary angiographic data was performed by the SPSS 22 program.
RESULTS:The average age of the studied population is 62.71±10.4. Most of patients were in Killip1 (87.9%) also 26 % of patients had STEMI, 52.1% Non STEMI, and 21.9% unstable angina. TPI levels are significantly higher in group with stenosis ≥ 50% vs. group without stenosis < 50% (77.33 ng/ml vs. 2.5 ng/ml, p = 0.000). Positive correlation was found between levels of TPI and Syntax score (r = 0.416, p = 0.00), TIMI score (r = 0.514, p = 0.00) and GRACE scores (r = 0.509, p = 0.00). TPI levels between IAM STEMI and IAM Non STEMI was not statistically significant (122.3±42 ng/ml vs 100.5±32 ng/ml, p = 0.0678).
CONCLUSIONS:TPI is a reliable biomarker in evaluation of the complexity of coronary lesions, we found a positive correlation between TPI levels and Syntax score, also TPI has a positive correlation with TIMI an GRACE clinical score, suggesting a higher risk of future cardiovascular events.
Keywords: Troponin I, Acute coronary syndrome

P-058
The relationship between the degree of stable angina pectoris and serum pentraxin level

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OBJECTIVES:Latter studies demonstrate that inflamation has a key role in the whole atherosclerotic process; onset and progression. One of the atherosclerosis spesific inflamattory indicator is pentraxin 3 which is synthesised from cells, found in atherosclerotic origin, such as endotel, macrophages, smooth muscle cells.PTX-3 is one of the member of pentraxin family such as hs-CRP and a component of the natural immunity. In our study, we evaluated the serum PTX-3 of patients who have diagnosis of the "stabile angina pectoris" and whom coronary obstruction degree was determined with the gensini score
MATERIALS and METHODS:Our patients were consisted of 88 individuals who approached Cardiology Institute of İstanbul University and diagnosed as "stabile angina pectoris"(SAP) by coronary angiography. Biochemical parameters were observed in the biochemistry laboratory of Haseki Education and Research Hospital. Serum PTX-3 was analysed by ELISA kit related with sandwich method.
RESULTS:Group 1 (patients with mild coronary artery diseases and/or gensini score <50)was compared with 2.group 2 (1,2 and 3 vessels affected patients and /or gensini score over 50). The patients who have severe coronary artery disease (Group 2) have distintctly higher ptx-3 levels, found statistically quite significant.
CONCLUSIONS:In our study, it is thought that the statistically high PTX 3 levels are related with atherosclerosis in the evaluation of coronoary artery obstruction degree of SAP patients. Detection of the plasma PTX3 levels of patients diagnosed as SAP before angiography may indicate the severity of the disease thus it may help the detection of atherosclerosis degree and lead to give an angiography decision.
Keywords: Stable Angina Pectoris, Coronary Artery Disease, Pentraxin 3

P-060
Case of Cushing Disease with laboratory findings

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OBJECTIVES:Cushing's disease is a clinical condition of glucocorticoid secretion due to pituitary adenoma secreting ACTH(adrenocorticotropic hormone).The patient, who had been diagnosed with breast cancer before, was diagnosed as Cushing's disease according to the laboratory result during routine biochemistry controls. In this study, we aimed to emphasize the importance of multidisciplinary (laboratory-clinical) approach in the diagnosis of diseases that are directed by biochemical parameters.
MATERIALS and METHODS:A 61-year-old patient with operated breast cancer and diabetes mellitus for 30 years had a fasting blood glucose of 430mg/dl. HbA1c:15.1% Cortisol:28µg/dl(n:5-22µg/dl). 1mg and 2mg dexamethasone suppression test was performed,there was no suppression in the test results. It was not accept by the patient the next step,8mg dexamethasone suppression test. Hospitalization was recommended for further examination and pituitary MR(magnetic resonance) was planned.
RESULTS:MRI findings were interpreted as empty sella or partial empty sella. Inferior petrosal sinus sampling (IPSS) was planned and ACTH levels from the interventional radiology samples were studied.In the sample taken from the left petrosal sinus, ACTH levels were 0.min18.4pg/ml,5.min558pg/ml,10.min778pg/ml; in the sample from the right petrosal sinus 0.min19.8pg/ml,2.min25.8pg/ml,5.min124pg/ml,10.min350pg/ml; in the samples from the peripheral vein 0.min16.4pg/ml,2.min25.3pg/ml,5.min726pg/ml,10.min145pg/ml has been concluded. Based on these laboratory findings, the patient was diagnosed with left lateralized pituitary cushing syndrome.
CONCLUSIONS:In this case, according to the MR findings and the results obtained from IPSS for the diagnosis of Cushing's disease; it was observed that timely and accurate samples are helpful in the diagnosis process and also they save the time for the treatment and follow-up of the patient.
Keywords: Cushing's disease, Inferior petrosal sinus sampling (IPSS)

P-061
Falsely low HbA1c level on the Roche Cobas 6000 platform in a diabetic patient with a high HbF concentration

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OBJECTIVES:Recent episodes of hypoglycemia, Hemolytic anemia or a high percentage of HbF may result in lower than expected HbA1c in diabetic patients.
MATERIALS and METHODS:A diabetic patient (Male, 35) on medication with an average fasting blood glucose of about 157 mg/dl (range 122-195, within two years) recently without any hypoglycemic symptoms had a low normal level of HbA1c (4,6 %, NGSP or 27 mmol/mol, IFCC). Biochemistry and hormone tests were performed on the Roche Cobas 6000 system. To elucidate the discrepancy various hematological and biochemical tests were performed: Complete Blood Count (Sysmex XN 1000) and manual differential count, anemic test panel (Ferritin, Vitamin B12, Folate, Iron/UIBC/Transferrin Saturation), Haemolytic test panel (Coombs tests, LDH, Bilirubins, Reticulocytes) and Hb Electrophoresis (Sebia Capillary Electrophoresis).
RESULTS:The Patient had normal Hemoglobin and red blood cell indices. Due to normal hemolytic test panel results, we ruled out hemolytic anemia. Hb Electrophoresis showed high levels of Hb F 42,1 % (with 57 % HbA and 0,9 % HbA2). According to Roche HbA1c method insert if Hb F is present in more than 10 % than falsely low Hb A1c result may be seen.
CONCLUSIONS:In the absence of recent episodes of hypoglycemia and hemolytic anemia, lower than expected HbA1c values obtained with Roche Hemoglobin A1c may be due to high HbF levels. In these cases, the determination of Hb F percentage by hemoglobin electrophoresis is required. If Hb F is elevated by more than 10% than another method for HbA1c or Glycated Albumin is required for proper glycemia status evaluation.
Keywords: Roche HbA1c, HbF, Haemolytic anemia, Haemoglobin electrophoresis,

P-062
Investigation of homocysteine levels in patients with diabetic nephropathy

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OBJECTIVES:Homocysteine is formed by demethylation of methionine, which is abundant in animal protein and is the core determinant of the methylation cycle. A number of studies also showed that enhanced plasma Hcy level is associated with increasing urinary albumin excretion in diabetic patients. There is also evidence supporting that Hcy abundance is closely related to renal status in the elderly. These results all suggest that Hcy is a marker of impaired renal function in diabetic patients. Our aim of this study is to investigate the levels of homocysteine in patients with diabetic nephropathy and control group.
MATERIALS and METHODS:61 controls and 38 patients with diabetic nephropathy were enrolled to this study. Homocysteine levels were measured by LC-MS/MS. 50 µL plasma, calibrator and control samples were mixed with 50µL in-ternal standard (10µM d8-homocysteine iso-tope DLM-3619-1) and 50 µL reducing reagent (300 mmol/L 1,4-Dithiothreitol) and incubated at room temperature for 15 minutes. 300 µL of precipitating reagent (15% trichloroacetic acid Cat No: Merck 100810) was added to precipitate proteins, mixed for 10 seconds and centrifuged at 13.000 rpm for 3 minutes. 10 µL of superna-tant was injected.
RESULTS:Serum homocysteine levels were significantly higher in patients with diabetic nephropathy (18.7±7.2 µmol/l) than controls ((16.1± 4.8 µmol/l);

p<0.05).
CONCLUSIONS:In our study, we found that serum homocysteine levels were significantly higher in patients with diabetic nephropathy than control group. Therefore, we concluded that homocysteine may be a very useful marker in the diagnosis of diabetic nephropathy.
Keywords: Diabetic nephropathy, homocysteine, LC-MS/MS

P-063
Production and certification of hemoglobin A1c reference material

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OBJECTIVES:Diabetes is a metabolic disorder, which is usually caused by a combination of hereditary and environmental factors and an excessively high level of blood glucose (hyperglycemia). Hemoglobin A1c (HbA1c), also known as glycosylated hemoglobin, is a blood test used to measure the effectiveness of the treatment in diabetes and to diagnose diabetes. Hemoglobin A1c levels are given as percentage (%) in blood by NGSP method. Normally accepted Hemoglobin A1c is between 3 % and 6 %. Hemoglobin A1c levels are measured by various analytical methods. The most commonly used Hemoglobin A1c measurement methods in the literature are 2D-HPLC-CE-UV, HPLC-UV and HPLC-ESI-MS.
MATERIALS and METHODS:Highly precise and accurate liquid chromatography–mass spectrometry (LC–MS/MS) procedure will be developed to measure HbA1c in blood. Also, commutability of HbA1c reference material will be provided by HPLC-UV method as a secondary method for HbA1c measurements.
RESULTS:Firstly, HPLC-UV method was developed for HbA1c measurement in blood. The correlation coefficient (r) of the Calibration Curves obtained was above 0,999 and the accuracy of the Quality Control check was in the acceptance range. We observed no problem at repeatability. Recovery was calculated between 86%-104%.
CONCLUSIONS:HPLC-UV method for measuring HbA1c was developed. Validations of this method has done. After that, to measure HbA1c LC–MS/MS method will be developed. Produced reference material will be certificated with these methods. This certificated HbA1c reference material will be a nationally sourced alternative reference material for clinical area. Also this CRM will reduce outward dependence.
Keywords: Reference material, HbA1c, LC-MS/MS

P-064
Diagnostic distribution of our OGTT results according to American Diabetes Association criteria

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OBJECTIVES:In our study, we aimed to analyze the diagnostic distribution of oral glucose tolerance test (OGTT) results according to American Diabetes Association (ADA) criteria.
MATERIALS and METHODS:Standard oral glucose tolerance test (OGTT) was applied to 298 men and 408 women aged between 18 and 75, who were requested from the outpatient clinics of Kırşehir Training and Research Hospital. Fasting plasma glucose and second hour plasma glucose were measured.
RESULTS:According to the American Diabetes Association (ADA) criteria, 39% of the cases were evaluated as normal (108 males, 172 females), 16% were diabetes (45 males, 70 females), 8% were isolated IFG (impaired fasting glucose) (20 males, 34 female), 33% isolated IGT (114 male, 116 female), 4% IFG + IGT (11 female, 16 male).
CONCLUSIONS:Currently, the incidence of diabetes mellitus and the associated microvascular and macrovascular complications are gradually increasing. 75 g oral glucose tolerance test (OGTT), which is evaluated as proper in accordance with American Diabetes Association (ADA) criteria, has an important role in early diagnosis of diabetes and prevention of complications.
Keywords: Diabetes mellitus, OGTT

P-066
Homocitrulline: Will it be a marker of diabetic nephropathy?

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OBJECTIVES:In the case of carbamylation, isocyanic acid reacts in an irreversible manner with α-and ε-amino groups of proteins, generating α-carbamylated proteins and homocitrulline (HCit,ε-carbamoyllysine) residues, respectively. Our aim of this study is to determine serum homocitrulline levels in patients with diabetic nephropathy.
MATERIALS and METHODS:103 diabetic nephropathy and 35 controls were included. 250 µL of serum and 100µL of D4-L Citruline were vortexed by pipetting with 1000µL of Methanol. The samples were allowed to incubate at room temperature for 10 minutes. It was then centrifuged at 13000rpm for 5 minutes. The supernatant was transferred to a glass tube and the sample was evaporated under 65 degrees nitrogen. 200 µL of 3N HCl + N-Butanol was added to the tube. The cap of the tube was closed and allowed to incubate at 65 degrees for 30 minutes. The sample was evaporated again under nitrogen. 250µL of 20% acetonitrile was dissolved with 0.1% formic acid. Phenomenex Luna C18 column and ABSCIEX API 3200 LC-MS/MS were used for the measurements.
RESULTS:Serum homocitrulline levels were higher in patient group [255 (124-415) ng/mL] compared to controls [248 (103-884) ng/mL] (p=0.009).
CONCLUSIONS:Like glycation process, carbamylation might be responsible for the prognosis of kidney disease in diabetes mellitus. Thus, a carbamylation biomarker, homocitrulline, may be considered as a alternative candidate test.
Keywords: Homocitrulline, Tandem mass spectrometry, Nephropathy

P-067
Evaluation of Th22 and Th9 Cells in Patients withType 1 Diabetes Mellitus

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OBJECTIVES:T helper (Th) cells and their cytokine secretions are thought to have roles in pathogenesis of type-1 DM. Their frequencies are claimed to change in relation with disease progression while they are thought to be contributors of immune attack to pancreatic beta cells.
MATERIALS and METHODS:Heparinised venous blood samples (20 ml) were drawn from patients with type-1 DM (n=20) and healthy controls (n=10). The mean age+Standart Deviation (SD) of the patients with type-1 DM and healthy controls were 29.3±5.6 years (10 males-10 females), 28.4±4.6 years (5 males-5 females), respectively. Duration of disease is 7.5±3.7 years. Peripheral blood mononuclear cells (PBMCs) were isolated using Ficoll-gradient centrifugation from whole blood. PBMCs were incubated with the PMA (50 ng/ml) and Ionomycin (1 mg/ml) for 4 hours at 37 °C with 5% CO_2. Before incubating, Brefeldin A (3 µg/ml) was added as well. After 4 hours, cells were harvested and stained for surface molecule expressions of CD3, CD4. In addition, the intracellular staining was performed for the expression of IL-22 and IL-9. Expression of cell surface and intracellular markers was assessed using flow cytometry whose name is BD FACSCantoII, and data were analyzed by FACSDiva software.
RESULTS:Frequencies of IL-22 and IL-9 of CD3+CD4+ Th cells in patients with type 1 DM were significantly increased compared to healthy controls (p= 0.003 and p=0,022).
CONCLUSIONS:These results show that frequencies of IL-22 and IL-9 cytokines of Th may have roles in pathogenesis of type-1 DM.
Keywords: Diabetes, T helper, IL-22, IL-9

P-068
Correlation between platelet MPV and HbA1c among Bosnian children with type 1 diabetes mellitus

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OBJECTIVES:Diabetes mellitus, regardless of the type, is a prothrombotic state characterized by platelet hyperreactivity and hyperaggregability.Mean Platelet Volume (MPV) is considered a hallmark of impaired thrombopoiesis in diabetes mellitus. Since the data related to diagnostic significance of MPV are lacking and contradictory, in this work, we aimed to compare platelet morphology among children in Bosnia and Herzegovina with Type 1 Diabetes Mellitus (T1DM) and their healthy peers and to analyze possible correlation between platelet morphology and glycated haemoglobin (HbA1C).
MATERIALS and METHODS:The study included 100 children with T1DM and 100 non-diabetic, healthy children as control group. The control group was age- and sex-matched to the study group. In both groups, platelets (x109/L), MPV (fL), HbA1C (%) and glucose (mmol/L) were analysed.
RESULTS:There was no significant difference in BMI and platelet count values between the groups, while HbA1c, glucose and MPV values showed significant differences (p=0.0001 for all three). HbA1c, glucose and MPV were significantly higher in children with T1DM in comparison to healthy children. Positive correlation was observed between MPV and HbA1c (R=0.146, p=0.039), and MPV and glucose (R=0.199, p=0.005).
CONCLUSIONS:MPV is significantly higher in Bosnian children with T1DM when compared to controls. Positive correlation between MPV and HbA1c suggests that MPV levels may serve as a early, inexpensive marker for determining the risk of diabetic microvascular and macrovascular complications.
Keywords: Type 1 diabetes mellitus, Hemoglobin A1c, Mean Platelet Volume, Inflammation marker

P-069
Association between NGAL and glycemic control in patients with type I diabetes mellitus

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OBJECTIVES:Neutrophil gelatinase-associated lipocalin (NGAL) is a member of the lipocalin protein family. NGAL might be an important factor in the pathophysiology of micro- and macro-vascular complications in patients with poorly controlled diabetes. The aim of the study is to evaluate the levels of plasma and urinary NGAL (pNGAL and uNGAL) as a marker for risk of complications in patients with type 1 diabetes mellitus (T1DM) compared to HbA1c values.
MATERIALS and METHODS:The study included 38 patients with T1DM lasting for more than 5 years, classified into two groups according to the HbA1c: good (< 7.5%) and poor glycemic control (>7.5%). pNGAL and uNGAL were quantitatively measured in plasma and a spot urine sample using particle-enhanced turbidimetric immunoassay (BioPorto).
RESULTS:The group consists of 38 children (22 female and 16 male), the middle age is 14.2±2.5 years. 34.2% of the patients were with good and 65.8% with poor glycemic control. The difference in pNGAL levels between the two groups did not reach a statistical significance. The mean uNGAL/Creatinine ratio (NCR) levels were significantly higher in the group with poor glycemic control (6.06±8.32g/mmol vs 1.65±0.98g/mmol, p=0.001). Pearson correlation analysis showed significant positive correlation between NCR and: HbA1c (r=0.549, p=0.001), Albumine/Creatinine ratio (ACR) (r=0.551, p=0.001), Triglycerides (r=0.395, p=0.025); and negative correlation with HDL-cholesterol (r=-0.355, p=0.046).
CONCLUSIONS:NCR levels are higher in patients with poorly controlled diabetes probably in response to tubulointerstitial renal injury. More studies are needed to clear out the role of NGAL as an early marker for diabetic nephropathy.
Keywords: NGAL, Type I diabetes mellitus

P-070
A biochemistry education survey study with pregraduate medical school students

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OBJECTIVES:The medical biochemistry lectures are processed within the first 3 years of the whole period of our University's faculty of medicine. The survey which includes questions about preanalytic phase, diseases and biochemistry is aimed to be carried out in the group of the pregraduate students.
MATERIALS and METHODS:The study designed as a cross-sectional. Data collection instrument prepared by the researchers themselves. The instrument included 22 items have multiple choice options. The data collected from the students were entered into a standard data base by the researchers. The questionnaire has been directed in to 120 pregraduate student in Izmir Katip Celebi University Medical Faculty. For the analysis of the study data, descriptives statistics were used. Data analysis performed using PASW statistics for Windows (SPSS,Inc.IBM) version 21.0.
RESULTS:%37.5 of the participants don't have the knowledge about correct tube for coagulation and hemogram. The urine collection method of 24 hours and urine sample type for special analysis couldn't be known by the students. %40 of students didin't know the correct sample for prenatal screening.
CONCLUSIONS:In order to correct examination process, to minimize the preanalytic failure range, to evaluate the analysis outcomes more accurate after the graduation period, it will be very effective if the medical biochemistry education is added into the rotation programme before the graduation.
Keywords: medical biochemistry education

P-071
Increased circulating levels of cardiotrophin-1 in women with polycystic ovary syndrome

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OBJECTIVES:Cardiotrophin-1, a member of the interleukin-6 family of cytokines, protects several organs from damage by promoting survival and anti-inflammatory effects. Polycystic ovary syndrome (PCOS) is a reproductive and metabolic disease associated with increased risk of cardiovascular events. The aim of this study was to estimate serum cardiotrophin-1 levels in women with PCOS and to find possible relationships between cardiotrophin-1, insulin resistance and biochemical parameters in these patients.
MATERIALS and METHODS:Forty-six women with PCOS and 36 age matched healthy women were participated in this case-control study. Serum insulin level, homeostasis model assessment of insulin resistance (HOMA-IR), and biochemical parameters were measured. Serum cardiotrophin 1 levels were measured using sandwich-enzyme-linked immunosorbent assay.
RESULTS:Cardiotrophin-1 levels were significantly higher in the PCOS group than in the control group (269 ± 188 pg/ml vs. 177 ± 136 pg/ml, p = 0.01). In addition, HOMA-IR, serum insulin, triglyceride and testosterone levels were significantly higher in the patient group than in the control group. Cardiotrophin-

1 levels in the serum of women with PCOS patients were positively correlated with serum insulin and HOMA-IR.
CONCLUSIONS:The circulating levels of cardiotrophin-1 was significantly increased in women with PCOS. Our results suggest that cardiotrophin-1 has a relationship with insulin resistance in PCOS. Elevated cardiotrophin-1 levels can be a predictor of increased cardiovascular risk in PCOS subjects.
Keywords: polycystic ovary syndrome, cardiotrophin-1, insulin resistance

P-072
Procalcitonin as a biomarker for thyroiditis chronica

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OBJECTIVES:The objective of this case report is to highlight the unusual high level of Procalcitonin (PCT) to help to make the right diagnosis in future cases.
MATERIALS and METHODS:The level of PCT in serum samples was measured using enzyme-linked fluorescence assay (ELFA) B.R.A.H.M.S. PCT Vidas PC Biomerieux. The levels of thyroid hormones,TSH,fT4,fT3,and thyroid antibodies,anti- thyrglobulin and anti-thyroid peroxidase levels in the serum samples were measured using two-site Immunoenzymatic assay Access 2,Beckman Coulter. CRP was measured in the serum samples using turbidimetrc method AU 480 B Coulter. WBC was measured in the whole blood EDTA samples -automated hematology analyzer Sysmex XN 550. Thyroid ultrasound and fine needle aspiration cytology was performed.
RESULTS:After total abdominal hysterectomy 52 years-old women, first day after surgery had a fever (38°C). Levels of PCT in serum sample was 14,1 ng/ml, levels of CRP and WBC were in reference ranges. After antibiotics therapy, measurement of PCT, CRP and WBC were repeated. PCT levels was the 13,9 ng/ml and after 48 hours, 13,1 ng/ml. WBC and CRP were the same. General condition of the patient was good. Levels of TSH, anti-thyroglobulin and anty-thyroid peroxidase in the serum sample were increased (TSH 6,1 µIU/ml,TPO Ab 54,1 µIU/ml,Tg-Ab 17,4 µIU/ml). Levels of fT4 and fT3 were in reference ranges. Thyroid ultrasound detected a thyroid heterogeneous nodule. Fine needle aspiration cytology revealed thyroid follicular benign nodule. Diagnosis was thyroiditis chronica.
CONCLUSIONS:The increased level of PCT may indicate thyroid disease in certain circumstances.
Keywords: Procalcitonin,Thyroid disease,biomarker

P-073
Effect of phenylbutyric acid on obesity induced hypothalamic vasculopathy

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OBJECTIVES:Obesity is a serious metabolic disorder that results from imbalance between energy intake and expenditure. In the central nervous system (CNS), the hypothalamus is a significant brain area in regulating feeding behavior and energy balance. Homeostasis of the CNS microenvironment is maintained by the blood-brain barrier (BBB). BBB is a highly specialized and dynamic barrier. The structural integrity of BBB is sustained mainly by tight junction (TJ) proteins and adherens junctions. Disruption of BBB TJ can lead to impaired BBB function and might initiate vasculopathy. Phenylbutyric acid (PBA) is a chemical chaperone that enhances the capacity of the endoplasmic reticulum and decreases the endoplasmic reticulum stress response signal. It was aimed to evaluate the effect of chemical chaperone PBA on the expression of TJ protein occludin in the hypothalamus.
MATERIALS and METHODS:In the study, lean and ob/ob male mice were divided in two groups (n=8) and administered with either vehicle or PBA for thirty days. After thirty days, all mice were sacrificed and brain tissues were removed. The expression of the TJ protein occludin in the hypothalamus were assessed by western-blotting.
RESULTS:Our initial results demonstrated that the expression of the tight junction protein occludin increased in the hypothalamus of PBA-treated ob/ob mice compared to ob/ob controls.
CONCLUSIONS:The results indicated that obesity induced dysregulation of occludin expression might be compensated via administration of chemical chaperon PBA.
Keywords: Obesity, occludin, phenylbutyric acid, tight junctions, vasculopathy

P-074
The serum levels of TRB3 and sestrin-2 in obese and non-obese patients with polycystic ovary syndrome (PCOS)

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OBJECTIVES:PCOS is an endocrinopathy which is caused to chronic anovulation and anovulatory infertility. Menstruation irregularities, symptoms of androgen excess, obesity and sometimes hirsutism are clinical signs of PCOS. The relationship of between obesity and PCOS isn't explained completely. TRB3 (Tribbles homolog 3) is a mammalian homolog of the drosophila tribble gene. The synthesis of TRB3 increases under various stressful conditions such as endoplasmic reticulum stress and starvation. Increasing of TRB3 causes to hypoglysemia and IR also inhibits adipocyte differentiation. Sestrin-2 is a member of the stress-stimulated protein family which regulates metabolic homeostasis. Sestrin-2 is as a protective antioxidant protein against oxidative stress, ROS and cardiovascular diseases. We predicted that sestrin-2 and TRB levels can be related with metabolic disturbances in PCOS.
MATERIALS and METHODS:57 patients were included who have PCOS to the study. 22 healthy women were enrolled as control group. Patient group was separated to obese and non-obese groups. Metabolic parameters, TRB3 and sestrin-2 tests were performed on patients and control groups. TRB3 and sestrin-2 were measured by microelisa method.
RESULTS:Sestrin-2 mean values were lower in obese PCOS group than non-obese PCOS group ($p<0.005$). In Obese PCOS group, sestrin-2 has negative correlation with HOMA-IR, insülin and BMI. TRB3 mean values were higher in both PCOS groups than control group ($p<0.005$).
CONCLUSIONS:Our study showed that the changes of serum levels of TRB3 and Sestrin-2 is related to metabolic disturbances. These parameters can be used to evaluating of metabolic status in obese and non-obese women with PCOS.
Keywords: Sestrin-2, TRB3, Obesity, PCOS

P-075
Galectin-3 levels and inflammatory response in patients undergoing bariatric surgery

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OBJECTIVES:Obesity is a low-grade systemic inflammatory disease. Galectin-3 is a member of the lectin family and plays a role in inflammatory processes. The aim of our study was to investigate the possible relationship between galectin-3 level and obesity and to evaluate the metabolic inflammatory process before and after obesity surgery through this marker.

MATERIALS and METHODS:Total of 100 patients (normal weight, overweight, 1st, 2nd, and 3rd degree obese) were included in the study. The 3rd degree obese patients were evaluated at 3rd and 6th months after bariatric surgery. In samples taken from all patients, glucose, insulin, HbA1c, lipid profile, high sensitivity C-reactive protein (hsCRP), galectin-3, interleukin (IL) -6, IL-10, adiponectin, and leptin levels were measured.
RESULTS:The average age of the individuals included in the study was 41±9 years. The mean body mass index (BMI) of the 3rd degree obese patients decreased significantly after the 3rd and 6th months of surgery. Galectin-3 levels were higher in the 3rd degree obese individuals compared to the normal weight group. After surgery glucose, insulin, HbA1c and HOMA-IR, IL-6, galectin-3, and hsCRP levels were decreased. IL-6, galectin-3, leptin, and hsCRP levels were found significantly higher in the insulin resistant group (HOMA-IR≥2.5). There was a significant correlation between levels of galectin-3 and IL-6, leptin, and hsCRP.
CONCLUSIONS:In our study, serum galectin-3 levels decreased together with the parameters related to postoperative inflammation and insulin resistance. These findings support that galectin-3 is one of the molecules involved in the linkage between meta-inflammation and insulin resistance.
Keywords: Bariatric surgery, galectin-3, inflammation, insulin resistance, obesity

P-078
Lipid profile in female and male rats subjected to a combined high-fat-high-carbohydrate diet

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OBJECTIVES:High-fat-high-carbohydrate (HFHC) diet is one of the leading etiological factors in obesity, cardiovascular diseases and metabolic syndrome. Animal models are an affordable way to study the negative effects of HFHC diet. They provide a basis for comparison of gender variations. The aim of our study is to compare the effect of the HFHC diet on the lipid profile in female and male rats.
MATERIALS and METHODS:Wistar rats (n = 32) were divided into 4 groups - female and male control (FC and MC) and female and male dietary-manipulated (FD and MD). Groups FD and MD were subjected to a HFHC diet, and FC and MC received standard rat chew, for 16 weeks. At the end of the experiment, after decapitation, mixed blood was collected. Serum concentrations of total cholesterol, HDL- and LDL-cholesterol, and triglycerides were determined.
RESULTS:Compared to the controls, dietary-manipulated groups had higher total cholesterol (1.67 ± 0.1mmol.l-1 vs 2.00 ± 0.1mmol.l-1, P < 0.05), LDL-cholestorol (0.24 ± 0.05mmol.l-1 vs 0.59 ± 0.05mmol.l-1, P < 0.05) and triglycerides (0.99 ± 0.4mmol.l-1 vs 2.48 ± 0.4mmol.l-1, P < 0.05). Compared to females, the male rats had higher total cholesterol (1.68 ± 0.1mmol.l-1 vs 1.98 ± 0.1mmol.l-1, P < 0.05), triglycerides (1.04 ± 0.4mmol.l-1 vs 2.43 ± 0.4mmol.l-1, P < 0.05) and lower HDL-cholesterol (1.36 ± 0.05mmol.l-1 vs 1.06 ± 0.05mmol.l-1, P < 0.05).
CONCLUSIONS:The used HFHC diet increases the serum concentrations of studied lipid parameters in both genders. These disturbances were more pronounced in male rats.
Keywords: lipid profile, hfhc diet, wistar rats, obesity

P-079
Waist circumference as a predictor of atherosclerosis

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OBJECTIVES:Obesity is a complex metabolic disorder which is one of the most common contemporary health problems. Numerous researches show the connection between chronic,low intensity inflammation and obesity, as well as the connection between lipid metabolism disorder and obesity. The aim of this research was to determine connection between waist circumference, lipid status and hsCRP concentration in adult, metabolically healthy subjects.
MATERIALS and METHODS:The research included 82 subjects.in accordance with International association for diabetes mellitus, subjects were divided into 2 groups. The group of subjects with abdominal obesity and control group. Concentration of cholesterol, triglycerides, lipoproteins, hsCRP was measured on the Architect c4000
RESULTS:The average measurements of waist circumference were (100.83±8.12 to 74.68±9.35 cm). Using the Student's test, significantly higher concentrations were observed in group of obese people (cholesterol P<0.001; LDL cholesterol P<0.001; VLDL cholesterol P<0.001; triglycerides P<0.001). By analyzing and comparing the values of HDL cholesterol, significantly lower concentrations of HDL were observed in obese people group. (P<0.001). HsCRP serum concentration was significantly higher in obese subjects (p<0.0001). We established positive correlation between hsCRP concentration and waist circumference, total cholesterol, triglyceride, LDL concentration and waist circumference has been proven, as well as negative correlation between waist circumference and HDL concentration.
CONCLUSIONS:Our results indicate that, given the fact that these changes in lipid profile represent a risk factor in development of atherosclerosis, a proatherogenic lipid profile is favorized in the organism of obese people.
Keywords: Obesity, lipids, atherogenesis, inflamation, hsCRP

P-080
Determination of 8 OHDG levels in metabolic syndrome

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OBJECTIVES:Metabolic syndrome is an important cause of morbidity affecting more and more people both in Turkey and all over the world. Metabolic syndrome is an endocrinopathy in which individuals have multiple factors such as diabetes, impaired fasting glucose, impaired glucose tolerance or insulin resistance.As a result of increasing reactive oxygen species and insufficient antioxidant mechanisms in the body, a number of pathological events called oxidative stress occur. It is known that oxidative stress causes various events and causes damage by showing various effects on DNA by different mechanisms. Therefore, in this study, we aimed to determine the levels of 8 OHDG which are indicative of oxidative DNA damage in individuals with metabolic syndrome and healthy volunteers as control group.
MATERIALS and METHODS:World Health Organization (WHO) diagnostic criteria were used for the diagnosis of metabolic syndrome. In determining 8-OHdG levels, Enzyme-Linked Immuno-Sorbent Assay method was used.
RESULTS:Serum 8-OH-dG (pg/mL) level was found statistically to have increased when compared with those of the control group (0.18±0.14) in METS patients (0.99±0.21).
CONCLUSIONS:In this study, we have tried to show the changes in oxidative stress markers in MetS patients and healthy participants.Many factors that cause metabolic syndrome also trigger oxidative damage. The role of oxidative stress in the pathogenesis of methanolic syndrome needs to be studied and the status of cardiovascular diseases should be demonstrated.
Keywords: Metabolic sendrom, 8-OHdG,oxidatif stress

P-081
Increased asymmetric dimethylarginine levels in patients with Graves' Disease

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OBJECTIVES:Asymmetric Dimethyl Arginine(ADMA) is an endogenous inhibitor of endothelial nitric oxide synthase and reduces nitric oxide release from the endothelium, and causes endothelial dysfunction and local vasospasm. Hashimoto's Thyroiditis is the most common cause of hypothyroidism and is an autoimmune disease caused by antibodies directly attacking the thyroid gland. Graves' disease is an autoimmune disease that causes hyperthyroidism due to hyperactivity of the entire thyroid gland. Non-toxic multinodular goiter(MNG) is an endemic condition in Turkey with multiple nodules in the thyroid gland without increased hormone release.Increased ADMA levels are recently recognized as a novel risk factor for endothelial dysfunction and cardiovascular events.Our aim was to investigate the association between circulating ADMA levels and autoimmune thyroid disorders thought to increase cardiovascular disorders.
MATERIALS and METHODS:A total of 200 euthyroid individuals were enrolled in this prospective study, including 50 patients with Hashimoto's Thyroiditis,50 patients with Graves diseases, 50 individuals with MNG and 50 healthy controls who admitted Selçuk University Medical Faculty between 01.01.2018 and 01.12.2018.Statistical analyses were performed using the IMB SPSS,v21.
RESULTS:ADMA levels were statistically higher in patients with Graves' disease (mean:0.64±0.27 µmol/l) compared to Hashimoto thyroiditis (mean: 0.53±0.18 µmol/l), MNG (mean: 0,51±0,24µmol/L) and control group (mean: 0.49±0.21µmol/l) (p=0.023,p=0.012 and p=0.005,respectively).There were no relationships among ADMA levels, thyroid hormones, TSH or BMI.
CONCLUSIONS:Our study demonstrated that serum ADMA concentrations were significantly increased in patients with Graves' disease, not influenced by gender, age, thyroid hormone levels, BMI and smoking. These findings may explain the biochemical pathway of increased cardiovascular disease in Graves' disease.
Keywords: Hashimoto, Multinodular Goiter, ADMA,Graves' Disease

P-082
Determination of ischemia modified albumin (IMA) level in Hashimoto thyroiditis

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OBJECTIVES:Hashimoto's thyroiditis (HT) is the most common inflammatory disease of the thyroid. The hypothyroid in which Hashimato cases are seen is characterized by a decrease in oxidative metabolism and a significant increase in lipid and lipoprotein plasma levels. This situation causes the balance of metabolism in the organism to be disrupted and oxidant-antioxidant balance changes.Ischemia-modified albumin (IMA) is a biomarker that is an indicator of ischemia and oxidative stress and is measured by albumin cobalt binding test. Several changes that occur at the amino terminal end of human serum albumin during ischemia are caused by oxidative free radicals and in particular reduce the binding capacity of transition metals such as cobalt. Therefore, in this study, we aimed to investigate whether ischemia marker IMA has changed in hashimoto, an autoimmune thyroid dysfunction, and how it affects thyroid damage.
MATERIALS and METHODS:24 patients diagnosed with HT and 25 healthy women were joined in our study. IMA levels were determined by albumin cobalt binding test, a colorimetric method
RESULTS:Plasma IMA level was higher in HT patients compared to controls (0.64±0.11 AU and 0.53±0.14 AU respectively). There was no statistically significant difference between the groups in terms of IMA levels. (p>0.05,p= 0.392)
CONCLUSIONS:When the functions of the thyroid are impaired (both in hypothyroidism and hyperthyroidism), the organism's use of oxygen and thus metabolic events that are primarily responsible for heart ischemia change. Therefore, we think that further research is needed for IMA which is evaluated as an important indicator and evaluated with heart ischemia
Keywords: Hashimoto Thyroiditis, IMA, Oxidative stress

P-083
Diagnostic significance of inflammatory parameters in obese prepubertal and pubertal Bosnian children

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OBJECTIVES:Obesity in pre-pubertal and pubertal children is a serious problem,being connected with systemic low-grade inflammation and endothelial dysfunction and different disorders like metabolic syndrom, insulin resistance, hypothyroidism. The data related to inflammatory markers in these characteristic populations are lacking in Bosnian children, therefore, major aim of this work was to determine differences in concentration of selected inflammatory markers in Bosnian obese pre-pubertal and pubertal children and to define their possible relationship with inflammation.
MATERIALS and METHODS:Body Mass Index (BMI - kg/m2), number of leukocytes (n x109//)L), neutrophils granulocytes, lymphocytes, platelets, as well as neutrophils/lymphocyte ratio, platelet/ lymphocyte ratio, systemic immune-inflammatory index (SII) and C-reactive protein (CRP- mg/L) were analyzed in 115 obese and 100 non-obese children as a control group who were further subdivided into prepubertal and pubertal children.
RESULTS:Significantly elevated BMI, leukocytes, neutrophils/lymphocyte ratio, platelet/ lymphocyte ratio, SII and C-reactive protein (p<0.001 for all parameters) were observed in the group of obese children in comparison to controls. Neutrophil granulocytes, Lymphocytes Neutrophil/lymphocyte (p<0.001), Platelets/Lymphocytes (p=0.016), and SII (p<0.001) were significantly affected by age while leukocytes and CRP were not altered significantly. In the obese group, positive correlation was observed between BMI and: neutrophil granulocytes (r=0.416; p<0.001); SII (r=0.316; p<0.001); neutrophils/lymphocyte ratio (r=0.333; p<0.001) and Platelets/Lymphocytes ratio (r=0.269; p<0.001).
CONCLUSIONS:There is a positive association between BMI and several inflammatory parameters such as neutrophil granulocytes, SII, neutrophil/ lymphocytes and platelets/lymphocytes ratios. Early identification of those biomarkers in defined populations may help in the prevention of obesity associated complications.
Keywords: Childhood obesity, inflammation, inflammatory markers, age

P-085
Serum sclerostin levels in obese children and adolescents

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OBJECTIVES: The basic interactions between obesity and bone is complex and not well known. Research findings suggest that obesity is detrimental to bone health despite potential positive effects of mechanical loading conferred by increased body mass on bones. Recently, the wnt/ beta-catenin signaling pathway

and its one of the inhibitor sclerostin were found to be involved in the control of bone mass. The aim of this study was to investigate the serum sclerostin levels in obese and non-obese children and adolescents and compare with other bone turnover markers and bone mineral density (BMD).
MATERIALS and METHODS: The study included 38 obese children and adolescents (19 males and 19 females) aged from 7 to 17 years and 38 healthy normal-weight controls (18 males and 20 females) aged from 6 to 17 years. Serum sclerostin levels were measured by ELISA method using commercially available kit.
RESULTS: Body mass index ($p=0.000$) and sclerostin ($p<0.05$) levels of the obese children was significantly higher than that of non-obese children.
CONCLUSIONS: Our result of higher serum sclerostin levels of the obese children and adolescent showed a tendency toward bone loss in obese children and adolescents.
Keywords: Obesity, Osteoporosis, Sclerostin

P-086
Vitamin D and lipid profile levels in obesity

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OBJECTIVES:In this study, we aimed to investigate the relationship between vitamin D levels and lipid profiles of obese patients.
MATERIALS and METHODS:The study included 142 people who applied to endocrine polyclinic for weight loss. Patients were divided into two groups according to body mass index. Demographic and laboratory data were obtained from patient files.
RESULTS:The mean age of the 142 participants was 34 ± 6 years. The number of women was 120 (85%), while the number of men was 22 (15%). When obese subjects were compared to non-obese subjects, waist circumference, fat mass, lean body mass, total body water and basal metabolic rate were increased, while high density lipoprotein levels were significantly lower. When fasting blood glucose, HbA1C and insulin resistance were compared between obese and non-obese, there was a significant difference between the two groups. There was no relationship between obesity and gender (Pearson Chi square test 0.435, p = 0.500). There was no significant difference between obese and non-obese groups in terms of vitamin D levels (Mann-Whitney U test 2881, p = 0.663). However, when the groups were divided into three groups as 30 ng / mL according to 25-OH vitamin D levels, there was a statistically significant relationship between vitamin D and obesity (Pearson Chi square test 5.575, p = 0.0179). Serum total cholesterol, TG and LDL levels were lower and HDL levels were higher than patients.
CONCLUSIONS:This may be explained by vitamin D deficiency itself or by differences in vitamin D metabolism during the development of obesity.
Keywords: Vitamin D, Lipid profile, Obesity.

P-088
Insulin Resistance Markers in Polycystic Ovarian Syndrome

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OBJECTIVES:Polycystic ovary syndrome (PCOS) is the most frequent endocrin disorder in reproductive-age woman (5-10%). As a multisystemic, reproductive-endocrinologic disorder that carries long term health risks such as type 2 diabetes, dislipidemia, cardiovascular diseases and endometrial carcinoma, PCOS is a public health issue. Insulin resistance may play important roles in the pathophysiology of PCOS.
MATERIALS and METHODS:Our study group included 53 patients diagnosed with PCOS and 42 healty volunteers. Patient group and control group has been divided into two groups; "normal weight" as BMI < 25 and "over weight" as BMI > 25. Demographic properties of Patient group and control group determined. Hirsutism scoring, pelvic or vaginal US examination performed. Serum glucose, insulin, total testosteron, SHBG, LH, FSH, total cholesterol, triglicerides, HDL cholesterol and LDL cholesterol levels are determined in all individuals. HOMA-IR calculated to determine insulin resistance. SAI calculated for biochemical hyperandrogenism. Adiponectin, ghrelin, resistin and visfatin level determined. Main groups and sub-groups compared.
RESULTS:There was significant difference between control group and patient group in adiponectin, ghrelin, resistin and visfatin levels. Adiponectin and visfatin levels were lower, ghrelin, resistin, LH levels and LH/FSH ratio were higher in PCOS group. Insulin and HOMA-IR was also high. There was significant difference between groups in total testosteron levels and SAI. There was a negative weak correlation between adiponectin and ghrelin.
CONCLUSIONS:Adiponectin, ghrelin, resistin and visfatin may play roles in insulin resistance. In this study, alteration of parameters showing insulin resistance demonsrated that insulin resistance plays an important role in the pathogenesis of PCOS.
Keywords: Polycystic ovary syndrome,adiponectin, ghrelin, resistin, visfatin

P-091
Rethinking common solvents in butyrylcholinesterase activity assays

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OBJECTIVES:Butyrylcholinesterase (BChE) plays a secondary or supportive role in cholinergic neurotransmission and is recognized as a therapeutic target in the fight against Alzheimer's disease. Today, there is a growing interest in identifying natural or synthetic small-molecule BChE inhibitors, whose drug-likeness is investigated both by binding and enzyme kinetic studies. In BChE activity assays, these potential drug candidates are normally dissolved in one of several water-miscible organic solvents. However, the inhibitory effects of common solvents on BChE remain largely unknown. Here, we aim at exploring the inhibitory activities of acetone, acetonitrile, dimethyl sulfoxide, ethanol and methanol against mammalian BChE.
MATERIALS and METHODS:BChE activity was assayed colorimetrically using butyrylthiocholine (BTCh) as substrate and dithiobisnitrobenzoate as chromogen. The kinetic parameters and mode of inhibition were determined statistically by nonlinear regression (curve-fitting), and the data were then graphed in Lineweaver–Burk and Dixon plots for illustration purposes.
RESULTS:Our results show that all of the solvents tested inhibit BChE in a dose-dependent manner, albeit to varying extents. Methanol is the least potent inhibitor of the enzyme ($IC50$ = 12,199 mM, or ~49% (v/v)) at 1 mM BTCh, while acetone is the most potent inhibitor of the enzyme ($IC50$ = 707 mM, or ~5% (v/v)) at 1 mM BTCh. The mode of BChE inhibition by acetone is best described as competitive with respect to BTCh.
CONCLUSIONS:Our findings suggest that great care must be taken in BChE activity assays using acetone in particular to ensure that solvent-related inhibitory effects do not conceal the true kinetics of BChE–inhibitor interactions.
Keywords: butyrylcholinesterase, Alzheimer's disease, enzyme inhibition, solvent-related effects, acetone

P-092
The relationship of autoantibody aganist erythrocyte antigens with macroenzymes

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OBJECTIVES: In this study, the relationship between auto antibodies against erythrocyte antigens and these macromolecules will be investigated.
MATERIALS and METHODS: The study included 35 patients with auto antibody positive using gel Centrifugation and colon agglutination methods and 35 healthy donors who came for blood donation. ALP, AMY, AST, CK, GGT and LDH tests were measured before and after precipitation with 25% polyethylene glycol using serum from all participants. Recovery calculations were made after precipitation with PEG.
RESULTS: It was found that the recovery of AMY and LDH was lower in patients with auto antibody positive compared to the control group (respectively, AMY: 0.64±0.09, 0.49±0.18 and LDH: 0.64±0.09, 0.49±0.18; $p<0.001$

CONCLUSIONS: The presence of auto antibodies against erythrocyte antigens is associated with the formation of macromolecules, which are believed not to show complete biological activity, particularly in AMY and LDH.
Keywords: Macro lactate dehydrogenase, Macro amylase and Auto antibody

P-093
Detection of thiopurine S-methyltransferase mutations by Multiplex PCR

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OBJECTIVES: Thiopurine methyltransferase gene is located on chromosome 6 and is approximately 34 kb in length. More than twenty eight genetic variants have so far been identified, the majority of which are associated with low levels of TPMT activity. The aim of this study was set up a PCR based method for screening of TPMT mutations.
MATERIALS and METHODS:Whole-blood samples collected into 4 mL EDTA tubes. Genomic DNA was isolated from each blood samples using AccuPrep Genomic DNA Extraction Kit (Bioneer). Two reactions containing a mixture of wild-type primers, mutation-specific primers and a pair of positive control primers were performed on genomic DNA. Multiplex PCR PreMix tubes (Bioneer) consisted of a total volume of 20 µL containing 200 µmol/l dNTP, 0.5 µM of each primer, 4.0 mmol/l $MgCl_2$, 1 U of Taq DNA polymerase, and 100 ng of genomic DNA. Temperature cycles (30 in total) were 94°C for 30 s, 65 °C for 30 s, and 72 °C for 40 s. PCR products were run by 1.5% agarose jel electrophoresis. Amplified DNA fragments were visualised using ethidium bromide, under UV light.
RESULTS:We set up multiplex, allele-specific polymerase chain reaction (PCR) method that detects the 238G>C, 460G>A, and 719A>G mutations, allowing for identification of TPMT*2 and TPMT*3 alleles.
CONCLUSIONS:Molecular diagnosis of TPMT polymorphism is a strong alternative for enzyme activity assays. This multiplex PCR assay for common TPMT mutations is simple, rapid, accurate, and cost-effective option for screening of patients in clinical research studies.
This project was supported by Çukurova University Research Projects Unit(FDK-2019-11950).
Keywords: Thiopurine methyltransferase, 6-thioguanine, 6-methylthioguanine

P-094
Inhibition of alkaline phosphatase on glyphosate and the effect of some molecules on this inhibition

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OBJECTIVES:Alkaline phosphatase is a zinc metalloenzyme which hydrolyze organic phosphate esters from phosphate group in alkali medium. Although glyphosate as a herbicide, which is thought to cause cancer, kidney damage and many neurological damages, is allowed to be used in the European Union for another 5 years, it is first completely banned in Austria. Since glyphosate has a phosphate structure, we aimed to carry out activity studies considering that it would have inhibitory effect on alkaline phosphatase.
MATERIALS and METHODS:Alkaline phosphatase activity was modified by Bower and McComb's method and endpoint measurement was performed. Two different buffers with glycine and 2A2M1P were used for determination of alkaline phosphatase in human serum. The inhibitory effect of glyphosate(282mg/L) on alkaline phosphatase, as well as the effect of dexamethasone(160mg/L), alendronate(12.8mg/L) and deoxycholic acid(654mg/L) on inhibition with glyphosate were investigated.
RESULTS:Glyphosate activity in glycine buffer(83%) was decreased more than 2A2M1P(%94). It has been observed that deoxycholic acid decrease alkaline phosphatase activity in both buffers and potentiates the inhibition effect of glyphosate. Dexamethasone was measured to reduce the inhibitory effect of glyphosate in glycine buffer. Alendronate did not alter the inhibitory effect of glyphosate in the glycine buffer but caused an increase in the slight inhibitory effect of glyphosate in the buffer with 2A2M1P(90%).
CONCLUSIONS:Alkaline phosphatase activity differed between the two buffers. The presence of glycine in the glyphosate structure may have reduced the inhibitory effect on activity in the glycine buffer. In addition, dexamethasone decreased glyphosate inhibition and alendronate wasn't effective in inhibition, suggesting further studies.
Keywords: Glyphosate, Alkaline Phosphatase, Enzyme Inhibition

P-096
Investigation of homocitrulline levels in healthy people and patients with Behçet's Disease

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OBJECTIVES:Behçet's disease (BD) is a multisystemic and inflammatory disease characterized by recurrent oral aphthous ulcers, genital ulcers, uveitis, epididymitis, mucocutaneous, joint, gastrointestinal, neurological, and vascular involvement. In this study; we aimed to investigate the levels of serum homocitrulline, a characteristic carbamylation-derived product, in BD and healthy people.
MATERIALS and METHODS:This study was performed with 30 control subjects and 30 patients with Behçet's disease, who admitted to the Selcuk University Faculty of Medicine, Department of Rheumatology. Serum homocitrulline and lysine levels were determined by liquid-chromatography tandem mass spectrometry. Statistical analysis was performed with SPSS v16.
RESULTS:The homocitrulline levels of the patient group (1.11±0.74 mmol/mL) were significantly higher (p=0.001) than control group (0.38±0.12 mmol/mL). Homocitrulline/lysine ratios were higher in the patient group (1.15 ± 0.89 mmol/mol) compared to the control group (0.31 ± 0.10 mmol/mol) (p<0.001). However, lysine analysis showed no significant difference between groups.
CONCLUSIONS:In this study that was performed for the first time, there was a positive relationship between behçet disease and homocitrulline levels. Therefore, it is thought that homocitrulline levels may be used as biomarkers in behcet disease.
Keywords: Behçet's disease; Homocitrulline; Inflammation

P-097
The relationship between ischemic-modified albumin level in patients with Ankylosing Spondylitis

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OBJECTIVES: Ankylosing spondylitis (AS) is a chronic inflammatory disease of the spine and sacroiliac joint with unknown etiology. Inflammation is associated with increased oxidative stress; recent studies have implicated increased oxidative stress in the pathogenesis of AS. Ischemic-modified albumin (IMA) is an altered form of albumin and increases in oxidative stress. The aim of this study was to investigate the IMA levels and the relationship between in AS.
MATERIALS and METHODS:The study included 63 patients (28 female, 35 male) diagnosed with AS according to Modified New York Criteria and 48 participants (22 female, 26 male) as healthy controls. The patients and controls had no known cardiovascular risk factors. Both groups were examined for serum protein, albumin, lipid profile, C-reactive protein (CRP), and hemogram. Serum IMA levels of the groups were compared.
RESULTS:The patient and control groups were similar in terms of age and gender. Serum IMA levels were significantly higher in the patient group than in the controls. Among the patients with AS, serum IMA levels were significantly

higher in those with active disease (BASDAI ≥4). The IMA and CRP levels were positively correlated in the patients with active disease.
CONCLUSIONS:Higher levels of IMA in patients with AS or in those with active disease suggest that it may be associated with pathogenesis and activity of the disease. However, more comprehensive studies with larger number of patients would be necessary in order to evaluate the IMA level as an inflammatory marker in AS.
Keywords: ischemic-modified albumin, ankylosing spondylitis, c-reactive protein

P-098
Short-term effects of sleeve gastrectomy on metabolic variables in obese patients

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OBJECTIVES:The objective of this study was to determine the short-term effects of sleeve gastrectomy on some metabolic health variables in the blood of obese patients.
MATERIALS and METHODS:A total of 9 patients (men, 3; women, 6) with obesity (BMI ≥30 kg/m2) visiting Pamukkale University Hospital from March to July 2019 were included in this study. Blood samples were collected before and after 2 months of sleeve gastrectomy. Levels of serum hepatic enzymes, and serum sodium, potassium, and chloride levels were determined by spectrophotometric procedures. The whole blood and sera were analyzed for Glycated hemoglobin (HbA1c), total cholesterol (TC), triglyceride (TGs), high density lipoprotein cholesterol (HDL-C) and low density lipoprotein cholesterol (LDL-C). Urea, creatinine and blood urea nitrogen levels were also detected.
RESULTS:Serum urea and creatinine contents were significantly ($p < 0.05$) decreased in postoperative obese patients compared to preoperation. Remarkable improvements in perturbed metabolic variables approaching normality were perceivable. Serum albumin and total bilirubin concentrations were significantly increased ($p < 0.05$).
CONCLUSIONS:Obesity, defined as a multi-factor disease which is very common in all over the world. Obesity resulted in perturbations of whole body metabolism. Sleeve Gastrectomy is a widely applied surgical procedure which aimed the weight loss in obese people by reducing the stomach volume. Metabolic parameters were normalized and improvements in the general health status of the patients were observed in a short-term period after sleeve gastrectomy.
Keywords: Obesity, Sleeve gastrectomy, Metabolic variables

P-099
Correlation between serum levels of Anti CCP and RF in patients with joint pain

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OBJECTIVES:Rheumatoid arthritis affects 0.3% to 1% of the population. It is an autoimmune disease characterised by chronic synovial inflammation. Currently, the most well-known and established test is Anti CCP. It is extremely specific for rheumatoid arthritis, and is present early in disease, and predicts the erosive states of disease.
MATERIALS and METHODS:This prospective interventional study was performed between January 2019 and May 2019 in the PHO Clinical Hospital in Bitola. The study included 30 subjects - 21 females are with join pain and 9 males. The blood samples were taken after overnight fast (12 hours). Anti CCP and RF were determined by Abbot Architect CI 4100 analyzer.
RESULTS:We found increased level of Anti CCP in 6 patients (4 females, 2 males), 11 patients have increased level of RF (7 females, 4 males), 3 patients have increased level of Anti CCP and RF (2 males, 1 women) and 16 patients have normal values of Anti CCP and RF. We found a great correlation in 19 patients between Anti CCP and RF
CONCLUSIONS:We found a significant correlation between RF and Anti CCP.
Keywords: anti-cyclic citrullinated peptides (anti-CCPs), rheumatoid factor, rheumatoid arthritis

P-100
The role of netrin-1 in rheumatoid arthritis

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OBJECTIVES:Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease that primarily affects the lining of the synovial joints and is associated with progressive disability, premature death, and socioeconomic burdens. Netrin 1 was initially identified as an axon guidance factor, and recent studies indicate that it inhibits chemokine-directed monocyte migration. Despite its importance as a neuroimmune guidance cue, the role of netrin 1 in osteoclasts is largely unknown. Recent studies have shown high levels of netrin 1 in rheumatoid arthritis patients. The aim of this study is to clarify the role of Netrin-1 in the diagnosis, progression of RA.
MATERIALS and METHODS:34 control and 45 patients with RA were enrolled to this study. Collected serum samples were stored at −80°C, then analyzed for netrin-1 by ELISA (kit from USCN Life Sciences Inc.).
RESULTS:Serum Netrine-1 levels were significantly higher in patients with RA (2775.14(437.25-6226.16)) than controls (589.14(235.13-869); $p<0.001$).
CONCLUSIONS:We concluded that netrin-1 can be a useful marker in the diagnosis of rheumatoid arthritis. However, further studies with larger clinical groups are necessary to identify the possible relation between netrin-1 and pathogenesis of RA.
Keywords: Netrin-1, rheumatoid arthritis, inflammation

P-101
Investigation of netrin 1 levels in Behcet's Disease

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OBJECTIVES: Behçet's Disease (BD) is a rare systemic vasculitis disorder of unknown etiology characterized by recurrent attacks of oral aphthous ulcers, genital sores, and ocular lesions (triple-symptom complex). Recurrent attacks of acute inflammation characterize Behçet's disease. Netrin-1, a secreted laminin-like protein identified as an axon guidance molecule. Netrin-1 regulates inflammation but the mechanism by which this occurs is unknown. Our aim of this study is to investigate the role of Netrin-1 in the diagnosis of Behcet's disease.
MATERIALS and METHODS: The study was conducted with 35 controls and 35 patients with Behçet's disease. Serum samples were stored at -80 ° C until analysis, serum netrin-1 levels were analyzed by ELISA (kit from USCN Life Sciences Inc.).
RESULTS: Serum Netrin-1 levels were significantly higher in patients with Behcet's disease (3732 ± 934.99) than control group (524.88 ± 160.83); $p<0.001$).
CONCLUSIONS: In our study, serum Netrin 1 levels were significantly higher in patients with Behçet's disease than control group. Therefore, we concluded that netrin 1 may be a useful marker in the diagnosis of Behcet's disease.
Keywords: Netrin-1, Behcet's disease, inflammation

P-102
Level of serum adiponectin in Sjögren's Syndrome

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OBJECTIVES: To evaluate the serum adiponectin level and determine the association between adiponectin and various clinical and laboratory findings in patients with primary Sjögren's syndrome (pSS).
MATERIALS and METHODS: A total of 50 patients and 30 healthy volunteers were enrolled in the present study. Serum adiponectin levels were detected by colorimetric enzyme-linked immunosorbent assay. The medical history of patients including complete blood count analysis; high sensitive C-reactive protein; erythrocyte sedimentation rate (ESR); complement component 3; complement component 4; low density lipoprotein cholesterol; triglyceride; immunoglobulin G (IgG), IgA, and IgM levels; and the status of Ro 60, Ro 52, Sjögren's syndrome A, Sjögren's syndrome B, and rheumatoid factor were obtained from laboratory information system.
RESULTS: Serum adiponectin levels were 2.34 (0.77–4.95) ng/mL and 1.73 (0.01–7.76) ng/mL in patients and controls, respectively (p=0.316). Positive correlation was observed between the values of serum adiponectin, ESR (p=0.013, rho=0.362), and body mass index (p=0.018, rho=0.362) in patients.
CONCLUSIONS: These findings indicate that adiponectin does not play a crucial role in the immunological and clinical patterns of pSS.
Keywords: Sjögren's syndrome, adiponectin

P-103
Serum resolvin E1 levels and its relationship with disease activity in ulcerative colitis

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OBJECTIVES:Resolvins originate from ω-3 PUFA (polyunsaturated fatty acid) precursors and play a role in the resolution of inflammation. The aim of this study was to determine the serum ResolvinE1 levels in patients with ulcerative colitis (UC) and to evaluate the relationship between the serum ResolvinE1 levels and ulcerative colitis disease activity.
MATERIALS and METHODS:Serum samples were collected from 51 patients with UC and 30 healthy controls for the determination of Resolvin E1 levels. Firstly, we compared the serum Resolvin E1 levels between the UC patients and the control group. Subsequently, Resolvin E1 levels were analyzed in patients with active UC and UC in remission. Finally, the correlation between Resolvin E1 and C-reactive protein (CRP) and partial Mayo score (p-MS) was analyzed to determine the efficacy of Resolvin E1 in predicting disease activity
RESULTS:Serum Resolvin E1 level was determined in the UC group (3126 ± 1413 ng/ml) and in the control group (2758 ± 1065 ng/ml) (p = 0 187). Serum Resolvin E1 levels were determined in patients with active UC (3114 ± 1166 ng/ml) and patients in remission (3132 ± 1520 ng/ml) (p = 0 749). In the UC group, a low-grade positive significant association was found between Resolvin E1 and CRP (r = 0 303, p = 0 031). There was no significant association between Resolvin E1 and partial Mayo score (r = −0 207, p = 0 146).
CONCLUSIONS:There was no sufficient evidence that Resolvin E1 was an appropriate inflammatory marker to determine disease activity in UC.
Keywords: resolvin e1, inflammotory bowel disease, ulcerative colitis, inflammation, biomarke

P-104
The role of inflammation on vascular endothelial growth factor in patients on peritoneal dialysis

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OBJECTIVES:: Synthesis of vascular endothelial growth factor (VEGF) is under the influence of a chronic peritoneal dialysis process due to which VEGF is found in the drained dialysate (dd). The objective of this prospective study was to evaluate the concentration of vascular endothelial growth factor (VEGF) in serum and ddVEGF during the first six months of the PD, as well as the relationship between these concentrations and demographic and biochemical parameters, the presence of diabetes, peritonitis and the use of drugs.
MATERIALS and METHODS:The study included 20 patients, with an average age of 62.9 ± 12.69, of whom 11 were ill with diabetes. Blood samples were taken at the beginning and after six months of PD, in a vacutainer without additives.
RESULTS:After six months of PD, concentrations of sVEGF increased significantly without significant change in ddVEGF. Concentrations of sEGEGF at the onset of chronic PD treatment directly correlated significantly with serum fibrinogen, and after six months with fibrinogen and glycemia. Patients who received angiotensin-converting enzyme (ACEi) inhibitors had sVEGF and ddVEGF levels slightly below those who did not use ACEi, however sVEGF increased significantly over six months PD. After six months of PD, ddVEGF was significantly higher compared to those who did not use ACEi. Treatment with statins did not significantly affect the levels of sVEGF and ddVEGF during monitoring.
CONCLUSIONS:VEGF serum concentrations and drained dialysis in PD patients are associated with a weaker metabolic profile, while the role of inflammation and treatment agents needs to be further studied.
Keywords: VEGF, Peritoneal dialysis

P-105
Red blood cell distribution width as a biomarker of inflammation

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OBJECTIVES:Recent studies have demonstrated that red cell distribution width (RDW) is associated with inflammation and it can serve as a potential parameter for inflammation. The aim of the study was to investigate the relationship between RDW levels and some traditional inflammation biomarkers.
MATERIALS and METHODS:We retrospectively retrieved 8354 patients' RDW, erythrocyte sedimentation rate (ESR), serum C-reactive protein (CRP) and serum ferritin results for six-month period from the laboratory information system. Patients were divided into two groups in terms of their RDW values. Patients with RDW results <14.5% were determined as the first group (n =3559) and those with ≥14.5% as the second group (n=4795).
RESULTS:CRP and ESR levels in the second group were found to be statistically significant higher than the first group (p<0.001). Ferritin levels were higher in the first group but there was no significant difference between the two groups (p=0.059). There were a positive, but weak correlations between RDW and CRP (p<0.001, r=0,215); RDW and ESR (p<0.001, r=0,158).
CONCLUSIONS:Our study showed a possible relation of RDW with CRP and ESR. RDW may be a useful diagnostic marker of inflammation and should be confirmed with follow-up studies in future.
Keywords: Inflammation, red blood cell distribution width (RDW), CRP, ESR.

P-106
Caspase 3, 8, 9 and granzyme B activities in asthma patients

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OBJECTIVES: Asthma is a heterogeneous disease characterized by chronic airway inflammation associated with airway hypersensitivity to direct or indirect stimuli. There is strong evidence that apoptosis dysfunction may play an important role in the pathogenesis of asthma-induced airway inflammation. Therefore, it is important to understand the pathways of apoptosis and the role of apoptosis in the pathogenesis of asthma. This study aimed to determine how apoptosis biomarkers in asthma patients are affected, and also in the diagnosis of the disease whether apoptosis biomarkers may be used as blood-based biomarkers.
MATERIALS and METHODS: The patient group (n = 40) consisted of people who were diagnosed with asthma and had not started taking medication. The control group consisted of volunteers who were similar in terms of age and sex to the patient group (n = 40). Serum levels of Caspase-3, caspase-8, caspase-9 and Granzyme B were measured by ELISA method on blood samples collected from patient and control groups.
RESULTS: It was observed that Caspase-3, caspase-8, caspase-9, and Granzyme B levels were higher in the patients' group compared with the control group ($p<0,001$).
CONCLUSIONS: This study demonstrates that increased levels of apoptosis may play a role in the pathophysiology of asthma and that the increase in serum caspase-3, caspase-8, caspase-9, and granzyme B levels may be blood-based biomarkers for apoptosis. However, further studies are needed to understand the role of apoptosis in asthma.
Keywords: Asthma, Apoptosis, Caspase, Granzyme B

P-108
Evaluation of sample quality for coagulation analysis on the Sysmex CS-5100: HIL index

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OBJECTIVES:Hemolysis, icterus and lipemia (HIL) in specimen may affect the reliability of coagulation test results. This possible interference can be influenced by several factors including the level of interfering substance in plasma, the assay principle and the end-point detection system, that is optical versus mechanical detection. The aim of this study was to determine frequency of HIL in patients' sample for coagulation assays.
MATERIALS and METHODS:We assessed 7712 patients' sample over a two month period and determined the incidence of HIL, reling on the manufacturer to document HIL estimates on instrument. Plasma samples were run on CS5100 autoanalyser (Sysmex, Japan), photo-optical clot detection. The instrument identifies HIL specimens with a specific flag. The quality of the sample is automatically detected with a combination of the multi-wavelength detection method and HIL detector.
RESULTS:Percent of hemolyzed specimens was determined as 1.18%. We also identified the frequency of lipemia as 0.3%. Total of 533 samples (6.9%) were icteric. Due to severe lipemia and hemolysis, 7 and 8 of samples were rejected, respectively.
CONCLUSIONS:The laboratories must monitor and evaluate the quality of the samples and identified problems. Quality results are dependent on quality of specimen. Visual evaluation of the sample is not appropriate because there is significant inaccuracy and inter-individual variation in this type of assessment. HIL may interfere the optical instuments. These interferences can be determined by coagulation analyzer, possessed HIL detection system using multiwavelength light and incorrect results prevented. A test-based interference approach may be useful to avoid unnecessary sample repetition.
Keywords: Coagulation, hemolysis, icterus, lipemia

P-111
Cost analysis and capacity assessment of medical laboratory in Ankara between 2013-2017

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OBJECTIVES:We aimed to evaluate the laboratory income and expense analysis in Ankara province of the Public Hospitals Association based on employee resource, population density and foreign currency.
MATERIALS and METHODS:Laboratuvary service procurement, procurement of goods and total expenses and income were obtained from TDMS between2013-2017. The number of laboratory tests, number of working physicians and technicians, total number of outpatients and inpatients, population density and growth rates were also evaluated. The ratio of laboratory costs within total health expenditures and the change in years was also calculated.
RESULTS:The number of tests between the years were 67.897.658-72.922.524-74.610.415- 82.749.391 and 112.261.365, respectively. Expense per test increased from1.35T.L. to 1.50T.L. Service procurement and material purchase rates in laboratory expenses were 60%-40% in 2013, this ratio completely reversed in 2017.Between these years, the ratio of laboratory expenses in total health expenditures was 5,46%-5,12%-4,84%-5,41% and 5,89%,respectively. While the population density increased 8%, the number of tests increased 65% and the number of polyclinics increased 55%. The number of tests per person and the number of policlinics per person were 13,45-14,15-14,15-15,47-20,61 and 3,35-3,56-4,10-4,41-4,81, respectively. The number of physicians increased from 374 to 512 while the number of technicians increased from 950 to 976.
CONCLUSIONS:The fact that the increase in the number of policlinics and the number of tests is not parallel to the population growth rate,which reflects the increase in health service application and the tendency to seek further investigations. All these findings will shed light on the determination of future health policies.
Keywords: Cost analysis, Procuerment, Laboratory, Health Service, Population Density

P-112
Setting the relevant quality indicators from pre-analytical phase in an emergency clinical hospital

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OBJECTIVES:The study aim was to identify the relevants quality indicators-QIs to inhance patient safety by continous improvement of our clinical laboratory activity.
MATERIALS and METHODS:Prospective study, carried out for 18 months for in-patients, by analyzing collected data on e-requests and types of biological samples received for clinical chemistry and hematology compartments.The calculated values for the 12 selected Qis were expressed as %, defects per million -DPM and on six sigma scale.
RESULTS:During the follow-up time we had received 29454 request forms and 36746 biological samples. The data analysis of selected Qis values showed the highest % rate for the Pre InpMT and the PreMisR (0.89% and 0.94%), respectively the lower one for the PreUnIns (0.065%).The 3.9 Sigma score value associated to the the critical errors corresponding to the Pre InpMT and to PreMisR showed an immediate need to staff training as mandatory corrective action.We have obtained a 4.4 sigma score for the hemolysed primary

samples. Reporting errors Sigma score 4.4 associated to the biological samples for hematology compartment was over the 4.2 value obtained for the clinical biochemistry specimens. We proved a good performance by the Sigma score between 4.1 to 4.4 for 8 monitored Qis, but the accuracy improvement of entering data process in e-request form it's a must.
CONCLUSIONS:Study results were used as entry data for management analysis to ensure risk mitigation especially in the extraanalytical phase by improving communication and training of clinical staff in order to increase lab performance
Keywords: Quality indicators, DPM, Sigma scale, risk mitigation

P-113
Analysis of complete blood count critical values reporting in a university hospital

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OBJECTIVES:The critical value is a result suggesting that the patient was in imminent danger unless appropriate therapy was initiated promptly. We aimed to analyze four hemogram parameters critic value reporting in a university hospital.
MATERIALS and METHODS:We retrieved critic value reporting results of hemoglobin, hematocrit, platelet, white blood cell (WBC) and neutrophil count from laboratory information system (LBS) between 01.01.2018- 30.06.2019. Critic value reporting types were classified under three headings as "there was no information because of accordance with prior result", "there was a call but nobody was reached" and "at least one staff was informed about critic value". Microsoft 2010 excel program was used.
RESULTS:There were 3305 critic value reporting in four tests; 811 WBC, 244 hemoglobin, 422 hematocrit, 1395 platelet and 433 neutrophil. 305 results reported to emergency department, 250 to outpatient, 1800 intensive care unit and 1005 to services. Distribution of three critic value reporting types were 65.2%, 10,2% and 24,6% respectively.
CONCLUSIONS:In the present study, we provide a comprehensive view of the critical value reporting process in a university hospital. All critic value reports were recorded in LBS and tried to interpret related services. The main problem is that many times laboratory staff could not reach any health staff for reporting critic value. Improving communication nets between laboratory and other hospital services and continuous education about this topic has taken an important place.
Keywords: Critic value, critic value reporting, university hospital

P-114
Unnecessary test request ratio of CA15-3 in male patients

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OBJECTIVES:Assays for the Cancer Antigen 15-3 (CA15-3) are sensitive for breast cancer, especially used to monitor patients who were undergone surgery. Because breast cancer occurs %1 of men, care must be taken to request this test. CA15-3 assays were investigated to determine the erronous test request in male patients.
MATERIALS and METHODS:CA15-3 tests which were analyzed by chemiluminescence method on Advia Centaur XPT (Siemens) analyzer were investigated over a 6-month period (from January to July 2019) from laboratory information system (ALIS, Ventura). Patients were selected according to reference range (0 - 32 U/mL) and gender.
RESULTS:A total of 6,487 CA15-3 test requests were in 6 months. 895 test requests were carried on for male patients (13.8%). According to reference range, although it was found that 832 (93%) test request were within the range, the only 63 (7%) test results were observed to be higher than reference range (median: 42, min: 33, max: 179). It was observed that the most unintelligible CA15-3 requests were from Internal Medicine (38.8%) and General Surgery (12.4%) clinics.
CONCLUSIONS:Unnecessary tests cause the laboratory workload and high costs. The use of tumor markers for screening purposes in patients with no complaints is one of the most common reasons for unnecessary test ordering. The fact that CA15-3 test can be ordered from various departments in hostitals causes the unnecessary initial test requests. Department-based test ordering restrictions and displaying a warning message during the CA15-3 test request through the hospital information system may decrease the unnecessary test ordering.
Keywords: CA15-3, breast cancer, unnecessary test request

P-115
Improvement of postanalytical phase management with an algorithm based autoverification system

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OBJECTIVES:In recent years, the number of patients admitted to hospitals and tests performed in laboratories has increased,so the workload.This may increase the likelihood of errors.There is a need for an approach to support the clinical biochemistry specialist,as well as to improve turnaround time(TAT).In large-scale laboratories, a method is required to ensure standardization of verification and to prevent errors that may occur during the verification of thousands of results. In our study,a significant proportion of results planned to verify via middleware according to rules and algorithms established by a clinical biochemist.It is aimed to improve quality and speed(TAT) and devote more time focus on results require interpretation.
MATERIALS and METHODS:The study was carried out in Gazi University Faculty of Medicine Central Biochemistry Laboratory. 22 biochemistry tests on AU5800 autoanalyzer(Beckman Coulter) autoverified by middleware program(Remisol,Beckman Coulter) in cooperation with LIS(Nucleus,Monad). Autoverification algorithms prepared by clinical biochemists consisted of QC,critical values, serum indices, autoanalyzer flags, measurement intervals, related tests, relationship of delta check value with RCV and validation range steps. Validation of the autoverification system was performed with simulated and real patients' samples. Performance of the system evaluated daily and weekly.
RESULTS:Performance of the autoverification evaluated.Test and tube-based autoverification rates were 81% and 27%,respectively.Thanks to autoverification,TAT of 22 tests improved approximately 12 minutes.As a lean approach,the status of the system can be monitored online with a dashboard in laboratory.
CONCLUSIONS:Consequently, standardization of verification,early detection of analytical errors,shortening of TAT and concentration of laboratory specialist on more important results were achieved by means of autoverification system.
Keywords: Autoverification, postanalytical phase, middleware

P-116
Calculation of measurement uncertainty of biochemical parameters and interpretation

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OBJECTIVES: The laboratories help the clinician to make the right decision with the results of the analysis. Responsibility is very important as the results to be reported will affect the patient and the clinician positively or negatively. Therefore, the main task of medical laboratories is to produce quality, accurate, reproducible results and to report on time. However, the analytical results that we assume are not always accurate. The definition of uncertainty according to the VIM (International Vocabulary of Basic and General Terms in Metrology); It is the parameter that characterizes the distribution of the values that are included with the measurement result and which can reasonably correspond to the measured size. Measurement uncertainty is a parameter that occurs during the measurement procedure and includes

factors that affect the measurement result, and the measurement uncertainty must be included with any measurement result actually obtained.
MATERIALS and METHODS: We used Cobas 8000 autoanalyzer system for this report. We worked on emergency markers which are more needed at ER and used some formulas about uncertainty of measurement, based on GUM.
RESULTS:We compared the results that we obtained and determined measurement uncertainty of each test. And with this report, we can help the clinician to make the right decision with the results of the analysis.
CONCLUSIONS: Accordingly, the reported measurement result should be the sum of the measurement value and the measurement uncertainty (1).
Keywords: Laboratory, uncertainty, measurement, accuracy

P-117
The importance of the allowable total error (TEa) target in evaluating quality of clinical chemistry

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OBJECTIVES:Different quality specifications have been defined by different organizations in various countries for clinical chemistry tests. The aim of this study was to evaluate the total error in our laboratory according to the defined allowable total error (TEa) targets.
MATERIALS and METHODS:Monthly deviations for creatinine and glucose were obtained from external quality assessment data of our laboratory for twelve months (July 2018- June 2019). In this period, the total error and six-sigma values of the laboratory were calculated for each test according to the different target TEa values offered by the quality specification programs.
RESULTS:Our total error of creatinine calculated by desirable biological variation (dBV) (Tea:8.87%) and CLIA2019 (Tea:10%) targets were higher than TEa for ten and eleven months, respectively. Calculated by CLIA (Tea:15%), RiliBak (Tea:20%) and Turkey (20%) targets, total errors for creatinine were mostly smaller than TEa. Total error of glucose calculated by dBV (6.96%) and CLIA2019 (8%) targets were smaller than TEa for six and ten months, respectively. According to CLIA (10%), Turkey (11%) and RiliBak (15%) programs, our laboratory total errors of glucose were smaller than their target TEas for all months. Sigmametric evaluation for two tests were in accordance with these results.
CONCLUSIONS:Inconsistent TEa targets from different sources causes difficulty and confusion in evaluating the laboratory quality control. The international biochemistry community need to agree on a single TEa target values for each analyte.
Keywords: total allowable error, quality specifications, glucose, creatinine, quality requirements

P-118
Low serum paraoxonase-1 level and increased risk of atherosclerosis in individuals with AB blood group

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OBJECTIVES:Although today several studies have investigated and confirmed the existence of an association between ABO blood phenotype with atherosclerosis. However the present study, according to the best of our knowledge, is the first study that focuses on apparently healthy men blood donors and investigating a relationship between AB blood group and the serum paraoxonase (PON1).
MATERIALS and METHODS:This study was conducted with one hundred and eighty-eight apparently healthy male blood donors. Laboratory test included assessment of ABO blood typing, total cholesterol (TC), high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), triglycerides (TGs) and serum PON1 concentrations.
RESULTS:The most essential finding was the identification subjects of significantly lower values of PON1 ($p<0, 01$) and higher values atherogenic plasma index (AIP); log10 (TG/HDL-C) ratio ($p<0, 05$) in blood group AB phenotype compared with those with non-AB blood phenotypes.
CONCLUSIONS:Especially statistically significant association between AB blood phenotype PON1 and AIP levels supports its potential role of novel atherogenic risk parameters in the pathogenesis of atherosclerosis and the clinical observations of tendency to cardiovascular disease of individuals with non-O blood groups.
Keywords: ABO phenotyping, atherosclerosis, atherogenic indices, paraoxonase, atherogenic index

P-119
Lipid status in newborn population

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OBJECTIVES:Values of certain biochemical parameters must be interpreted in relation with values for given population. Many factors influence biochemical parameters of newborn, especially on lipid status. One of them is mother lipid status.
MATERIALS and METHODS:Lipid status were measured by Roche (Cobas c501) and Abbott (Architect c8000) in 372 newborns, aged 1-5 days in Center of Clinical Laboratory Diagnostic, Clinical Center of Montenegro. Serum samples were obtained between 7 and 13 h. IBM SPPS ver. 21 program was used for statistical analysis.
RESULTS:Samples were devided into five groups (from first to fifth day). First group: Cholesterol: (median: 1.75; Iq: 1.41-2.27), Triglycerides: (median: 1.11; Iq: 0.96-1.40), HDLc: (median: 0.80; Iq: 0.60-1.06), LDLc: (mean value: 0.45±0.41). Second group: Cholesterol: (mean value: 1.95±0.64), Triglycerides: (median: 1.61; Iq: 1.34-1.93), HDLc: (mean value: 0.78±0.25), LDLc: (median: 0.42; Iq: 0.27-0.70). Third group: Cholesterol: (mean value: 2.22±0.54), Triglycerides: (median: 1.86; Iq: 1.47-2.26), HDLc: (median: 0.77; Iq: 0.58-0.93), LDLc: (mean value: 0.64±0.34). Fourth group: Cholesterol: (mean value: 2.70±0.65), Triglycerides: (median: 1.85; Iq: 1.49-2.61), HDLc: (median: 0.80; Iq: 0.65-1.09), LDLc: (mean value: 0.90±0.44). Fifth group:: Cholesterol: (mean value: 2.90±0.70), Triglycerides: (median: 1.80; Iq: 1.48-2.43), HDLc: (mean value: 1.14±0.43), LDLc: (mean value: 1.03±0.60). Statistically significante was evidenced for tested parameters between each of groups by ANOVA test, level $p<0.001$.
CONCLUSIONS:All parameters of lipid status in fifth group were statisticaly higer than in other groups. The reason for this was either samples which were delivered in laboratory in diferent time, or physiological changes which hapened by newborn growth.
Keywords: lipid status, newborn, population

P-120
Increased oxidized LDL level in individuals with a blood group

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OBJECTIVES:The ABO blood group has been associated with risk of cardiovascular disease and risk of cancer in observational studies. Also elevated serum Oxidized cholesterol -rich low -density lipoprotein (OxLDL) has been positively associated with increased risk of various types of cancer and atherosclerotic diseases. Relevantly, a prominent feature related to dysregulated lipid metabolism and inflammation is the increased production of OxLDL, which results from elevated oxidative stress. However, the effect of ABO blood group has never been studied in subjects affected by dysregulated oxidative lipid modifications.
MATERIALS and METHODS:In the present study, total cholesterol, triglyceride, HDL-cholesterol and LDL-cholesterol, OxLDL concentrations were evaluated in one hundred eighty eight 188 apparently healthy men medical staff blood donors

aged from 18 to 58 years and the association between these variables and ABO blood groups was examined.
RESULTS:In the population studied we did not find any association between cholesterol, triglyceride, HDL-cholesterol and LDL-cholesterol and ABO blood groups while OxLDL levels were higher in individuals with A antigen than in subjects without this antigen(p<0,001).
CONCLUSIONS:Our data has findings that support previous studies showing that individuals with Group A may be more prone to atherosclerotic diseases.
Keywords: ABO phenotyping, oxLDL, cancer, atherosclerosis

P-121
Effect of bariatric surgery-induced weight loss on HDL, ApoA1 and OxLDL levels in six months

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OBJECTIVES:Today, bariatric surgery is very common. High-density lipoprotein cholesterol (HDL-C) amount and HDL function are very important for atheroprotection. Obese patients with metabolic syndrome have significantly reduced HDL-C levels and are often at increased risk for atherosclerotic diseases. Although weight loss benefits these patients, its effects on the change in HDL quantity and its functionality are currently poorly studied. We investigated how rapid weight loss affects HDL values and its antioxidant potential in patients undergoing a malabsorptive bariatric procedure.
MATERIALS and METHODS: Fasting plasma samples were collected from 30 morbidly obese patients with body mass index >40 one day before and 6 months after bariatric procedure, then HDL, ApoA1 and oxidized LDL (OxLDL) were analyzed using biochemical techniques.
RESULTS: The amount of OxLDL decreased dramatically after the surgery (p=0,01) and we observed a statistically significant increase in HDL concentration (+16%, P=0.0025). ApoA1 levels entered a post-operative upward trend, but a significant increase was seen in six months (p<0,05).
CONCLUSIONS: Rapid weight loss shows significant improvement in HDL concentrations and functionality, which may contribute to the anti-atherosclerotic effect of malabsorptive bariatric procedures. In addition to these findings, the decrease in oxLDL might suggest that bariatric surgery has made a positive contribution to the antioxidantive effect of HDL.
Keywords: Bariatric surgery, Paraoxonase, High-density lipoprotein cholesterol, OxLDL

P-122
Profiles of oxidative/nitrosative stress-related microRNA and mRNA expression in patients with vitiligo

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OBJECTIVES:Oxidative/nitrosative stress has a critical role in the pathogenesis of vitiligo. However, the specific molecular mechanism involved in oxidative/nitrosative stress-induced melanocyte death is not well characterized. Furthermore, little is known about the impact of oxidative/nitrosative stress on the expression of miRNAs and their targeted mRNAs in patients with vitiligo.
MATERIALS and METHODS:Vitiligo patients and age- and sex-matched controls subjects were enrolled in this study. 34 different miRNAs in plasma samples were studied. These miRNAs were evaluated using high throughput quantitative real-time PCR. Furthermore, the activities of erythrocyte catalase (CAT) and superoxide dismutase (SOD), and the levels of plasma malondialdehyde (MDA) were determined on spectrophotometer. Also, 3-nitrotyrosine (3-NTx) and nitric oxide (NO) levels in plasma as nitrosative stress biomarkers were measured measured by ELISA.
RESULTS:The results of study demonstrated that the expression level of miR-373-3p, miR-25-3p, miR-34a-5p, miR-193a-5p and miR-196a-5p was significantly upregulated in patients when compared with the control (p<0.05). The expression level of miR-2b-5p, miR-223-3p, miR-23a-3p, miR-423-5p, miR-92a-3p and miR-156-5p was significantly downregulated in patients (p<0.05). In addition, expression of 23 miRNA had upregulated or downregulated, but not statistically significantly different when compared with the control group. Besides, MDA,NO and 3-NTx levels in plasma were significantly higher, and SOD and CAT activities were significantly lower, in patients compared with controls.
CONCLUSIONS:Our results suggest that plasma miRNA levels may alter in Vitiligo and, some miRNAs and oxidative/nitrosative stress may an important the role in pathogenesis this disease.
Keywords: Vitiligo, miRNAs, oxidative/nitrosative stress

P-123
Determination of rs41507953 polymorphism in abdominal aortic aneurysm

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OBJECTIVES:Epoxyeicosatrienoic acids (EETs), a cytochrome P450 epoxygenase metabolite of arachidonic acid, have a role in ion transport and have vasodilator, anti-inflammatory as well as pro-fibrinolytic properties. The soluble epoxide hydrolase (sEH) enzyme encoded by the EPHX2 gene that converts EETs into less bioactive diols. It was demonstrated that inhibition of sEH, exhibit a protective effect on animal models of many cardiovascular diseases, include also abdominal aortic aneurysm (AAA). rs41507953 polymorphism in the EPHX2 gene that cause an increase in sEH activity have been associated with developing coronary artery disease, ischemic stroke. However, it remains unknown whether rs41507953 polymorphism are associated with AAA. Therefore, the objective of this study is to evaluate the association between AAA and EPHX2 rs41507953 polymorphism.
MATERIALS and METHODS:In this study, rs41507953 polymorphism was determined in 50 healthy and 50 AAA patients. Genotyping of EPHX2 rs41507953 polymorphism was performed by the real-time PCR using double-dye hydrolysis probes.
RESULTS:Although we found that development of AAA risk in individuals carrying heterozygous genotype for rs41507953 polymorphism was found to be 1.78 times higher than individuals carrying wild-type allele, this result failed to reach statistical significance
CONCLUSIONS:In conclusion, although heterozygous individuals have 1.78 times higher risk ratio for AAA development, statistical results showed that there was no association between the EPHX2 rs41507953 polymorphism and AAA in the Turkish population. However, further studies are needed to evaluate the association of this polymorphism and AAA in various populations which include more individuals and / or of different origins.
Keywords: Epoxyeicosatrienoic acids, abdominal aortic aneurysm, soluble epoxide hydrolase

P-124
Comparison of antioxidant properties and phenolic contents of zucchini and potato according to consumption methods

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OBJECTIVES:There is evidence that increasing consumption of vegetables reduces the risk of certain chronic diseases such as hypertension, stroke, and cardiovascular diseases partly as a result of consumption of antioxidant substances. In this study, it was aimed to investigate the effects of zucchini and potato consumption methods on their antioxidant activity (AA) and total phenolic content.
MATERIALS and METHODS:Zucchini and potato were homogenized in distilled water at concentration of 10 g/dL. Raw group (n=10) was stored in the refrigerator at +4°C, frozen group (n=10) was stored in freezer at -20°C and cooked group (n=10) was heated in oven at 150°C for 20 minutes. Phenolic substance amount was determined by using Folin-Ciocalteu reagent and AA was determined by detecting 2,2-diphenyl-1-picrylhydryl (DPPH) radical scavenging activity. Results were given as mean±SD.
RESULTS:The phenolic content and AA values (DPPH%) of potato were compared among the groups; AA values of the raw group (3.01±0.52%) were significantly higher than frozen (0.44±0.28%; $p<0.001$) and cooked group (2.06±0.84%; $p<0.05$). Moreover, the phenolic content of raw group (3.78±0.15mg/dl) was significantly higher than frozen (2.84±0.18 mg/dl) and cooked group (1.88±0.17 mg/dl) ($p<0.001$ for both). For zucchini, it was found that the AA values were significantly higher in cooked group (2.92±0.46%) than raw (0.14±0.55%) and frozen group (1.07±0.49%) ($p<0.001$ for both). Additionally, the cooked group (2.70±0.08 mg/dl) had significantly higher phenolic content than raw (1.64±0.06 mg/dl) and frozen group (2.10±0.14 mg/dl) ($p<0.001$ for both).
CONCLUSIONS:Findings of this study might be used to increase the beneficial effects of vegetables according to the consumption methods.
Keywords: antioxidant, cooking methods, phenolic compounds, potato, zucchini

P-125
The evaluation of serum vitamin B12 levels at Sanliurfa city

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OBJECTIVES:Vitamin B12 (cobalamin) is a water-soluble vitamin that plays essential roles in red blood cell formation, cell metabolism, nerve function and the production of DNA. Vitamin B-12 deficiency can lead to anemia, fatigue, muscle weakness, intestinal problems, nerve damage and mood disturbances. The aim of this study was to investigate serum vitamin B12 levels in Sanliurfa city.
MATERIALS and METHODS:Serum vitamin B12 levels of 4022 patients were evaluated. The patients who had admitted to Harran University Hospital between June 31-July 31 2019 were retrospectively screened. Serum B12 levels <100 ng/ml is accepted as deficiency, 100-400 ng/ml is moderate and >400 ng/ml sufficient.
RESULTS:The mean B12 levels were 74.73±19.15 ng/ml in 15 patients (0.38%) that referred to deficiency (<100 ng/ml), 271±64.24 ng/ml 3028 in patients (75,28%) referred to moderate (100-400 ng/ml) and 484.8±64,94 ng/ml in 979 in patients (24,34%) referred to sufficiency (>400 ng/ml).
CONCLUSIONS:In this study, in patients who admitted to our hospital Sanliurfa city, no serious vitamin B12 deficiency was detected and in most patients th elevels were found moderate. Vitamin B12 levels vary according to region and nutritional conditions in different age groups and gender.
Keywords: Sanlıurfa, Vitamin B12, Prevalence, Reference Range

P-126
The effects of prolonged fasting model on energy metabolism and mitochondrial functions in neuronal

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OBJECTIVES:It is known that long-term fasting (IF) model in humans can reduce inflammation and severity of chronic diseases, delay aging and increase health. The most important finding known is that the body is exposed to abundant ketone bodies as a result of fat destruction during prolonged fasting. In this study, we aimed to investigate the changes in energy metabolism in neuron cell cultures and the contribution of ketone bodies in these changes.
MATERIALS and METHODS:SH-SY5Y (human neuroblastoma-ATCC / CRL 2266) cells were used in the project.Cells were incubated for 16 hours with normal diet, calorie restriction media, fasting model (glucose reduced blood) and also non-glucose medium.Ketone was added to the other flasks containing the same media simultaneously and mitochondrial functions were evaluated in the cells while lactate, lactate dehydrogenase, ketone and glucose levels were measured in the media to show changes in the energy metabolism of all cells. Mitochondrial functions were determined by performing citrate synthase activity and flow cytometry measurements.
RESULTS:The results obtained from repeating experiments have shown us that the cells use ketones,regardless of the amount of glucose, especially in the ketone-added models.There were positive changes in mitochondrial functions of ketone added cells.When ketones were added, especially in the models with fasting model,the increase in membrane potential and flow cytometry activity were observed.
CONCLUSIONS:With these findings, we think that the presence of ketone in cell mediums has a great contribution to neuron cell energy metabolism and it may be beneficial to use exogenous ketone treatment in the treatment of neurological diseases.
Keywords: Neuron Cells, Fasting, Keton Bodies, Mitochondrial Function

P-127
Antioxidant and antimicrobial activity of einkorn (Triticum monococcum L)

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OBJECTIVES:Wheat is a highly important cultivation plant used to meet a large part of our nutritional needs. Demand for wheat as food is increasing all over the world, including countries whose climates are not suitable for growing wheat.Wheat, which is one of these cultivated plants, is black wheat. ‘Siyez’ or ‘spa’ are the local names of einkorn in Turkey. It is known that black wheat (Triticum monococcum spp. Monococcum), which is one of the ancestors of wheat (Triticum ssp.), Contributes to human nutrition and health.High protein, carotenoid and tocol content of black wheat (einkorn) and lower toxicity than other Triticum species. Therefore, we aimed to determine the antioxidant and antimicrobial activity of einkorn (Triticum monococcum L) extracts.
MATERIALS and METHODS:The einkorn wheat was obtained from, Kastamonu (Turkey). The determination of antimicrobial activity of einkorn extracts against Pseudomonas aeroginosa (ATCC 27853), Escherichia coli (ATCC 25922), Enterococcus faecalis (ATCC 29212), Staphylococcus aureus (ATCC 25923) and Candida albicans (ATCC 10231) were investigated by disc and agar-well diffusion method. Radical scavenging activities of einkorn extracted in solvent was measured via spectrophotometric methods.
RESULTS:As a result, it was determined that water extracts of siyez wheat had high free radical scavenging effects. In this study, it was found that wheat extracts used showed various degrees of antimicrobial activity against microorganisms tested.
CONCLUSIONS:Due to its rich content and high biological activity, it is thought that it should be developed in modern healthy wheat varieties and included more effectively in the nutrition process.
Keywords: Triticum monococcum L,Antimicrobial activity,Antioxidant activity

P-128

Adropin and orexin levels in new diagnosed obstructive sleep apnea syndrome patients

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OBJECTIVES:Obstructive sleep apnea syndrome (OSAS) is associated with repeated episodes of upper airway obstruction during sleep. Obstruction of the upper airway can lead to a decrease in blood oxygenation which is mainly associated with metabolic diseases. Orexin is a neuropeptide, which is important in the regulation of eating behavior and sleep. Adropin is a small peptide encoded by energy homeostasis associated gene. In this study we hypothesized that orexin and adropin levels are changed during sleep in OSAS patients. The aim of this study was to determine circulating orexin and adropin levels in newly diagnosed OSAS patients.
MATERIALS and METHODS:OSAS patients (n=7) and age/gender matched healthy subjects (n=30) are added in the study. After polysomnographic recording whole blood were collected. Adropin and orexin levels were determined using commercial available ELISA kits in serum samples. Blood biochemical parameters and PSG results are correlated. Results are given as mean±SD and p<0.05 were identified as significant.
RESULTS:Our results show that apnea/hypopnea index(AHI) was significantly higher in OSAS patients (28,5±21,8 vs. 1,9±0,9;p<0.001). Orexin levels were significantly reduced in patients with OSAS(643,8±239,8 vs. 1217,7±701,9 pg/ml;p<0.001) but adropin levels (1205,4±232,2 vs.1269,6±181,3 pg/ml;p=0,2199) were not changed, with respect to the control group. CRP,triglyceride, total cholesterol and LDL-cholesterol levels are significantly higher in OSAS patients, because HDL-cholesterol, total lipid and fasting glucose levels were not changed.
CONCLUSIONS:In conclusion, our results show that orexin levels are significantly associated with AHI in OSAS patients, as expected. Orexin is the major neuropeptide that regulates the metabolism and sleep pattern is OSAS patients.
Keywords: Obstructive sleep apnea syndrome, adropin, orexin, polysomnography.

P-129

A diagnostic algorithm for assessment of liver fibrosis

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OBJECTIVES:Liver fibrosis (LF) affects between 4.5 and 9.5% of the world population. The liver biopsy still is the golden standard for the diagnosis of the LF, but it is invasive, requires trained personnel, and carries the risk of adverse reactions. Thus, the utility of serum fibrosis markers is under investigation for predicting changes of the LF status. Our study aimed to evaluate the pertinence of the eLIFT (easy Liver Fibrosis Test) algorithm for non-invasive assessment of liver fibrosis and cirrhosis in patients with confirmed Chronic Hepatitis B infection or (ALD) alcoholic liver disease; also to compare the diagnostic significance of the eLIFT with other commonly used serum biomarkers, such as AAR, APRI, GPRI, Fib-4, ELF.
MATERIALS and METHODS:The investigation was conducted with 100 healthy controls, 150 patients with HBV, and 50 patients with ALD. All participants were tested for the above stated parameters. The combined mathematical equations with direct and indirect markers are considered more reliable.
RESULTS:The results for sensitivity and specificity: a) AAR - 81.3% and 55.3%; b) APRI and GPRI show similar results - approximately 70% and 65% respectively; c) Fib-4 - 97% and 65%; d) ELF algorithm for moderate LF 69% and 98%, for cirrhosis – 83% and 97% respectively.
CONCLUSIONS:eLIFT is appropriate for advances and for mild LF diagnosis, thus it is appropriate for the first line of testing for LF. It is convenient test because it is easily accessible and reasonably costly and shows acceptable sensitivity and specificity for ADL and HBV.
Keywords: eLIFT, Liver Fibrosis

P-132

Anti-phospholipase A_2 receptor antibodies in the diagnosis of primary membranous nephropathy

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OBJECTIVES:Two forms of membranous nephropathy (MN) have been described - the primary form (PMN) and the secondary form (SMN). It is believed that phospholipase A2 receptor (PLA2R1) is a target autoantigen in about 80% of patients with MN. The aim of our study was to compare the levels of anti-phospholipase A2 receptor antibodies (anti-PLA2R1) in patients with PMN, SMN, others glomerulonephritis (OGN) and healthy controls (HC).
MATERIALS and METHODS:The study included patients with PMN (n = 52), SMN (n = 12), OGN (n = 49) and HC (n = 50). The serum concentration of anti-PLA2R1 was determined with ELISA kit (Anti-PLA2R ELISA, IgG, EUROIMMUN, Lübeck, Germany) using MR-96A microplate reader (MINDRAY). All data are presented as mean ± SD. Significance was defined as P < 0.05.
RESULTS:The groups did not differ significantly in mean age (P = 0,055) and gender (P = 0,872). There was significant difference in mean anti-PLA2R1 concentrations between groups (P < 0.0001). The mean anti-PLA2R1 concentration of patients with PMN was significantly higher than the HC (213.97 ± 588.69 RU/ml vs 5.32 ± 3.91 RU/ml, P = 0.00l). There was no difference in anti-PLA2R1 between SMN patients and HC (6.34 ± 11.68 RU/ml vs 5.32 ± 3.91 RU/ml, P =0.193). OGN patients showed lower anti-PLA2R1 than the HC (3.52 ± 3.91 RU/ml vs 5.32±3.91 RU/ml, P = 0.002).
CONCLUSIONS:Our data suggest that anti-PLA2R1 shows a significant elevation in PMN patients and may be used as a diagnostic biomarker.
Keywords: membranous nephropathy, anti-phospholipase receptor antibodies

P-133

Application of UV light and temperature period of biosensors developed for determination of serum iron

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OBJECTIVES:Enzyme-based chemical biosensors are based on biological recognition. Temperature and UV light are important factors affecting the balance of enzymes and the rate of enzymatic reactions. In this study, optimum temperature and UV light duration were investigated in biosensors developed for the determination of iron in serum.
MATERIALS and METHODS:The bioactive layer was prepared by immobilizing the hydrogen peroxidase enzymes on the gold electrode with UV light using bovine serum albumin (BSA), gelatin and glutaraldehyde. Measurements were obtained using acetate buffer (10mM, pH 6.0) with electrodes immobilized by applying UV light for 30, 40, 50, 60 and 70 minutes. Measurements were performed at 30 °C, 35 °C, 40 °C and 45 °C with the electrode prepared using 40 min uv light time to measure the optimum temperature.
RESULTS:In this study, the best measurement was obtained with electrode applied to the bioactive layer with a UV light time of 40 minutes and under operating conditions where the temperature was 40 °C.
CONCLUSIONS:For biosensors prepared with bioactive layer hydrogen peroxidase enzyme, we can recommend 40 minutes UV light time and 40 minutes temperature for optimum working conditions.
Keywords: biosensor, hydrogen perxidase, optimization

P-134
Serum ghrelin levels in bipolar disorder patients with metabolic syndrome treated by valproic acid

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OBJECTIVES:Metabolic syndrome (MS) appears to be much more common in patients with bipolar disorder (BPD) than in the general population. In the treatment of BPD, valproic acid (VPA) is one of the commonly used pharmacological agents. In many studies, it has been reported that the levels of appetite-enhancing ghrelin are related to MS. The aim of this study is to assess the effect of VPA on ghrelin levels in patients with MS and BPD.
MATERIALS and METHODS:40 BPD patients with VPA treatment and 20 healthy controls were included in the study. BPD patients were divided into 2 groups: 1. BPD patients with MS, 2. BPD patients without MS. The BPD patients diagnosed according to the Diagnostic and Statistical Manual for Mental Disorders (DSM IV). The MS diagnosis was based on the National Cholesterol Education Program (NCEP) Adult Treatment Panel (ATP III) criteria. Serum ghrelin levels of control and patient groups were determined spectrophotometrically according to ELISA method.
RESULTS:Serum ghrelin levels were significantly lower in BPD patients with MS compared to BPD patients without MS and control group ($p < 0.001$).
CONCLUSIONS:These results indicate that serum levels of ghrelin and adiponectin are related to MS, but VPA therapy does not affect the results of the ghrelin.
Keywords: Metabolic syndrom, bipolar disorder, valproic acid, ghrelin.

P-135
Evaluation of clinical use habits of tumor marker tests

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OBJECTIVES:Tumor markers (TMs) result from the re-expression of substances by embryologically related tissues. Many are found in different tumors of the same tissue. Therefore, they have low specificity and are not sufficiently sensitive as a screening test. The aim of this study is to evaluate the TM requesting habits of clinicians in Usak Training and Research Hospital, and the appropriateness of the test requests with the diagnosis.
MATERIALS and METHODS:Data of 6998 serum TMs requested from 3316 patients between May 1 and July 31, 2019 were obtained from Laboratory Information System and grouped as sex, age, disease diagnoses and multiple requests (more than 3 tests simultaneously). Compliance with diagnosis was evaluated as appropriate or inappropriate based on published guidelines for indications for TM requests.
RESULTS:796 of the 6998 TMs requested from inpatients (2.75 markers/patient) and 6202 from outpatients (2.04 markers/patient). Most TMs were made in the 50-70 age range (48.3%). Multiple TMs were mostly demanded from the Obstetrics and Gynecology Clinic with the diagnosis of menstrual irregularity. Also, 1078 of 1408 total PSA and 28 of 191 free PSA tests were requested with appropriate pre-diagnosis.
CONCLUSIONS:This study is an example of the use of data mining for conformity assessment purposes of the TM requests. Accordingly, it was found that the TMs were often incompatible with the diagnosis and were used for general screening purposes. In order to minimize misuse, evidence based indicators should be developed and clinician awareness should be increased by creating test request algorithms that support the diagnosis.
Keywords: Tumor marker, request, diagnosis

P-136
Evaluation of the Inflammation status and bioimpedance data in chronic hemodialysis patients

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OBJECTIVES:Chronic kidney disease (CKD) is an increasingly important health problem in the World. Inflammation and anemia is a common feature in dialysis patients and is associated with cardiovascular complications and poor outcome. Bioelectrical impedance analysis (BIA) provides a non-invasive assessment of body composition. In this study, we aimed to compare the inflammation and bioimpedance data by using Hepcidin, IL-6, TNF-α, hsCRP, sTFR, LRG parameters.
MATERIALS and METHODS: For this purpose, 74 hemodialyzed patients who applied to the nephrology outpatient clinic of Selcuk University Faculty of Medicine were included in the study. Hepcidin, IL-6, TNF-α, sTFR, LRG analysis of the remaining blood samples after the routine tests and controls of the patients were performed by ELISA and hsCRP analysis was performed nephelometric method
RESULTS:We found a close relationship between functional anemia parameters, inflammation and arterial stiffness markers, central hemodynamics and nondiping status.
CONCLUSIONS:This relationship should be evaluated for routine availability in the larger patient group.
Keywords: Hepcidin, IL-6, sTFR, LRG, hsCRP and bioimpedance

P-137
Is plasma always a suitable alternative to serum in biochemical analysis?

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OBJECTIVES:Serum is the most widely used sample in biochemical analysis, but plasma has some advantages when compared to serum such as reduction in turnaround time, no fibrin and gel-based interference and more accurate reflection of the in vivo situation. The aim of this study was to evaluate whether there is a difference between serum and plasma for 20 analytes.
MATERIALS and METHODS:Total of 50 healthy subjects were included in the study. Blood samples were collected in tubes with gel (BD) and containing lithium heparin (BD, 4.0 mL). Samples in tubes with gel were allowed to clot at room temperature. Serum and plasma were obtained by centrifugation at 2000 g for 10 minutes. Hemolysis index was lower than 30 in serum and plasma samples. Biochemical measurements for 20 analytes were performed within two hours on Cobas c702 (Roche Diagnostics GmbH, Mannheim, Germany).
RESULTS:Lactate dehydrogenase (LDH) activity, potassium and phosphate levels were higher ($p<0.001$) although total protein was lower ($p<0.001$) in serum when compared to plasma.
CONCLUSIONS:The use of serum reference ranges is not suitable for plasma LDH, potassium, phosphate and total protein measurements. Plasma is a better quality sample because it is independent of fibrin and gel interference. Each laboratory may prefer serum or plasma according to their test panel.
Keywords: Serum, plasma, biochemical analysis

P-138
Ph optimization 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.Enzymes are not very resistant to strong acids and bases.Therefore, the determination of the pH in the enzyme studies is very important.
MATERIALS and METHODS:. In this study, we aimed to design a new amperometric biosensor for urea determination.In this study for the 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 ph optimization.
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 biosensör. Ph 5 was found in 100 mM acetate buffer
CONCLUSIONS:As a result, it is recommended as the optimum ph 5 for the designed biosensor.
Keywords: Urea biosensor, urease, optimization

P-139
The local clinical validation of different brands of blood collection tubes for complete blood count

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OBJECTIVES:In addition to the product quality and its validation, cost-effectiveness is also important in the blood collection tube (BCT) selection. Thus, a manufacturer may prefer to add a more cost-effective BCT option to its portfolio without compromising quality and may offer different options to a customer at once. However, when a laboratory administrator needs to select a BCT or to replace, local validation of BCT should be met first. We aimed to ensure local clinical validation of different brands of BCTs, including a new tube in the market for complete blood count (CBC).
MATERIALS and METHODS:Venous blood samples were taken from 40 inpatients and were collected in four different brand evacuated tubes with K2EDTA (Vacutainer;Becton, Dickinson and Company,USA) (S-Monovette;Sarstedt Ag & Co. KG,Germany) (Vacuette;Greiner Bio-One GmbH,Austria) (Samplix;Greiner Bio-One GmbH,Austria). White blood cell(WBC), red blood cell(RBC), hemoglobin, platelet(PLT) were analyzed using a CBC analyzer (DxH 800;Beckman Coulter Inc.,USA).
RESULTS:The Vacutainer, current BCT for CBC in routine were compared with S-Monovette, Vacuette, and Samplix and bias (%) results were calculated as follows: 1.85,-0.05, and -0.43 for WBC; 0.27,-0.11, and -0.39 for RBC; 0.07, -0.07, and -0.33 for hemoglobin; 0.06, 0.25, and 0.53 for PLT. All bias calculations were within the desirable limits based on the Ricos' biological variation data.
CONCLUSIONS:Similar CBC results were obtained among BCTs, including Samplix, when compared to the Vacutainer, the tube in laboratory use. Before selecting or replacing a BCT tube, it must be validated locally by comparing with the tube in use, thus ensuring the sustainability of CBC results.
Keywords: Blood cell count, blood specimen collection, validation studies

P-140
Nutritional habits in children with autism and cerebral palsy and its evaluation with biochemical approaches

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OBJECTIVES:We aimed to investigate the nutritional state of children who suffer from cerebral palsy and autism.
MATERIALS and METHODS:A questionnaire was applied to 70 children with cerebral palsy and 32 children with autism who continue their education at the İller Bankası Special Education and Rehabilitation School. In total 102 students participated in the study with 21 healthy siblings as the control group.
RESULTS:The ratio of boys to girls with cerebral palsy was 1% while it was 4,3% in the autism group. 66,7 % of children with cerebral palsy were slim while 33,3% of children were with normal weight. 50 % of children with autism were overweight and obese. The ratio of epilepsy was 30% in children with cerebral palsy, while it was 21,9% in children with autism. There are studies showing that various special diet and sustenance provides positive behavioral change on children with autism. It was identified that only 4 children (3,92 %) with cerebral palsy (3) and autism (1) from the total of 102 children was following a special diet and this is a low rate. Given the detrimental effects of undernutrition on physical and cognitive development, monitoring of nutritional status is important in children with neurological disorders.
CONCLUSIONS:According to the results, the rate of people who has normal BMI amount has been found %37,5, considering children with both cerebral palsy and autism and healthy siblings. According to the clinical diagnosis; sex, additional health problems, supplemen tay food consumption, digestive system problems, the difference between the past important operation has been found significant statisticaly ($p<0,05$). While considering the harmful effect of undernourishment on both physical and mental development, following nutritional aspect of a children who has neurological disorders has quile importance. In the light of our survey we know that further researches are essential on the topic of nutrition disorders and behavioral problems of children with autism, digestive system diseases the relation between the past attacks and crisis, the prevention of undernourishment of children with celebral palsy, and the contribution of diet on the treatment of epilepsy.
Keywords: cerebral palsy, autism, nutrition

P-141
Comparison of serum hemolytic index and manual spectrophotometric measurement of free hemoglobin

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OBJECTIVES:The effect of hemolysis as a preanalytical error on laboratory test results is significant. In this study, it was aimed to evaluate hemolytic index (HI) values obtained from emergency and routine biochemistry laboratory and to compare them with those the results of a manual free hemoglobin method.
MATERIALS and METHODS:In April 2018 and 2019, serum HI values of emergency and routine biochemistry laboratory obtained from laboratory information management system were examined. One hundred of serum samples with different hemolytic index values within a wide range (25–619) were studied by Cobas 6000/8000 analysers and hemoglobin concentrations were determined by a manual spectrophotometric method. Hemoglobin levels in mg/dL were calculated by two different methods by absorbance measurements at 380, 415 and 450 nm and 415, 450 and 700 nm, Method 1 and Method 2, respectively. Regression analysis and % bias values were calculated between serum hemolytic index and manual method results.
RESULTS:HI values >50 mg/dl were 16.82%, 12.21% in emergency laboratory and 1.69%, 1.22% in routine laboratory, respectively. Serum HI showed a high correlation with Method 1 (r=0.969) and Method 2 (r=0.973). Percent bias

values were 9.43% and 8.88% for Method 1 and 2, respectively.
CONCLUSIONS:Because of the effect of hemolysis on test results, many samples may be rejected although redundant and lead to delayed patient results. This can be reduced by appropriate blood collection and training of laboratory technician and use of serum HI. Evaluation of HI by laboratory specialist may contribute to accurate clinical interpretation and reduction of sample rejection.
Keywords: Serum hemolytic index, hemolysis, preanalytical error

P-142
Comparison of vitamin D levels in different types of tubes

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OBJECTIVES:The newly introduced BD barricore plasma collection tubes provides ease of use for laboratory workers. In this study, we aimed to compare vitamin D levels in BD Vacutainer K2 EDTA tube with Vacusera gel tube and BD Vacutainer barricore plasma collection tubes.
MATERIALS and METHODS:Twenty healthy volunteers participated in the study. Venous blood samples were collected in each type of tubes in the morning. The tubes without anticoagulant was allowed to coagulate for 20 minutes. The samples were then centrifuged at 1500 g for 10 minutes. Vitamin D levels of all three samples were analyzed by HPLC. The distribution of the data were evaluated. Since the distributions were non-Gaussian, the differences between the groups were investigated by Wilcoxon test. Then, the relationships between the groups were examined by Spearman correlation test.
RESULTS:There were no statistically significant differences between BD Vacutainer K2 EDTA tube, Vacusera gel tube and BD Vacutainer barricore plasma collection tubes (p=0.911, p=0.823, respectively). BD Vacutainer K2 EDTA tube and Vacusera gel tube and BD Vacutainer barricore plasma collection tube results were well correlated with each other (r=0.892, p<0,01; r=0.920, p<0,01, respectively).
CONCLUSIONS:Although HPLC is a reliable method for vitamin D analysis, it is known that serum seperator gels may cause interference. The use of EDTA tubes is therefore recommended by the manufacturer. In our study, Vacusera gel tube and BD Vacutainer barricore plasma collection tube were compared with BD Vacutainer K2 EDTA tube and the results were found to be consistent.
Keywords: vitamin D, barricore plasma collection tube, compare

P-143
Retrospective evaluation of vitamin D, calcium and vitamin B12 levels

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OBJECTIVES:Vitamin D, calcium and vitamin B12 are known to have important effects on human health through various mechanisms. In this study, we aimed to determine whether vitamin D, vitamin B12, and calcium levels differ in terms of age and sex in hospital admissions in the last 6 months.
MATERIALS and METHODS:6087 patients who applied to Konya Training and Research Hospital between 01.01.2019-01.07.2019 were screened on the hospital information system.
RESULTS:Of the 6087 patients, 73.1% (n=4448) were female and 26.9% (n=1639) were male. The mean age of the patients was 41.19 ± 20.14 (0-96), the mean calcium level was 9.55 ± 0.44 (5,05-12,90), the mean vitamin D value was 16.33 ± 11.8 (2,10-138,95), and the mean vitamin B12 value was 382.42 ± 167.13 (103-1973). Vitamin D and calcium were significantly higher in males than females (respectively, p=0.011, p=0.000). In women, there was a positive correlation between calcium and vitamin B12, between vitamin B12 and vitamin D, and between calcium and vitamin D (respectively, p=0.082, p=0.232, p=0.091). There was a low positive correlation between vitamin B12 and vitamin D in male (p=0.141). İn addition, vitamin D was found to be lower in age 65 and over.
CONCLUSIONS:In our retrospective study, we found that vitamin D was highly insufficient in elderly people and that it was lower in women compared to men. We think that vitamin D supplementation may be beneficial in elderly and women.
Keywords: Vitamin D, calcium, vitamin B12

P-144
Evaluation of first trimester screening tests

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OBJECTIVES:We aimed to evaluate the ability of maternal serum plasma protein A (PAPP-A) and free beta-human chorionic gonadotropin (free ß-hCG) values measured in the first trimester screening test to predict complications that may develop in later gestational weeks.
MATERIALS and METHODS:The study included 3166 women between 16-46 years old of age. Their gestational ages were between 10 weeks and 6 days to 13 weeks and 6 days. They had a single live pregnancy, and no any complicated obstetric history and chronic systemic disease. The results of 3166 pregnant, applied to the Biochemistry Laboratory of Gaziosmanpasa University Faculty of Medicine between 2017 and 2019, were evaluated retrospectively. p values less than 0.05 were considered statistically significant.
RESULTS:The mean age of the patients was 27.43 ± 5.46 and their weight was 65.66 ± 13.13 kilograms. Crown rump lengthes (CRL) were determined as 60.71 ± 8.56 mm. Free ß-hCG levels were 55.1 ± 132.07 ng / mL and PAPP-A values were 3683.53 ± 2486 mIU / l. Nuchal translucency measurement (NT) was determined as 1.38 ± 0.37mm. None of patients had age risk. Only 2 patient (% 0,1) had Trisomy 18 risk while 59 patient (% 1,9) had Trisomy 21risk.
CONCLUSIONS:The accuracy and performance of 1st trimester screening tests, which are used in the diagnosis of neural tube defects and chromosomal anomalies and guide for further interventional procedures, should be improved. Measurements should be performed with strict internal and external quality programs.
Keywords: free ß-hCG, PAPP-A, Binary screening test, 1st Trimester

P-145
Modulation of monoaminergic response to the SNC active pharmacotherapy

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OBJECTIVES:The study of chemical neurotransmitters has acquired in recent years a very large scale, driven mainly by the discovery and use of methodologies and techniques for investigating more complex and more accurate. Given the pathophysiological importance of noradrenaline, dopamine, serotonin and γ-aminobutyric acid, we plan to study the effect of active drugs on the central nervous system on brain levels of these neurotransmitters.
MATERIALS and METHODS:We used white Albino Swiss mice which was randomized into seven groups treated with the following drugs: valproic acid (V), risperidone (R), fluoxetine (F), lithium (Li), and associations: V+F,V+Li,V+R. Brain tissue was collected, and were determined the concentrations of neuronal noradrenaline (NA), dopamine (DA) by HPLC, serotonin (5-HT) by LC-MS, and gamma-aminobutyric acid (GABA) was determined by a spectrofluorimetric method.
RESULTS:The administered drugs increased the noradrenaline brain concentration. Lithium was the most potent catecholaminergic stimulator of the brain concentration (406.66% effect increase) (p<0.001) between all the studied drugs. Co-administration of Li + Q

triggers, molecular mechanisms that cause a sudden decrease of the NA. The risperidone acts as an atypical antipsychotic: increasing concentrations of NA, DA, 5-HT and decrease the concentration of GABA.
CONCLUSIONS:The experimental results presented in this paper led, in addition to unique conclusions for the current scientific research, as well as potential theories and responses to multidrug resistance in various neuropsychiatric disorders.
Keywords: multidrug resistance, neurotranmitters, CNS active drugs

P-146
Comparison of Beckman Jaffe and enzymatic creatinine methods

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OBJECTIVES:Serum creatinine is measured as a kidney function test in almost all clinical laboratories.Creatinine methods used in clinical laboratories are generally based on automated chemical or enzymatic methods.Jaffe assays remain the predominant method type in most developed countries.It is stated that enzymatic method is the most compatible method with reference method.The aim of this study is to compare the analytical performance characteristics of Jaffe and enzymatic methods.
MATERIALS and METHODS:Serum specimens were collected from 107 hemodialysis patients (pre- and post-dialysis samples),50 patients with high creatinine levels from nephrology service,160 patients with normal creatinine values from other sections.Samples were measured with two original creatinine reagent kit(BECKMAN COULTER) based on different methodology (Jaffe and Enzymatic),by using AU 5800 autoanalyzer at Gazi University Medical Faculty Hospital Biochemistry Laboratory.Statistical analysis was performed with MEDCALC and SPSS for method comparison.
RESULTS:We found significant and strong correlation between the two methods. (r=0,995,p<0,0001).However,in the analysis of Deeming regression equations gave a slope of 1,0853 and an intercept of -0,06130.When we analyze the data by dividing it into normal and high values,Deeming regression equations gave a slope of 1,0638,1,0959 and an intercept of - 0,01073,-0,1455,respectively.Mean values for Jaffe first and second,enzymatic first and second measurements were 3.78mg/dL,3.86mg/dL and 4.05mg/dL, 4.11mg/dL,respectively.There was a significant difference according to T test(p <0.05).
CONCLUSIONS:Although it was seen that jaffe method gave higher results than enzymatic method in literature,we found that enzymatic method measured higher.We explain this with differences between methods. Therefore, more comprehensive studies with different patient groups and different methods are needed.
Keywords: creatinine,enzymatic,Jaffe,method comparison

P-147
Possible input of diabetes and smoking cigarettes in confirmation of AMI diagnosis

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OBJECTIVES:Influence of diabetes on development of ACS is well known, as well the active smoking that can pose a particular risk in increasing heart muscle ischemia. Several proposed models by international associations, indicate an increased risk and confirmation of the definition of myocardial infarction (MI) with presence of diabetes and cigarettes smoking habit in patients.
MATERIALS and METHODS:Our study included 200 patients admitted to the emergency department with symptoms of AMI. Patients samples were submitted for CK, CKMB, TnT, TnI, Myoglobin determination and estimation for presence of diabetes and smoking habit. The obtained data were compared and statistically processed versus group of patients without any of risk factors.
RESULTS:We found that 34% of patients has stable/unstable angina, and 49% was diagnosed as MI. Higher percentage of diabetic patients 28.8% has MI compared to 13.4% in patients with angina pectoris. In terms of smoking as a risk factor, 54.6% of patients with MI were active smokers compared to 34.3% in patients with angina pectoris. At diabetic patients MI was confirm with significant upper CK activity (65%), CKMB (56.8%) and TnT concentration (142%). Regarding the smokers, the most significant change was found in higher CK activity (60%) and myoglobin concentration (127.3%) in patients with AMI.
CONCLUSIONS:Result shows that those two risk factors can afford valuable data in primary diagnosis along with some sensitive but not most specific parameters such CK and Myoglobin. This attitude is based concerning their effects on metabolic oxygen supply of heart muscle.
Keywords: risk factors,myocardial infarction, cardiac markes.

P-148
Determination of adropin, desnutrin and glucagon like peptid-1 levels in emphysema disease

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OBJECTIVES: Emphysema; pathologically, alveoli is a lung disease with expansions, alveolar wall destruction and irreversible alveolar losses if filled with excess air. Pathological factors such as inflammatory cell response, protease/antiprotease imbalance, oxidative stress, apoptosis, and regeneration dysfunction in alveolar epithelium due to environmental or genetic factors play a role in the development of the disease. Dyspnea, cough, activity restriction as the disease progresses, loss of appetite and intense weight loss are the most obvious symptoms. The aim of this study was to measure the serum levels of Adropin, Desnutrin (ATGL) and Glucagon-like peptide-1 (GLP-1), which have important effects on carbohydrate and lipid metabolism of the patient and control groups, and to determine the effects of these parameters on the diagnosis and treatment of emphysema
MATERIALS and METHODS: The study group consisted of 35 patients diagnosed with Emphysema and 35 healthy subjects.
RESULTS: The study group consisted of 35 patients diagnosed with Emphysema and 35 healthy subjects. As a result of experimental analysis Adropin (p=0,002), Desnutrin (p=0,001) and GLP-1 (p=0,006) levels were compared statistically; the difference between the patient and control groups was significant (p<0,05).
CONCLUSIONS: In conclusion, in our study, it was determined that serum Adropin, Desnutrin and GLP-1 levels decreased significantly in patients with emphysema. Therefore, we believe that these parameters will contribute significantly to the diagnosis and treatment of emphysema. We think that the data obtained will shed light on the more comprehensive research for the treatment of emphysema.
Keywords: Emphysema, Adropin, Desnutrin, Glucagon like peptide-1

P-150
Oxidative status in patients with nonsyndromic cleft lip with/without cleft palate

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OBJECTIVES:Nonsyndromic cleft lip with/without cleft palate (NSCL/P) is one of the most common human congenital defects. Reactive oxygen species and oxidative stress act as teratogenic agents, leading, during embryogenesis, to several structural changes in the developing fetus. Numerous reports have described free radical-mediated congenital defects. The aim of this paper is to

determine the oxidative status in patients with cleft lip and/or palate.
MATERIALS and METHODS:Patients with NSCL/P (n = 12) and age- and sex-matched healthy control subjects (n = 13) were enrolled in this study. Malondialdehyde (MDA) concentrations as oxidative stress biomarker in plasma, and the activities of superoxide dismutase (SOD) and catalase (CAT) as antioxidant enzymes in erythrocyte were determined as spectrophotometric.
RESULTS: Oxidative stress was confirmed by the significant elevation in MDA concentrations ($p<0.05$). Besides, increased CAT and SOD activities were found in patients with NSCL/P compared with the control group ($p<0.05$).
CONCLUSIONS: Our findings indicated that increased the antioxidant enzyme activities and MDA concentrations in patients with NSCL/P may be an adaptative response to against oxidative stress.
Keywords: Oxidative stress, Nonsyndromic cleft lip with/without cleft palate, MDA

P-151
Synergistic antioxidant effects of melatonin and arginine at the cerebral and hepatic level

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OBJECTIVES:Biological structures are susceptible to oxidative stress and lipid peroxidation having a limited number of bio molecules active as antioxidants at physiological concentrations. The objective of the study was to determine the antioxidant capacity of melatonin, the main pineal hormone with multiple biological roles as antioxidant, anti-aging, DNA defense agent and neuroprotector, and arginine, a semi-essential amino acid studied for its effects in cell division, immune system modulation and carcinogenesis, and as a precursor of NO synthesis.
MATERIALS and METHODS:White male Albino Swiss mice were randomized in 4 groups administered for a period of three weeks with arginine and melatonin, single or in combination. The hepatic and brain tissue homogenates were subjected to the assessement of lipid peroxides, in temporal dynamics, by the reaction with thiobarbituric acid, the results being expressed in nmol malondialdehyde/mg protein.
RESULTS:At the cerebral level, the dynamics of the lipid peroxidation process recorded interesting values demonstrating protective effects for the studied substances against oxidative processes, the best results being obtained for arginine + melatonin treated groups. In the hepatic tissue, melatonin registered the lowest antioxidant effect, but it was achieved a substantial improvement by its association with arginine.
CONCLUSIONS:The lipid peroxidation process is a characteristic of each tissue, depending on the intensity of cellular oxidative processes and the mechanisms underlying the balance between pro-oxidant factors and antioxidants. The obtained results demonstrate the synergistic effect of melatonin and arginine as effective modulators of redox processes, significantly diminishing the tissue potential of lipid peroxidation.
Keywords: arginine, melatonin, lipid peroxidation, malondialdehyde, oxidative stress

P-152
Superoxide dismutase – first line defence antioxidant enzyme in women with polycystic ovary syndrome

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OBJECTIVES:Oxidative stress is a condition which occurs as a result of physiological imbalance between the levels of antioxidants and oxidants (ROS - reactive oxygen species) in favour of oxidants. It causes oxidative damage and processes that happen in the body contribute to the development of a number of interrelated risk factors as hyperglycemia, dyslipidemia, hyperinsulinemia, insulin resistance. The effects of an increased oxidative load are reduced by antioxidant enzymes that convert ROS to less harmful molecules. Superoxide dismutase (SOD) is the first detoxification enzyme and most powerful antioxidant in the cell. The aim of our study is to evaluate changes in serum SOD in women with polycystic ovary syndrome (PCOS).
MATERIALS and METHODS:The study includes 55 women, divided into two groups: 29 women with PCOS and 26 clinically healthy women. Serum SOD was determined with an ELISA kit (MyBioSource, USA). SOD concentrations were measured by a multiparameter photometer "Sirio S microplate reader", SEAC, Italy. All data was presented as mean ± SD. Significance was defined as $P < 0.05$.
RESULTS:The mean age of women with PCOS was 25.03 ± 4.94 yrs. and of healthy women was 30.34 ± 5.76 yrs. Serum concentrations of SOD were significantly lower in women with PCOS compared with healthy controls (14,06 ± 3,17 vs 38.95 ± 45.32, $P < 0.001$).
CONCLUSIONS:Our results indicate decreased SOD serum concentrations in studied women. It is believed that serum SOD could be a helpful biomarker in assessment of oxidative stress in women with PCOS.
Keywords: SOD, PCOS, oxidative stress

P-154
Effect of tourniquet usage on ADMA levels undergoing unilateral total knee arthroplasty patients

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OBJECTIVES:Pneumatic tourniquets are commonly used in the orthopedic field to reduce blood loss and maintain a clear surgical field in limb surgery. Despite their beneficial effects, tourniquet-related adverse effects such as vascular injury and limb ischemia–reperfusion injury have been identified in many studies. The aim of our study was to investigate the effect of tourniquet usage on preoperative and postoperative (1th and 24th hours) ADMA, SDMA, L-NMMA, arginine, citrulline levels undergoing unilateral total knee arthroplasty (UTKA) patients.
MATERIALS and METHODS:31 patients who underwent UTKA with or without tourniquet in Selcuk University Faculty of Medicine Clinic of Orthopedics and Traumatology were included in the study. All parameters were analyzed by LC unit coupled to an ABSCIEX API 3200 mass spectrometer. Paired sample t test was used for statistical analysis. $p <0.05$ was taken to be statistically significant.
RESULTS:It was determined a reduction between ADMA0-ADMA24, Cit0-Cit1, Cit0-Cit24 (with tourniquet), Cit0-Cit24 (without tourniquet) periods ($p=0.002$; $p=0.025$; $p=0.001$; $p=0.003$ respectively). There were no significant differences in other periods and parameters, both two operation methods.
CONCLUSIONS:In many studies, ıt was reported that usage of tourniquet during surgery increases oxidative stress status depending on ischemia in knee arthroplasty. Oxidative stress has been shown to increase the activity of arginine methylating and ADMA degrading enzymes leading to increased ADMA concentrations. When the results obtained in our study were evaluated, it was observed that in the long term ADMA levels decreased, in the short and long term citrulline levels decreased in the patients who were operated with tourniquet.
Keywords: Knee arthroplasty, tourniquet usage, oxidative stress, ADMA

P-155
Oxidative status in patients with inflammatory bowel disease

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OBJECTIVES: To evaluate the role of free radical oxidation and antioxidant defense for the progression and activation of inflammatory bowel disease (IBD).
MATERIALS and METHODS: 54 IBD patients (mean age 44,5±14,3y) and 80 healthy age-matched controls (43±10.8y) were enrolled in the study. According to CDAI and Mayo indexes, the patients were divided into two subgroups: moderate/severe activity (36 patients) and remission/mild activity (18 patients). CRP and fecal calprotectin were measured as inflammatory markers. Hydroperoxide levels and serum antioxidant capacity were evaluated using commercial kits dROMs and BAP-test (Diacron Labs, Italy). Standard statistical methods (descriptive statistics, Student's t-test, and Spearmann correlation) were used for data analysis.
RESULTS: Significantly increased levels of dROMs were measured in IBD patients vs controls (418.1±124.4UCarr vs 341.2±37.48UCarr, p<0.0001). Patients with active form of IBD revealed significantly higher dROMs compared to mild/remission subgroup (437.8±131.4UCarr vs 357.0±81.74UCarr, p<0.05). Serum antioxidant capacity was significantly decreased in the IBD group vs controls (2122±468.6umol/l vs 2683±279.9umol/l, p<0.0001). A tendency for weaken antioxidant defense was found with the severity of the disease (2047±608.9umol/l for the subgroup with moderate/severe activity and 2206±432.8umol/l for the mild/remission subgroup). The increase of dROMs was significantly associated with CRP (Spearman r=0.5545, p<0.0001) and calprotectin levels (Spearman r=0.3295, p<0.05). BAP-test correlated negatively with CRP levels (Spearman r=-0.5419, p<0.0001) and with calprotectin (Spearman r=-0.2078, ns).
CONCLUSIONS: Increased free radical oxidation and diminished antioxidant defense with the severity of the disease and their associations with routine inflammatory markers suggest a possible role of oxidative stress in the pathogenesis of IBD.
Keywords: IBD, oxidative stress, antioxidant defense, CRP, calprotectin

P-156
Nitric oxide increased in preeclampsy independently from malondialdehyde

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OBJECTIVES: Preeclampsia, which is a complication that usually develops in the later stages of pregnancy, is still being debated in relation to nitric oxide (NO) and oxidant / antioxidant system. The aim of this study was to determine the maternal serum concentrations of nitric oxide and malondialdehyde (MDA) in preeclamptic pregnancies and to compare them with healthy patients.
MATERIALS and METHODS: The study included 38 pregnant women with a gestational age of 30-38 weeks with preeclampsia and 42 normotensive pregnant women with the same gestational week. Serum NO levels were measured by the Griess method as described by the colorimetric assay kit manufacturer (NB98, Oxford Biomedical Research). The absorbance of a pink complex formed after MDA reacted with thiobarbituric acid was measured spectrophotometrically at 535 nm.
RESULTS: In our study, serum NO levels of preeclampsia pregnant women were higher than healthy pregnant women (P <0.05). However, there was no difference between the groups in terms of MDA levels (P> 0.05). In addition, there was no statistically significant correlation between NO and MDA levels of all participants (Spearman r = -0.01169 P = 0.9180).
CONCLUSIONS: Especially in preeclampsia patients who developed after 30th week, NO levels were found to increased. However, this increase was not associated with MDA, an indicator of oxidative stress.
Keywords: Preeclampsia, nitric oxide, malondialdehyde

P-157
Haptoglobin polymorphism may cause atherosclerotic changes

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OBJECTIVES:Human gene of haptoglobin is presented by two alleles. Haptoglobin types are 1-1, 1-2 and 2-2. Different studies shows role of type 2-2 in cardio-vascular disease occurrence during diabetes. Haptoglobin type 1 is known to suppress hemoglobin based oxygenation of HDL and LDL, acting like antioxidant.
MATERIALS and METHODS:We aimed that Bulgarian population is haptoglobin 2-2 type, which causes frequent morbidity by systematic diseases, such as atherosclerosis, diabetes, diabetic nephropathies, gestational diabetes, anemia, etc. 39 volunteers were included, age 36.7 ± 5.3. IMT, ABI, CBC, iron homeostasis, hsCRP and haptoglobin type were evaluated.
RESULTS:Increased serum hepcidin concentrations were established in patients with atherosclerotic a. carotis changes (109.7 ± 10.1 µg/L) compared to healthy controls (21.1 ± 1.9 µg/L), P<0.001. In haptoglobin type 2-2, was found strong positive correlation between hepcidin levels and changed IMT and ABI (r=0.901, r=0.919, resp.; P<0.01). Three volunteers were with haptoglobin type 2-1; no changes of serum hepcidin concentration and IMT, ABI was found in this phenotype.
CONCLUSIONS:The main reason for acute coronary thrombosis is atherosclerotic plaque rupture. Extra-vascular hemoglobin plays role as start mechanism for inflammation in the plaques. Important contra-active mechanism is played by haptoglobin. Thus, it prevents kidney injury from free hemoglobin. Released iron from destructed erythrocytes forms reactive oxygen radicals through Fenton's reaction. Hepcidin regulates iron homeostasis by its interaction with intracellular iron exporter ferroportin.
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Keywords: oxidative stress, haptoglobin, atherosclerosis, iron

P-158
Determination of glucose levels in sports active children

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OBJECTIVES:Physical activity is a very important part of healthy lifestyle in children and adolescents. Physical activity is known to increase glucose consumption, which is used as an energy source, thereby reducing blood glucose levels.
MATERIALS and METHODS:Sports active children included children who were actively involved in sports in addition to physical activity at school. It included 158 healthy children (82 boys and 76 girls) aged 4-6 years and 12-14 years. There were 76 children active in sports and 82 inactive. Glucose levels have been determined by routine laboratory methods.
RESULTS:Comparisons are made by age and gender in relation to whether or not they are involved in sports. In the group of younger children and older boys there is no statistically significant difference in glucose level.Comparing glucose level in girls group, glucose levels were significantly lower (p <0.01) in girls engaged in sports activity versus girls inactive in sport (4.95 ± 0.2 mmol/L versus 5.20 ± 0.32 mmol/L).
CONCLUSIONS:Based on the results, we can conclude that although there was no difference in glucose concentration in young children, the puberty period is critical and special attention should be paid to prevention. Playing sports has the effect of improving health and quality of life. Diet and

exercise should be adapted to each child. Systematic examinations of children involved in sports should be regular and should include control of the risk parameter for the development of diabetes mellitus as well as the parameters for the development of cardiovascular disease.
Keywords: Children. Sports. Glucose

P-161
Screening for hypothyroidism

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OBJECTIVES:Hypothyroidism is a clinical condition that arises out of the development defects of the thyroid gland.The most frequently endocrinologic problem encountered reason of permanent hypothyroidism is the congenital reasons.Incidences in our country, hypothyroidism was found as one per every 2183 alive births.Tests are conducted using the National Newborn Screening Program developed Ministry of Health since 2006.
MATERIALS and METHODS:The TSH eliza method is employed for hypothyroidism at a threshold value of up to 15 mg/dl. Since the symptoms and findings of early diagnosis sometimes is difficult. In non-treated cases, serious mental retardation but treatment is easy, inexpensive, and efficient. In Avcılar Hospital, number of alive births for the year 2017 is 721. Heel blood is taken from all newborns after at least 24 hours of feeding, and a Guthrie card is filled in.If the blood samples taken here are insufficient, repetition is requested.
RESULTS:Appropriate samples are worked on in the screening laboratory, and any results above the normal values are taken into further examination. Screening test results examined in the hospital for the congenital hyperthyroidism are as follows: TSH was above normal level in 11. According to these results, 4% samples in total among the babies born in this hospital were required to be taken again. Among these, 0.3% were required to be redirected to the concerning clinic for further follow up.
CONCLUSIONS:Sampling from all alive births in the hospitals and efficient participation of big centers such as the maternity wards into screening purpose surveys makes contribution to obtaining the country-wise data.
Keywords: Hypothyroidism

P-162
Evaluation of pediatric coagulation tubes

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OBJECTIVES: In this project,we aimed to evaluate the performance of pediatric tubes by comparing the results of 2.7 ml coagulation tubes containing %3.2 sodium citrate and 0.5 ml pediatric tubes containing %3.2 sodium citrate.
MATERIALS and METHODS: In addition to the standard coagulation sample,0.5 mı of blood was collected from our adult volunteers over 18 years old who applied to our hospital for coagulation tests. Prothrombin Time(PT), Activated Partial Thromboplastin time(aPTT) and Fibrinogen tests were analyzed from these two samples on Sta Compact Max. We then compared the results statistically.
RESULTS: No statistically significant results were found between PT, aPTT, fibrinogen test results of pediatric coagulation tubes and normal coagulation tubes..
CONCLUSIONS: Pediatric coagulation tubes may be used in pediatric patients or in adult patients with difficult blood collection.
Keywords: Pediatric coagulation tubes,PT,aPTT, Fibrinojen,coagulation tubes

P-163
A method comparison study of a novel point of care test for hemolysis detection in vacuum tubes

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OBJECTIVES:Hemolysis is a frequent pre-analytical error accounting for up to 70% of all rejected specimen in clinical laboratorys. Considering that biochemical analysis impact clinical outcomes, errors may subject patients to adverse effects and place an unnecessary economic burden on a hospital budget. A line of evidence indicates that hemolysis usually is traced to the blood collection. To mitigate this an effective approach could be to identify hemolysis at the point of care. Here a novel method for point-of-care hemolysis detection is evaluated.
MATERIALS and METHODS:Lithium heparin tubes part of routine care was collected and roughly 100 µL whole blood was analyzed for hemolysis in plasma with Helge (Helge, Hemcheck, Karlstad, Sweden) at an emergency department (ED) in Sweden. Results were recorded at the ED, and samples were sent with pneumatic dispatch to central laboratory for routine handling. Hemolysis index was collected from the reference method Vitros 5.1 FS (Ortho Diagnostics Inc. New Jersey, United States). Clinically relevant hemolysis was 0.5 g/L free hemoglobin.
RESULTS:794 samples were collected during four weeks for calculation of performance. The proportion of hemolytic samples was 9.9% (n=79) according to the reference method. The sensitivity and specificity of Helge were 81.0% and 97.8% respectively. The positive and negative predictive values were 80.0% and 97.9% respectively.
CONCLUSIONS:Hemolysis is a frequent pre-analytical error, in this study 9.9% of included blood samples were rejected. If a non hemolyzed sample could be taken following a positive test, in this study, the proportion of rejected samples would be reduced from 9.9% to 1.9%.
Keywords: Hemolysis Point-of-Care Systems Pre-Analytical Phase

P-164
The effect of storage conditions on prenatal screening tests

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OBJECTIVES:Prenatal screening tends to be performed in central hospitals as it requires expertise for interpretation of results and quality management and cost effectiveness as well. For this reason, samples taken from peripheral hospitals are transferred to the central laboratory on a certain day of the week. During this period, samples can be frozen and stored. The aim of this study is to investigate the effect of storage on prenatal screening tests and risk analysis.
MATERIALS and METHODS:TotalβhCG,PAPP-A(n17) for double screening; total βhCG,AFP,uE3,inhibin-A(n:21) for quadruple screening were studied on freshly drawn blood samples on Beckman-Coulter-Access2 analyzer on the same day. Risk assessment was performed in BenetechPRA software. The cutoff value was 1/250 for the risk of Down syndrome. The same serum samples were frozen immediately and thawed after one week of freezing at -30°C and the tests were re-studied to calculate the risk analysis.
RESULTS:The median and IQR(Q1-Q3) values of fresh and frozen samples were as following: PAPP-A:617(417-1195)µg/L and 671(472-1252)µg/L;totalβhCG:117030(75836-174448)IU/L and 100007(77363-196865)IU/L in double screening; and AFP:31.6(21.6-42.4) ng/mL and 37.0(25.0-44.5) ng/mL;total βhCG:57415(40687-83812)IU/L and 62800(47078-93462)IU/L;inhibin-A:284(204-458)pg/mL and 315(224-471)pg/mL in quadruple screening, respectively. The difference was statistically significant between fresh and frozen samples($p<0.05$). There wasnt a statistical difference between uE3 results. Risk analysis also did not showed a difference after storage($p>0.05$).
CONCLUSIONS:Freezing and thawing of the samples did not change the risk analysis, although the test results could change. In addition to biochemical tests, maternal characteristics such as maternal age, weight, race, diabetes mellitus, smoking and USG findings are effective in calculating the risk of Down syndrome.
Keywords: Prenatal screening tests, risk analysis, fresh sample, frozen sample

P-165
The effect of hormones secreted by skin contact on the separation time of the placenta

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OBJECTIVES:This study was aimed to investigate the effect of hormones on the duration of separation of plasma skin to skin contact.
MATERIALS and METHODS:The study was conducted with 20 cases, 20 controls. Blood samples were taken during routine check-up before and after the birth of 1 cc of blood for our study. Blood samples were stored in the deep freezer at -80 degrees until all of the bloods were collected. Then, beta-endorphins, catecholamines and oxytocin were analyzed. Data were taken using the socio-demographic data form. In addition, the effect of skin to skin contact on placenta seperation time was measured with an observational chronometer. The Mann-Whitney U test was used to evaluate the data.
RESULTS:The mean age of mothers in the case group was 28,55±5,97, the mean age of mothers in the control group was 26,75±6,58. Statistically, the levels of oxytocin in control prepartum and case prepartum groups decreased, while beta-endorphin levels increased and catecholamine levels did not change. There is no significant difference between control postpartum and case postpartum groups in terms of oxytocin, beta-endorphin and catecholamine levels (p>0,05). In addition, the seperation time of the placenta was shorter in the case group compared to the control group. There is a statistically significant difference between them (p<0,05).
CONCLUSIONS:Skin to skin contact at birth is a factor affecting the separation time of the placenta. Health professionals should be informed and awareness about skin to skin contact should be increased in the early postpartum period.
Keywords: Skin to skin contact, oxytocin, beta-endorphin, catecholamine, placenta

P-166
Determination of median values of biochemical parameters in double and quadruple prenatal screening tests

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OBJECTIVES: In this study, we aimed to determine the median values of the biochemical parameters of the prenatal screening tests of double (DS) (PAPP-A and total ß-hCG) and quadruple (QS) (AFP, uE3, total ß-hCG, Inhibin A) and to compare with the median values given by the company.
MATERIALS and METHODS: Data of 2111 pregnant women between 11-13 weeks for DS and 1683 pregnant women between 15-19 weeks for QS were included in the study.Pregnants with diabetes, IVF and twin pregnancy, smoking and were excluded. Pregnant women with a risk of Smith-Lemli-Opitz syndrome and above the threshold of 1/250 for Down syndrome, 1/300 for trisomy 18, 1/104 for neural tube defect were also excluded.All analyses were performed on a Beckman-Coulter Access2 analyzer and risk analysis was performed with Benetech PRA.The "sign test for medians" was used for the comparison of medians.
RESULTS: For DS, the new median values were significantly different(p <0.05) for all three weeks(11-13.) than the medians recommended by the company.For QS, the median of inhibin A at weeks 15th-19th, AFP at weeks 15-17th, uE3 at weeks 15-17th and 19th, total ß-hCG was significantly different at the only 17th week(p <0.05) compared to the default medians.
CONCLUSIONS: Median values of biochemical parameters in prenatal screening tests may vary according to geographical regions.Newly found medians are different from than the default ones.This may be due to the large number of refugees coming to our country in recent years.Thus, in terms of maternal and fetal safety, each laboratory should calculate and use its own median values.
Keywords: double prenatal screening test, quadruple prenatal screening test, median value

P-167
Relationship between maternal TSH and first trimester screening parameters

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OBJECTIVES:Between 11-14th weeks (1st trimester) ß-hCG and PAPP-A are examined from maternal serum to determine the risk of trisomy 21.Higher hCG values increase the risk of trisomy 21.HCG and TSH hormones consist of alpha and beta subunits and alpha subunits are structurally similar.High levels of HCG during pregnancy show thyrotropic effect by binding to TSH receptors.The aim of this study is to investigate the relationship between TSH and ß-hCG levels during the first trimester.
MATERIALS and METHODS:The study included 331 pregnant women investigated for first trimester scrreening and had TSH request simultaneously. Of these 52 pregnants had also simultaneous free T4 requests.Total β-hCG and PAPP-A were studied on a Beckman-Coulter Access2 and TSH on a Roche Cobas 6000 e601 analyzer.Risk analysis was performed in Benetech PRA software.The study group was divided in three subgroups according to TSH values:<0.1mIU/L,0.1-2.5mIU/L and >2.5mIU/L as hyperthyroid,euthyroid and hypothyroid, respectively.The relationship between the analytes in these three subgroups was analysed and risk analysis was re-evaluated.
RESULTS:There was a negatively significant weak correlation between TSH and total β-hCG(r =-0.125; p<0.05) and TSH and Down syndrome risk(r=-0.147; p <0.01).There was no significant relationship between TSH and PAPP-A.There was a statistically significant difference between TSH subgroups for total β-hCG MoM(p=0.003).There was no significant relationship between TSH subgroups and total β-HCG.There was a nonsignificant weak correlation between T4 and TSH(r =-0.217; p>0.1), and free T4 with total β-HCG(r=0.203, p>0.1).
CONCLUSIONS:In the first trimester,increased hCG may affect the thyroid function.Therefore,thyroid disease and drug use should also be taken into consideration during pregnancy.
Keywords: TSH, maternal screening, down syndrome, correlation

P-168
Evaluation of the effect of measurement uncertainty on risk analysis in prenatal screening

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OBJECTIVES: Increased ß-hCG and inhibin-A values, decreased AFP and uE3 values increase risk of Down syndrome (DS). Higher AFP concentrations increase risk of NTD. The aim of this study is to calculate measurement uncertainty (MU) of analytes used in quadruple screening and to perform risk analysis again considering worst probability.
MATERIALS and METHODS: MU of each parameter was calculated according to Nordtest NTTR537 and ISO/TS21748 guidances. Analytes were studied on Beckman-Coulter Access2 analyzer and risk analysis was performed on Benetech PRA software. 200 consecutive patients were included; patients were divided into two groups as 35 years and older; and younger (n=20 and n=180, respectively). Cut-off values for DS and NTD were taken as 1/250 and 1/104, respectively. First risk analysis was compared with the worst probability risk analysis considering MU.
RESULTS: Extended MUs% of total ß-hCG, AFP, uE3 and inhibin-A analytes were ± 25.46, ± 21.82, ± 11.17 and ± 25.25, respectively. When all patients (n=200) were considered, 8 patients had a positive risk for DS and this number increased to 40. Risk for NTD increased from 2 to 5. In patients <35 years, risk for DS increased from 8 to 34, while the number for NTD did not change.
CONCLUSIONS: It was found that pregnant women with low risk were not affected but clinically significant risk increase was found in pregnant women with close to cut-off. MU can be given with test result in results close to cut-off value in prenatal screening tests. It would be useful to inform clinicians on this issue.
Keywords: Prenatal screening test, Measurement uncertainty, Risk estimation

P-169
Causes of sample rejection in medical biochemistry laboratory of Gaziantep University Research and Practice Hospital

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OBJECTIVES:The management of preanalytical errors is important for efficient and reliable analyze of patient results. The objective of this study is to determine, classify and evaluate the frequency of sample rejections in the preanalytical phase.
MATERIALS and METHODS:The samples sent to our Laboratory between of January 1st 2019 and June 30th 2019 were analyzed.The data obtained were proportioned and all the rejection reasons were evaluated according to the frequency rates.
RESULTS:Between the dates mentioned above, our Laboratory received 950.554 patient sample. 17.518 samples were rejected. Thus, 1,84% of all samples were rejected.The rejected samples were received from adult emergency(18.87%), intensive care units(11.59%), pediatric emergency(6.85%) and other services and clinics(62.69%).When all the results were analyzed, it has been found that the most frequent rejection rates were in neonatal intensive care unit(10,59%), pediatric cardiology(8.84%), infectious diseases service(8,69%) and child health and diseases department(7,31%).Comparing the rejection rates among the intensive care units, the highest rates were found in neonatal intensive care unit(10,59%), pediatric intensive care unit(4,92%) and thoracic surgery intensive care unit(4,86%).The most frequent causes of sample rejections within the test groups are found as insufficient sample(33,69%), hemolyzed sample(19,11%) and clotted sample(17,77%).Other rejection causes were found as taking samples at the wrong level, inappropriate test requests and samples which are not delivered to the laboratory.
CONCLUSIONS:Detecting and documenting the problems are important. Evaluating the results, a training program named “Bloodletting and Sample Transfer” was held in June. We aim to decrease the number of defined error rates through increasing the frequency of training programs.
Keywords: Preanalytical errors, sample rejection

P-171
Evaluation of analytical process performance of ethanol with Six Sigma values

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OBJECTIVES:Today, within the scope of the performance evaluation of analytical quality, internal quality control (IQC) and external quality control (EQC) applications are made in clinical laboratories. On the other hand Sigma metrics have become a useful tool for all parts of the quality control (QC) design process. We aimed to evaluate the Six Sigma Methodology for Analytical Process Performance Assessment using ethanol test results in our study
MATERIALS and METHODS:The Analytical Process Performance was evaluated according to the Six Sigma methodology by taking advantage of the IQC and EQC results for April, May, June of 2019 for ethanol. Coefficient of variance (CV) was calculated from IQC for two level quality control material. Percentage bias for these parameters was calculated from the RIQAS. Total allowable errors were followed as per Clinical Laboratory Improvement Amendments (CLIA) guidelines.
RESULTS:QC-2 sigma values were found to be more than 6, but QC-1 sigma values were found be between 4 to 5.
CONCLUSIONS:Ethanol results for QC -1 level signifying more QC rules to be implemented. No significant difference was found in context to sigma value in April, May, June of 2019 ethanol results. Six Sigma Methodology allows laboratories to easily visualize performance, optimize the QC rules and numbers of control measurements.
Keywords: Six Sigma Methodology, Ethanol, Total allowable error, Bias, Coefficient of variance

P-172
Usability of exponentially weighted moving average on patient based quality control

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OBJECTIVES:Conventional quality control (QC) approach requires periodic analysis of QC samples within predetermined frequency which can be as few as once per day. As many systematic errors may be overlooked with this approach, patient-based QC monitoring real-time patient results has attracted attention. We aimed to investigate the usability of exponentially weighted moving average (EWMA) on patient-based QC via a simulation study.
MATERIALS and METHODS:Patient results within reference intervals representing normal distribution were generated for 10 analytes including sodium, potassium, calcium, urea, creatinine, AST, CRP, free thyroxine (fT4), thyroid stimulating hormone (TSH) and prolactin. 1,000,000 results (n=500 per day, d=2,000) were produced. For each day, four gradually increasing systematic errors (SE) were added seperately starting from every 100th result. The maximum value of %SE added to the results was adjusted to correspond total allowable error(TEa). The average number of patient samples affected until error detection(ANPed) and optimum weighting factors for stated analytes were determined. ANPed-%SE graph was plotted to calculate the area under the curve (AUC) and reveal optimum weighting factors.
RESULTS:Optimum weighing factors and corresponding minimum AUC values are 0.1;16.1, 0.1;38.7, 0.1;12.7, 0.4;3.7, 0.1;9.17, 0.1;10.5, 0.1;28.8, 0.2;1.21, 0.1;36.3 and 0.1;23.9 for AST, CRP, fT4, calcium, creatinine, potassium, prolactin, sodium, TSH and urea, respectively. Weighting factors greater than or equal to 0.5, 0.7, 0.8 and 0.5 were found to be unable to detect any %SE up to TEa for calcium, TSH, urea and potassium, respectively.
CONCLUSIONS:Outcomes of present study elucidated both optimum and useless weighting factors of EWMA for 10 common analytes.
Keywords: Exponentially Weighted Moving Average, Patient Based Quality Control, Quality Control, Systematic Error, Quality Management

P-173
Assessment of critical values notification in a Turkish clinical biochemistry laboratory

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OBJECTIVES:The critical values are the laboratory testing results which required attention or action by the physicians. The aim of this study was to investigate critical value results from our laboratory and compare our critical value prevalence with others in the literature
MATERIALS and METHODS:The study was conducted by retrospectively in the Balıkesir State Hospital. In this retrospective study, We performed analysis of critical values from data obtained by the laboratory information system during 2 years. The critical results were identified by clinical chemistry laboratory according to guidelines.
RESULTS:The critical values was found by 0.5% of total laboratory tests. We determined 4736 critical values notification, of which 20.4% came from emergency units, 44.9% from intensive care units, 15.3% from routine inpatients and 19.4% from routine outpatients. The highest rate of critical values was shown for oxygen partial pressure(pO2) (21.1%), followed by white blood cell(WBC) and platelet (PLT)(11.7% and 10.9%) concentrations. According to department, the highest rate of the critical value notification were pO2, glucose, WBC and potassium ion concentrations for emergency patients, were PLT, WBC, and hemoglobin phosphate concentrations for inpatients and, were WBC, pO2 and prothrombin time concentrations for outpatients. Mean time for notification for all departments was 12 min.
CONCLUSIONS:The analysis of critical values notification in our hospital is

in suitable with that declared in the literature. This study will contribute in the establishment of international harmonized postanalytical phase-related criteria and indicators of the critical values notification
Keywords: Critical values, critical values notification, post-analytical phase, patient safety

P-174
Monitoring of quality indicators in preanalytical phase of laboratory testing process

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OBJECTIVES:Quality indicators (QIs) are fundamental tools enabling users to quantify the quality of laboratory services. Preanalytical variables account for 32-75% of laboratory errors and encompass the time from when the test is ordered by the physician until the sample is ready for analysis. Aim of this study is to quantify performance in the pre-analytical phase of testing in Medical Biochemistry Laboratory of SBÜ Ankara SUAM using quality indicators and to assess the quality of our laboratory services.
MATERIALS and METHODS:Pre-analytical process error data between 1 st July 2017 – 31 st June 2019 were obtained from the laboratory information management system. Every type of error percentages have been calculated and evaluated according to the Quality Indicators developed by the IFCC Working Group on "Laboratory Errors and Patient Safety" (WG-LEPS).
RESULTS:A total of 2 496 748 samples received to our laboratory. 33 939 of them were rejected, giving a rejection rate of 1.4 %. The main causes of sample rejection were clot formation (38.3%) and hemolysis (32.3%). The other sample rejection reasons were inadequate sample volume (24.4 %), incorrect samples (7.8%) and missing tests (4.5%). When these results were compared with specifications of IFCC (WG-LEPS): QI-7, QI-9, QI-10 and QI-12 were found to be within optimal level whereas QI-11 was within desirable range. Sigma values also were within acceptable range.
CONCLUSIONS:The preanalytical performance of our laboratory is favorable and complies with international quality specifications.
Keywords: Preanalytical error, quality indicator, sigma metric

P-176
Analytical process evaluation of biochemistry laboratory of Patnos State Hospital

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OBJECTIVES:The primary purpose of medical laboratories is to provide the most accurate and reliable results appropriate to the patient's medical condition. Therefore, the reliability of each laboratory must be scientifically proven. Approximately 15% of laboratory errors occur in the analytical phase. To evaluate the analytical process of laboratory, we aimed to perform performance evaluation according to six sigma methodology. The tests evaluated for this purpose; albumin(Alb), alanine aminotransferase(ALT), aspartate aminotransferase(AST), chlorid(Cl), total cholesterol(TChol), creatinine(Crea), glucose(Glu), HDL cholesterol(HDL-C), lactate dehydrogenase(LD), potassium(K), total protein(TP), sodium(Na), triglyceride(Tg) and blood-urea-nitrogen(BUN).
MATERIALS and METHODS:Mean, standard deviation(SD) and coefficients of variation(%CV) were calculated from the 1-month internal quality control data of the 14 most frequently used biochemistry parameters in the laboratory (Roche-Cobas-c501). Bias was determined using the control target value of the firm. Acceptable total error(%Tea), was determined according to the CLIA and Turkey(TR) criteria. Sigma values were calculated via (%TEa -% Bias)/%CV formula. According to sigma levels; <3 unacceptable; 3–6 are acceptable; ≥6 world-class performance, divided into three groups.
RESULTS:According to the CLIA sigma assessment, both levels of Cl and Na and the second level of Alb's performance were unacceptable, other tests were found to be acceptable or world-class performance while according to TR sigma assessment, all tests were acceptable or world-class performance.
CONCLUSIONS:Sigma measurements should be routinely performed in laboratories to assess the analytical period performance of the laboratory and improve its quality through regulatory preventive actions. Our study allowed us to see and improve our measurement quality by determining the 1-month-periodic performance of laboratory tests.
Keywords: Internal quality control, Analytical performance assessment, Six sigma methodology, Total allowable error (Tea)

P-177
Assessment of vitamin D levels using hospital data in a Turkish clinical biochemistry laboratory

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OBJECTIVES:Vitamin D deficiency is a public health concern worldwide and defined as a 25(OH) vitamin D3 (25(OH)D) level less than 12 ng/mL. This study aimed to evaluate the 25(OH)D levels in the clinical laboratory of Bursa Uludag University and estimate vitamin D deficiency in adults.
MATERIALS and METHODS:The results of 25(OH)D levels from 44873 outpatients (13417 males, 31417 females) aged 18-65 years were collected from the laboratory information system for a period of 3 years. Chemiluminescent Microparticle Immunoassay on Architect i2000SR analyzer of Abbott was used for the measurement of 25(OH)D levels. The Architect 25(OH)D assay demonstrated linearity from 3.4 to 155.9 ng/mL.
RESULTS:Vitamin D levels lower than 12 ng/mL were observed in 17532 of 44873 patients in total (39.0%), 3641 of 13417 males (27.1%) and 13891 of 31417 females (44.1%). The median values of all subjects, males and females were 14.4, 17.1 and 13.2 ng/mL, respectively. The mean (+/- SD) vitamin D levels of all subjects was 17.48 +/- 14.1 ng/mL with the value for females being lower at 16.77 +/- 14.7 ng/mL com¬pared to males at 19.10 +/- 12.2 ng/mL and the difference was statistically significant (p<0.001).
CONCLUSIONS:The prevalence of low vitamin D levels may be increasing globally. Data from the NHANES in the US showed a decrease in mean 25(OH) D concentrations from 24 to 19.9 ng/mL. However, our data shows that in Turks 25(OH)D concentrations are lower than these values and vitamin D deficiency may be more prominent in Turkey.
Keywords: 25(OH) vitamin D3, Vitamin D deficiency, Turkish adults, Laboratory data

P-178
Determination of whole blood reference ıntervals from hospital data – A Bhattacharya analysis

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OBJECTIVES:Determination of reference intervals (RIs) by direct method is difficult and expensive. Therefore, many laboratories use the RIs recommended by the manufacturer. This may cause problems due to ethnic, genetic and environmental differences. In our study, we aimed to determine the RIs of the parameters measured in blood cell count (BCC) by using the patient data recorded in the Hospital Information Management System (HIMS) and to compare them with those used in our laboratory.
MATERIALS and METHODS:Between January-December 2017, 101071 patients who applied to outpatient clinics of eye, ear nose and throat, physical therapy rehabilitation, urology, orthopedics, general surgery, plastic and reconstructive surgery, intact children, internal medicine and health board were included in the study. BCC parameters were analysed by Sysmex XN-3000 and XN-2000 instruments. The RIs were calculated separately for the female and male sexes for the 11-14, 15-20, 21-29, 30-39, 40-49, 50-64 and ≥65 age groups

and without discrimination of gender in the 1-10 age group by using indirect Bhattacharya method. IBM SPSS Statistics 22 program was used to exclude outliers and macros prepared in Microsoft Excel was used in calculations.
RESULTS:Most of the calculated RIs were consistent with the RIs that currently used in our laboratory. However, there were differences in the RIs of hemoglobin, RBC, MCH, MCHC, RDV-CV, PLT and HCT in different age and sex groups.
CONCLUSIONS:RIs can be determined by indirect method according to IFCC and CLSI recommendations from big data stored in HIMS. This approach may add value on patient safety.
Keywords: reference intervals, big data, bhattacharya analysis, blood cell count

P-180
Use of big data for verification of decision levels for biotinidase deficiency and galactosemia

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OBJECTIVES:To decide for further testing, the percentages of mean/median enzyme activity of individuals, and cutoff are needed for biotinidase (BTD) deficiency and galactosemia (GALT), respectively. Each laboratory that performs screening tests should estimate these decision levels. The mean (263 Enzyme Unit-Eu) and the cut-off (3.5 U/g Hb) were determined for BTD and GALT, respectively. The reference intervals (RIs) are being estimated from big data. Our aim is to assess whether these values determined from small numbers of healthy newborns will be similar with the values estimated by the indirect methods for determination of RIs.
MATERIALS and METHODS:The histograms and Q-Q Plots of 33998 BTD, and 23438 GALT screening results generated in Tanyalçın Laboratory from 2004 were evaluated. The RIs were estimated according to the Hoffmann and Bhattacharya Methods. The Microsoft Excel and SPSS Statistical Package were used.
RESULTS:Hoffmann METHOD: The data was separated into two sets according to the Q-Q Plots. The outliers were removed using the Tukey's Method. The mean (SD), median, 2.5-97.5 percentiles are estimated as 247(81), 254, and 80-384 Eu (N=33226) for BTD; and 8.29(2.21), 8.36, 3.75-12.79 U/g Hb (N=21309) for GALT, respectively. Bhattacharya Method: The center (SD), lower-upper limits were found as 270(84) and 102-438 Eu (N=33 364) for BTD (h=30), and 9.5(3.09), 3.30-15.69 U/g Hb (N=22862) for GALT (h=2), respectively. The values determined were compatible with the decision levels estimated before.
CONCLUSIONS:The indirect methods for RI determination from big data can be helpful for verification of decision levels for the screening tests.
Keywords: Indirect methods, reference interval, big data, biotinidase deficiency, galactosemia

P-181
Reference values of neutrophil-lymphocyte, lymphocyte-monoctye, platelet-lymphocyte ratio and mean platelet volume in healthy adults

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OBJECTIVES:This study was designed to evaluate the gender and age-specific reference values of neutrophil-lymphocyte ratio (NLR), lymphocyte-monocyte ratio (LMR), platelet-lymphocyte ratio (PLR) and mean platelet volume (MPV) which are indicative of systemic inflammation.
MATERIALS and METHODS:The results of the patients admitted to the outpatient clinics of our hospital were collected between January 2017 and July 2019. Total number of patients was 249 829; 100 195 (40.1%) were male and 149 634 (59.9%) were female. Parameters were measured by Sysmex XN 2000 and 3000 analyzers. The patients were classified according to gender and age groups. In the total population and in each subgroup, the healthy group was selected by Bhattacharya procedure and the reference ranges of NLR, LMR, PLR and MPV were determined.
RESULTS:Patients were divided into 8 groups according to age (1-10, 11-14, 15-20, 21-29, 30-39, 40-49, 50-64,and over 65 years). In the total population reference ranges were found as1.12-6.21, 8.71-11.97,0.30-2.41,39.9-156 for LMR,MPV,NLR and PLR, respectively. Reference ranges for each age range and sex were also evaluated. NLR was higher in females than males except for patients over 65 years of age. Similar results were found for MPV in both sexes and in all age groups. LMR was found to be higher in females in all age groups, but this difference was increased between 15-20 years and over 50 years. PLR was found to be higher in females than males in most age groups.
CONCLUSIONS:Different reference intervals may be used according to gender and different age groups for LMR,MPV,NLR and PLR.
Keywords: Neutrophil, Lymphocyte, Monocyte, Platelet, Inflammation

P-182
Reference values for serum levels of vitamin B12 and folic acid in an adult population

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OBJECTIVES:The aim of this study was to establish reference intervals according to laboratory data in a population and to assess the vitamin B12 (B12) and folate status related to reference intervals for all age and sex groups.
MATERIALS and METHODS:The results were obtained retrospectively from the laboratory information system of Balıkesir State Hospital. The 20318 patients (70.2 % for female, 29.8% for male) between 18- 80 ages were selected. The ages groups of the patient was separated into six subgroups (18–30, 31–40, 41–50, 51–60, 61–70 and 71-80 years). B12 and folate concentrations were measured by ARCHITECT i2000sr (Abbott Diagnostics, Abbott Park, IL, USA) autoanalyzer. Extreme values were excluded by using IBM SPSS. The central %95 reference intervals were calculated using non-parametric method.
RESULTS:The results of 20850 patients for B12 and 14183 for folate were evaluated. The mean+SD years of patients for B12 and folate were 48.9±16.3 and 49.7±16.6, respectively. Mean+SD concentrations of B12 and folate were 298±108 pg/mL and 6.15±2.78 ng/mL, respectively. 95% reference intervals were calculated to 144-536 pg/mL for vitamin B12 and 2.3-14.6 ng/mL for folate. There are statistically significant differences between female and male for B12 and folate. There is a significant difference between the age groups for folate, but there is not a significant difference for B12 concentrations.
CONCLUSIONS:In this study was found differences between the reference ranges recommended by the manufacturer and the reference ranges of our own population. Our results indicate that is important to determine the true reference range.
Keywords: Vitamin B12, Folate, Reference range, Laboratory data, Turkiye

P-183
Review of repeated anti-TPO test requests

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OBJECTIVES:Serum anti-TPO measurements are useful in the diagnosis of autoimmune thyroid diseases and are often sufficient by themselves. Elevated levels are seen in postpartum thyroiditis and Graves' disease as well as Hashimoto's thyroiditis. There isn't any relationship between anti-TPO levels and thyroid function. In the follow-up of patients with Hashimoto's thyroiditis who had high anti-TPO levels, we aimed to compare whether the frequency of recurrent anti-TPO requests decreases with the measures taken.
MATERIALS and METHODS:Anti-TPO test is performed by chemiluminescence method on Advia Centaur XPT (Siemens) analyzer in our laboratory. The anti-TPO tests that were studied in 2017 and 2018 from the LIS were examined.
RESULTS:16,060 anti-TPO tests were conducted in 2017 and 14,130 in 2018. The number of patients who underwent 3 or more anti-TPO tests in 2017 was 223 (789 tests), while in 2018 there were 59 patients (181 tests). While anti-TPO

levels were high in 98 (44%) of the patients who underwent titer monitoring in 2017, it was found to be high in 40 patients (68%) in 2018.
CONCLUSIONS:The necessity of antibody titer monitoring is controversial in patients who have high anti-TPO levels with Hashimoto thyroiditis. Repetitive anti-TPO orderings in diagnosed autoimmune thyroid patients are examples of unnecessary testing. We think that it would be beneficial to display a warning message during the test request in patients with a high anti-TPO level, as well as a time limit test. The collaboration with the clinics that want this test the most has led to a reduction in unnecessary anti-TPO orderings.
Keywords: anti-TPO, Hashimoto tiroiditis, unnecessary test request

P-184
Laboratory data of subclinical hypothyroidism and hyperthyroidism

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OBJECTIVES:To evaluate laboratory data of subclinical hypothyroidism (S-HYPO) and subclinical hyperthyroidism (S-HYPER) on outpatients, frequencies, gender and age distribution and causes.
MATERIALS and METHODS:We performed an epidemiologic study including 144 outpatients, 21 men and 123 women, mean age 50.11yr, for 4 months, with thyroid-stimulating hormone (TSH) outside reference range. Serums of these patients were stored in freezing and tested for anti-thyroglobulin antibodies by ELISA.
RESULTS:We have done 599 TSH tests, 144 cases had TSH outside reference range and 415had normal levels. S-HYPO has a frequency of 12.5% while S-HYPER has a frequency of 8.4%. Subclinical thyroid diseases are found more often in females with 87% to 13% males. Aged <65yr has a frequency of 84% in S-HYPO and 62% in S-HYPER, while the age group ≥65yr has a frequency of 16% and 38% respectively. We measured 91 outpatients for anti-TG and got 21 positive tests, including 11 tests positive for anti-TPO, autoimmune disease is present on 27.4% of patients, multinodular goiter on 9.4%, iatrogenic cause on 9.4% and for 53.8% of patients we don't have a given cause.
CONCLUSIONS:S-HYPO is more frequent than S-HYPER. The gender distribution gives female dominance, the ratio male/female is 1/6.8. In S-HYPO dominate young ages and in S-HYPER dominate older ages. The mild form of S-HYPO is much more frequent than severe form, approximately 8 times more common. The mild form of S-HYPER is 2 times more frequent than its severe form, on both diseases dominate mild forms respectively with 88.6% and 68%.
Keywords: Thyroid stimulating hormone, anti-TG, hypothyroidism, hyperthyroidism, subclinical

P-185
Neutrophil to lymphocyte ratio and mean platelet volume in adults with hypothyroidism

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OBJECTIVES:In this study, neutrophil to lymphocyte ratio (NLR), platelet to lymphocyte ratio (PLR) and mean platelet volume (MPV) were investigated in adult patients with hypothyroidism.
MATERIALS and METHODS:The records of 496 hypothyroid patients and 5677 euthyroid healthy individuals were compared from the laboratory information system between 10 July 2018 and 09 April 2019.
RESULTS:In the hypothyroid group, free triiodothyronine (f T3), leukocyte, neutrophil and NLR values were lower, thyrotropin (TSH), platelet, PLR, MPV values were higher, free thyroxine (f T4) and lymphocyte values were similar when compared with the euthyroid healthy group.
CONCLUSIONS:In adults with hypothyroidism, platelet count, PLR and MPV values are higher than euthyroid healthy individuals, while leukocyte, neutrophil and NLR levels are low and lymphocyte count is similar.
Keywords: Hypothyroidism, neutrophil to lymphocyte ratio, platelet to lymphocyte ratio, mean platelet volume

P-186
Synergistic combination of vorinostat with curcumin induces apoptosis on B-CPAP cells

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OBJECTIVES:Drugs that inhibit histone deacetylase (HDAC) activity show anti-tumor effect in many studies.Vorinostat (SAHA) has numerous applications, including inhibition of malignant cells growth.Curcumin, naturally occurring polyphenol thought to be the newest member of HDAC with potential pro-apoptotic properties.The purpose of the presented study was to investigate the apoptotic effects of Curcumin in combination with Vorinostat on the Papillary Thyroid Cancer (PCT) cells.
MATERIALS and METHODS:Experimental study performed with cell culture from BCPAP cell line.Firstly, Cell viability was assessed using MTT assay following treatment with Curcumin and/or SAHA for 24, 48h.Calcusyn assay used for determination of synergistic dosages of the agents.Apoptotic effects of these agents were marked by Annexin V apoptosis assay and detected by Flow Cytometry.Data were analyzed by the GraphpadPrism statistical program.Values represent the mean±SD (n=3).
RESULTS:According to MTT assay, IC50 values at 48 hour was found 20.97μM and 0.91 μM for Curcumin and SAHA, respectively.Combination treatment of the agents showed markedly synergistic effects (CI=0.891).Synergistic concentrations (9.33 μM for Curcumin, 0.40 μM for (SAHA) were used for later experiments.Curcumin and SAHA alone induced apoptosis at IC50 values while their combination at lower dosages induced synergistic effects.
CONCLUSIONS:The experimental evidence from this study suggests that combination of Vorinostat and polyphenol Curcumin shows synergistic effect which induces apoptosis on PCT cells.Combination of Curcumin and SAHA may be the subject of further study in animal models to determine doses which can exert significant effects in PCT cells and can enhance the therapeutic effect.
Keywords: Curcumin, Vorinostat, BCPAP, Synergism, Apoptosis

P-187
Evaluating the difference of cytotoxicity tests after DMSO exposure in L929 cells

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OBJECTIVES:Cell based cytotoxicity studies aim to investigate the cellular effects of various chemicals. Dose efficiency may change according to the cell type and also the test chosen. DMSO (dimethy sulfoxide) is a widely used compound that cause cellular death. We aimed to compare 4 different cell cytotoxicity tests for their sensibility in the L929 fibroblast cell line.
MATERIALS and METHODS:L929 cells were maintained in Dulbecco's Modified Eagle Medium Supplemented with 10 % fetal bovine serum at 37 °C and 5 % CO2 in a humidified incubator. DMSO concentrations were 0.05%, 0.5%, 1%, 2 % and cells were incubated for 24 h and 48 h. Cytotoxicity was determined with lactate dehydrogenase leakage assay (LDH), neutral red assay (NR), methyl tetrazolium (MTT) assay and crystal violet assay (CV).
RESULTS:Most sensitive result was obtained from CV test but the results were compatible with MTT and LDH assay results. In the comparison of MTT and LDH, LDH results showed higher selectivity for membrane damaged cells. On the contrary, NR assay results showed low sensitivity when compared to other test for all concentrations.
CONCLUSIONS:In the present study, we analyzed four different test for their

efficiency in the evaluation of cytotoxicity according to their mode of action. For L929 cells, CV is most convenient method for evaluating DMSO toxicity. For each cell line it is necessary to begin with the determination of chosing suitable cytotoxicity test in order to increase the accuracy of the work.
Keywords: Cytotoxicity, DMSO, MTT, LDH, NR

P-188
Triazole fungucide flusilazole induced cytotoxicity in SerW3 cells

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OBJECTIVES:Flusilazole is an organosilicon compound, a triazole fungucide which is used for protection of crops. Its presence was reported in cereals and cereal based products. Flusilazole was reported to cause leydig cell tumor in mice for 2 weeks exposure, and testosterone and androstenedione levels of leydig cells decreased in response to flusilazole doses. However no report was exist on Sertoli cells. Sertoli cells have important role in spermatogenesis, two adjacent Sertoli cells compose Sertoli cell barrier. The aim of the study is to reveal possible cytotoxic effects of flusilazole on SerW3 cells mimicking in vitro Sertoli cell.
MATERIALS and METHODS:SerW3 cells (17 days old rat Sertoli cell) were cultured and flusilazole was exposed at concentrations of 0, 25, 100 and 200 µM for 24 hours. MTT and acridine orange/propidium iodide cell viability assays were performed in response to flusilazole in SerW3 cells. Additionally, Sudan Black B staining was performed for lipid droplet detection quantitatively and also examined under light microscope.
RESULTS:Flusilazole treatment caused decreases in cell viability in a dose-dependent manner according to MTT assay results. Acridine orange/Propidium iodide cell viability assay revealed that flusilazole induced apoptotic cell death at high doses. Sudan Black B staining results showed that lipid droplets of the SerW3 cells decreased in response to flusilazole concentrations.
CONCLUSIONS:Results of the study revealed that azole based fungucide flusilazole induced cytotoxicity as well as it caused decreases in lipid droplet accumulation which is essential for Sertoli cell function. This research was financially supported by Hacettepe University, Scientific Research Projects Coordination Unit (Project No: FHD-2018-17594).
Keywords: Flusilazole, cytotoxicity, SerW3 cells

P-190
Investigation of combine effects of propylparaben and methylparaben on pituitary-adrenal axis in male rats

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OBJECTIVES:Propyl paraben and methyl paraben, which are generally preferred in combination, are chemicals that are used as preservatives in many pharmaceutical, food and cosmetic products. Therefore, we are frequently exposed to parabens known to have endocrine disrupting effects in our daily lives. The purpose of the study is to investigate the endocrine disrupting effect of methyl paraben and propyl paraben on the pituitary-adrenal axis.
MATERIALS and METHODS:In this study, 6 experimental groups were designed as 3 control groups (negative, oil and positive control 50 mg/kg bw/day Bisphenol A) and 3 treatment groups (10, 100 and 500 mg/kg bw/day) by mixing 1:1 ratio of methyl paraben and propyl paraben. Doses were administered to the 42-day-old male rats by oral gavage for 30 days.
RESULTS:At the end of the experiment, adrenocorticotrophic hormone, cortisol, aldosterone, androsterone, dihydrotestosterone hormone levels and biochemical values were measured in serum samples. Histopathological effects of pituitary, adrenal glands and liver, kidney tissues which are important in metabolism of toxic substances were investigated.
CONCLUSIONS:In histopathological findings, degeneration, congestion and edema were detected in the tissues. Also, serum cortisol, aldosterone, adrenocorticotrophic hormone and androsterone levels increased in 100 mg/kg bw/day MP+PP and 50 mg/kg bw/day BPA, serum dihydrotestosterone hormone increased in 10 mg/kg bw/day MP+PP, 500 mg/kg bw/day MP+PP and 50 mg/kg bw/day BPA and serum triglyceride levels increased in 100 mg / kg bw/day MP+PP dose group, results showed that propyl paraben and methyl paraben have an effect on HPA axis hormonal activity.
The authors thank to Scientific Research Unit of Hacettepe University (Project No: FHD-2018-17085).
Keywords: Propyl paraben, methyl paraben, endocrine disruptors, male rats

P-191
Urine iodine deficiency in pregnant women living in Sivas

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OBJECTIVES:Trace elements are defined as chemicals present in minimal quantities.Some of these elements including iodine, iron, and selenium are also entitled to micronutrients.Iodine is an essential component of the thyroid hormones.Therefore, various metabolic and neurologic disorders have been associated with iodine deficiency (ID).ID is a threat throughout the lifecycle. The effects of inadequate iodine intake change according to the stage of lifecycle. The study aimed to assess the iodine status and maternal thyroid function in the pregnant women in Sivas that is a city in central Turkey.
MATERIALS and METHODS:This study was performed with the collaboration of Cumhuriyet University Department of Biochemistry and Department of Obstetrics and Gynecology and Sivas Numune Hospital Department of Obstetrics and Gynecology between 2015 and 2016.One Hundred-ninety-three pregnant women in their second trimester who attended the hospital for routine antenatal care were included this study.Morning spot urine samples were collected in deiodized test tubes.Urine iodine levels were determined by colorimetric modified Sandell Kolthoff method.
RESULTS:The range of gestation week was 5th-13th in all locations. Median gestation weeks were 8 weeks 2 day, 8 weeks, 8 weeks 4 day,10 weeks, 7 weeks 2 day and 8 weeks in Sivas Centre,Şarkışla,Suşehri,Gürün,Divriği, and Kangal,respectively.Median ID levels of pregnant women living in Şarkışla,Suşehri,Gürün,Divriği,and Kangal indicated inadequate iodine intake.
CONCLUSIONS:Our results indicated that iodine deficiency is a significant problem in Sivas. Therefore, there is a need policy such as iodine prophylaxis for women living in Sivas to eliminate this problem. Finally, these are only preliminary findings, and further investigations with larger samples are warranted.
Keywords: Urine iodine, Sivas, Pregnant women

P-192
Changed iron homeostasis in sleeping apnea patients

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OBJECTIVES:Obstructive sleep apnea syndrome (OSA) is defined as a combination of symptoms as a result of intermittent, recurrent constraint and / or complete airway overhead airway overflow (sleep disturbance). OSA is associated with the development of insulin resistance, arterial hypertension,

metabolic syndrome, systemic atherosclerosis and increased cardiovascular risk.
MATERIALS and METHODS:40 patients with OSA were included. Their results were compared to sex and age matched healthy control. CBC, serum iron, ferritin, hsCRP, hepcidin, homocysteine and vitamin B12 were measured in the included groups. Intima media thickness (IMT) and Flow mediated dilatation (FMD) were used for atherosclerotic changes evaluation.
RESULTS:We found increased serum hepcidin levels in OSA patients with IMT and FMD changes (121.7 ± 11.9 µg/L) compared to control group (20.4 ± 1.8 µg/L); P<0.005. A positive correlation was found in OSA patients with atherosclerotic changes between IMT and FMD to serum hepcidin levels (r=0.859, r=0.871, resp.; P<0.05). Serum hepcidin correlates positively to homocysteine and vitamin B12 in OSA patients (r=0.902, r=0.911, resp.; P<0.005).
CONCLUSIONS:Brain-vascular disease risk factors are connected to obstructive sleep apnea syndrome. Disregulation of iron homeostasis is one of the main risk atherogenesis factors. Early hepcidin quantification might predict an atherosclerosis occurrence in OSA patients, which might be very important for better clinical diagnosis and practice.
Acknowledgements: This project is sponsored by MU-Sofia, as part of Grant Д-52/2018.
Keywords: sleep apnea, iron, hepcidin

P-193
Comparison of urine analyzers LabUMat2-with-UriSed2 and Sysmex UC-3500/UF-5000

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OBJECTIVES:Instrument method comparison experiments are based on the comparison of the results obtained by analyzing the samples with the new test method and the previously accepted method. In this study, we aimed to compare LabUMat2-with-UriSed2 and Sysmex UC-3500/UF-5000 analyzers in urine examination.
MATERIALS and METHODS:The urine samples of thirty patients were studied on LabUMat2-with-UriSed2 and Sysmex UC-3500/UF-5000 analyzers. Density, pH, RBC, WBC, hyaline casts, yeast, squamous epithelial cells, non-squamous epithelial cells were recorded for each patient. The distribution of the data was examined and the correlations were checked.
RESULTS:LabUMat2-with-UriSed2 and Sysmex UC-3500/UF-5000 analyzers showed that the density, pH, RBC, WBC, squamous epithelial cells and non-squamous epithelial cells correlated significantly ($r = 0.803$, $p = <0.001$; $r = 0.950$, $p = < 0.001$; $r = 0.730$, $p = <0.001$; $r = 0.695$, $p = <0.001$; $r = 0.437$, $p = 0.016$; $r = 0.377$, $p = 0.040$, respectively), but hyaline casts and yeast cells showed no correlation ($p > 0.05$) statistically.
CONCLUSIONS:The results obtained for density, pH, RBC, WBC, squamous epithelial cells and non-squamous epithelial cells were compatible with each other, however hyaline casts and yeast cells were not. Hence, it maybe considered that manual microscobic confirmation can be beneficial for pathological urine samples.
Keywords: urinalysis,correlation,analyzer comparison

P-194
Evaluation of results with the use of autoverification ın urinanalysis

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OBJECTIVES:Urinalysis is a chemical and microscopic analysis of urine and is frequently performed in clinical laboratories. Urinalysis is often required for evaluation of hematuria and urinary tract infections. Autoverification is a process of using an algorithm-based program where criteria are defined and approving the samples that meet all criteria without user intervention. The aim of this study is to evaluate the results with the use of autoverification in urine autoanalyzer in our laboratory.
MATERIALS and METHODS:This study was performed between May and August 2019 in Beckman Coulter IQ 200 Elite urine autoanalyser. The rules were defined by the iware program to the urine autoanalyzer. While the results that were in compliance with all the rules were automatically verified, the test results that did not follow the rules were taken to perform manual operation on the analyzer.
RESULTS:When the three-month period was examined, it was observed that 28113 samples analyzed in total and 11371 of these samples were autoverified. The rate of autoverified results was 40.4%.
CONCLUSIONS:With the use of the autoverification, it was observed that a significant part of the results did not require user intervention so laboratory technicians can spend more time on incompatible results of chemical and microscopic analysis. Thus, it is obvious that Turn Around Time will be reduced. We believe that the autoverification will alleviate the increased workload of clinical laboratories and save the energy and time that laboratory experts can allow time to other clinical studies.
Keywords: Autoverification, Urinanalysis

P-195
Comparison of Iris iQ200 urine analyzer performance and manual microscopy in examination of urine sediments

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OBJECTIVES:Complete urinalysis is one of the most widely used tests in clinical laboratories today. Urine analysis is an inexpensive, time-saving, easily applicable diagnostic tool that provides important information about kidney function. Although manual analysis applications are standardized, conventional microscopy of urine sediment is labor intensive, time-consuming, uncertain, and varies widely. Automated urine analysis saves time and labor. The aim of this study was to evaluate the performance of urine analyzer Iris iQ200, which has an image-based analysis system using a video camera, by comparing it with manual microscopy.
MATERIALS and METHODS:Freshly collected urines of 30 patients who presented to Gaziantep University Medical Faculty and whose urine examinations were requested by the physicians were studied. After chemical analysis and microscopic examination with the Iris iQ200 autoanalyzer, the remaining urine sample was centrifuged at 1500 rpm (400g) for 5 minutes, and the resulting sediment was evaluated for erythrocytes, leukocytes and crystals using manual microscopy.
RESULTS:The consistence between Iris iQ200 analyzer and Pearson correlation analysis was used to assess manual microscopic results. In the comparison of the two methods, the erythrocyte correlation coefficient was r=0.999, the crystal correlation coefficient was r=0.495, and the leukocyte correlation coefficient was r=0.725.
CONCLUSIONS:Between the two methods, high level of consistency in the erythrocyte analysis, moderate level of consistency in the crystal analysis, high level of consistency in the leukocyte analysis were observed. Compared to manual microscopy, the Iris iQ200 instrument tested in this study showed satisfactory analytical performances for erythrocytes and leukocytes.
Keywords: Iris Q200; automated urine sediment analyzer; urine microscopy; urine sediment

P-196
Evaluation of correlation between 24-hour urine protein level and spot urine protein-to-creatinin ratio

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OBJECTIVES:Measurement of 24-h protein excretion is the reference method for determination of urinary protein excretion. Because of patient incompliance, protein/creatinin ratio (P/Cr) in spot urine is commonly used. In this study, 24-h urine specimen protein levels and P/Cr ratios in spot urine were compared.

MATERIALS and METHODS:Retrospectively, datas of outpatients and inpatients included between 1st January 2018 and 1st May 2019. Urine protein was measured with colorimetric method by Beckman Coulter 5800 analyzer. Urine creatinine was measured with Jaffe method by Beckman Coulter 5800 analyzer. Cases (n=157) were separated into 3 groups according to P/Cr ratios 0-0.2 (n=71), 0.2-2 (n=56), >2 (n=30)). Kolmogorov-Smirnov test is used for homogenity of groups. Due to p<0.05 was applied Spearman correlation analysis. Descriptive statistics and correlation analysis were calculated by SPSS version 22 statistical programme.
RESULTS:In each group, we compared spot urine P/Cr ratios with 24-h urine protein levels. In first group, (P/Cr = 0-0.2) 24-h urine protein results (median:109.59; 25th-75thpercentil:71.2-143.0) and spot urine P/Cr (median:0.09, 25th-75thpercentil:0.07-0.14) were calculated. Spearman (r=0.502, p=0.0001) test was applied. In second group, (P/Cr=0.2-2) 24-h urine protein results (median: 693.20, 25th-75thpercentil:293.91-1145.38) and spot urine P/Cr (median:0.67, 25th-75th:0.42- 1.13) were calculated. Spearman (r=0.705, p=0.0001) test was applied. In third group, (P/Cr = >2) 24-h urine protein results (median: 4504.66, 25th-75th percentil: 2259.40- 6192.90)and spot urine P/Cr(median: 4.50, 25th-75th percentil:3.00- 7.76) were calculated. Spearman (r=0.427, p=0.019) test was applied.
CONCLUSIONS:24-h urine protein levels are significantly correlated to spot urine P/Cr ratios.
Keywords: proteinuria, protein/creatinin ratio, 24-h urine protein

P-197
Comparison of phase contrast microscopy with light microscopy in evaluation of urinary sediment

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OBJECTIVES:It is known that light microscope (LM) used in routine studies in urine sediment analysis has some limitations. For example, some shaped elements with low refractive index in urine may not be distinguished from the ground.Therefore, as an alternative approach, phase contrast microscopes (FCM) can be used to better distinguish.The advantage of FCM is that it is sufficient to examine and evaluate the morphological and physical properties of living organisms.In this study, we aimed to compare the analytical performances of FCM and LM in routine urine analysis.
MATERIALS and METHODS:130 samples were studied, over 18 years of age. Samples prepared within 2 hours and examined under microscope. Intense and turbid urines with low amounts and excessive hematurics not included. Urine sedimentation tubes were collected in 10 mL samples and centrifuged at 400 g for 4 minutes.Then 9 mL of the supernatant was carefully decanted and remaining amount examinated.
RESULTS:We found the differences in terms of image and noticed that some structures are more clearly seen in FCM and these structures can't be selected under LM. FCM was found to be more advantageous in determining cell morphology and a positive correlation was found between the two methods in all parameters.
CONCLUSIONS:Some structures can't be detected under LM. Therefore, examination of sediment with FCM increases the efficiency of diagnosis and treatment and can be used in clinical laboratories instead of LM,also can be incorporated into newly manufactured devices.Since there are no publications comparingLM and FCM in urine sediment, we recommend further studies.
Keywords: phase contrast microscopes (FCM),light microscope (LM),urine sediment

P-198
Comparison of strip and nephelometric method in the screening of urine microalbumin

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OBJECTIVES:Early diagnosis of renal abnormalities is essential to prevent the progression to irreversible phases. The earliest sign of the renal disease is the presence of microalbumin in the urine, which can detect via several methods. In this study, we compared the strip method with the immunonephelometric method. Our aim was to investigate the reliability of fast and low-cost first-step methods for microalbumin screening.
MATERIALS and METHODS:We analysed the urine samples with the albuminuria test request between June - July 2018. Firstly, urine samples were analysed quantitatively via an immunonephelometric method with the Roche Cobas 6000 instrument, following a second semi-quantitative analyser with Sysmex UC-3500 urine analyser. Results were compared using Spearman correlation analysis.
RESULTS:A strong correlation was found between two analysers. Correlation was, r:0.831 (n: 86; p <0.01) and r:0.872 (n: 105; p <0.01) for albumin and creatinine, respectively. The coefficient of determination was detected r2=0.83 and r2=0.738, for the levels of urine albumin and creatinine, respectively. As the clinical decision-making limit for albuminuria considered as 30 mg/dL, sensitivity, specificity, negative predictive value and positive predictive values for Sysmex UC-3500 were detected as 100%, 26%, 100%, and 57%, respectively.
CONCLUSIONS:In this study, we showed that semi-quantitative systems may be an alternative for the first step screening with positive correlation and 100% NPV sensitivity, despite having a simpler technology. Urine strips may be a good option in clinical laboratories because of the low costs and rapid test results.
Keywords: Microalbumin, Sysmex UC-3500, strip, urinalysis, proteinuria

P-199
Inflammation biomarkers in patients classified in accordance with serum B12 levels

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OBJECTIVES:In the general population, vitamin B12 deficiency is a relatively common finding. We aimed to investigate the possible difference in inflammation markers between three categories based on serum B12 level.
MATERIALS and METHODS:Male patients' (18-60 years) one year data was classified according to serum vitamin B12 levels (DxI800, Beckman Coulter Inc.); Group-1: B12 < 146 ng/L, Group-2: 146-180 ng/L, Group-3: 181-348 ng/L. Patients with white blood cell (WBC) over 15.0 × 10^9/L were excluded. We also excluded some clinics where test requests were made: intensive care units, oncology, emergency, infectious diseases, nephrology departments. After eliminating the extreme values (N=2,111) by Horn algorithm, backward linear regression analysis was performed for the remaining 2,485 patients.
RESULTS:In Group3, we had lower neutrophil/lymphocyte ratio than Group 1 (p<0.05). Regression analysis revealed an independent relationship between vitamin B12 and WBC, neutrophil counts (standardized regression coefficients, βWBC = 0.108, p<0.010 and βNeutrophil = -0.101, p=0.016, respectively).
CONCLUSIONS:Recently, it was reported that the B vitamins are required for cytotoxic cellular immunity and modulating T cell responses. Our B12 levels are positively correlated with WBC (possibly lymphocyte-induced) and negatively correlated with neutrophil counts; this finding may support the role of Vitamin B12 as an immunomodulator. One of the major problems is knowing what the reference range of vitamin B12 is. Considering B12 levels in evaluation of immune status may be helpful for clinical approach.
Keywords: vitamin B12, neutrophil, lymphocyte, inflammation.

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Ultrasensitive blood sugar monitoring by mobile phone ıntegrated, reusable BorA-MeTiN composite sensors

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OBJECTIVES: Conventional glucometer strips are modified by glucose oxidase for glucose detection which is open to effects of by oxygen concentrations, pH, temperature and other physical parameters. Besides they are not reusable which limits their cost-effectiveness. In this study, we used molecularly (glucose) imprinted Boronic Acid (BorA) Mesoporous Titanium Nanoparticles (MeTiN) to achieve accurate and cost-effective results in blood sugar self-monitoring.
MATERIALS and METHODS: Glucose, Aminophenyl BorA (APBA) and MeTiN(1:1:1, w/w) solution was dropped (50uL) on screen printed platinium electrodes. Afterwards, 700 mV potential was applied for 20 minutes to polymerize BorA monomers electrochemically. Then, pH=3 HCl solution was applied to remove glucose from glucose-imprinted BorA-MeTiN composite sensor to reveal glucose imprinted cavities for rebinding. The sensor optimization was tested by electrochemical impedance spectroscopy (EIS).
RESULTS: According to the optimization studies, electrode LOD was calculated as 0.52 ng/mL glucose concentrations. Linearity of the electrode was between 1-2000 ng/mL glucose levels. Regression coefficient value was obtained from 18 calibration curves of the same electrode as R2=0.9873±0.0102. Electrodes were connected to a mobile phone via Arduino open circuit system to assess the compatibility of the sensor. With a software and mobile phone, we detected the 100ng/mL glucose levels in serum samples with %12.44 error.
CONCLUSIONS: MeTiN supported APBA polymerization increased the sensitivity and selectivity of blood glucose determination. We used one electrode for 18 times. The stability of the MeTiN increased the molecularly imprinted polymer stability which enabled multiple usage. Thus, the novel sensor has the potential to be reusable and mobile phone integrated.
Keywords: glucose, molecular imprinting, boronic acid, titanium nanoparticle, impedance

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Serum prolactin and ferritin levels in particular autoimmune disease

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OBJECTIVES:Prolactin (PRL) is a polypeptide hormone, mainly synthesized in anterior pituitary gland. Ferritin is a 24-subunit protein, which has a mainly function as an iron-storage protein. The purpose of this study was to classify high PRL and ferritin levels in patient with different disease, and to evaluate their values in such autoimmune disease.
MATERIALS and METHODS:The patients who applied to our university hospital, between Jan2018-Jul2019, and measured serum ferritin or PRL levels were included into the study. It was classified 2909 patients who had ferritin levels> 400 µg/L, and then they were divided into 5-subgroups between 400->7000 µg/L. For PRL, 1048 patients were classified as PRL>19 ng/ml for males, and PRL>26 ng/ml for females, and then they were divided into 6-subgroups between 50->5000 ng/mL. Two-site Immunoenzymatic assay (Beckman Coulter, Inc) and chemiluminescent-microparticle immunoassay (CMIA) (Abbott, Diagnostics) were used for serum ferritin and prolactin assays, respectively.
RESULTS:Patients with hemophagocytic-lymphohistiocytosis had the highest ferritin levels (>20000 µg/L), followed by severe-combined-immunodeficiency (11544 µg/L). Such disease, systemic lupus erythematosus, polymyositis, Crohn's disease, rheumatoid arthritis, Myasthenia Gravis, dermatomyositis was more likely to be hyper ferritin-affected diseases when compared with the general population. The highest serum PRL levels were observed in neoplasm(n=192), anemia(n=121) and psychiatric disorders(n=79). Serum PRL was also high in autoimmune thyroiditis and systemic-lupus-erythematosus.
CONCLUSIONS:Our results showed increased serum PRL and ferritin levels in autoimmune diseases. This may have clinical significance. Ferritin may induce complete activation of the immune response and PRL may play a role in the maturation of T lymphocytes.
Keywords: Autoimmune diseases, ferritin, prolactin

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The combined effects of urea-based herbicide linuron and elevated temperature on biological responses and stress biomarkers

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OBJECTIVES:Linuron is a widely used urea-based herbicide that has endocrine disruptor activity. This study aimed to further elucidate the potential effects of linuron on reproductive, biochemical and hematological biomarkers at different temperature conditions.
MATERIALS and METHODS:The combined effects of linuron and elevated temperature were studied on Cyprinus carpio. Carp were acclimated to two different temperatures (22 °C and 28 °C) for 15 days. Then, fish were exposed for 96 hours to linuron at environmentally relevant concentrations of 10 and 100µg/L at 22 °C and at elevated water temperatures (28 °C).
RESULTS:We found that combined temperature increase and pesticide exposure affected the biological responses in C. carpio. Linuron caused an elevation in hematocrit level while it did not change hemoglobin concentration. An increase in the AST enzyme activity was determined. The herbicide caused persistent decrease in cortisol level and ALT enzyme activity. In addition, linuron exposure caused remarkable alterations in estrogen and testosterone levels.
CONCLUSIONS:This study indicates that the combined effects of linuron and elevated temperature induced the steroidogenesis, hematological and biochemical biomarkers. The results of this study could be used to assess the effects of environmentally relevant concentrations of pesticides.
Keywords: Pesticide toxicity, climate change, endocrine disruption

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Investigation of the effect of CRY1 on nucleotide excision repair in mouse embryonic fibroblasts

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OBJECTIVES: The circadian rhythm (CR) is the internal timing sytem which is considered to affect every biochemical, physiological, behavioral process and is affected by them. It is generated and controlled by positive (CLOCK (or NPAS2)-BMAL1/2) and negative (PERIOD (Per1/2/3)-CRYPTOCHROME (CRY1/2)) feedback loops. Another accessory negative loop involving NR1D1/2 (REV-ERBα/β) has also been reported. Nucleotide excision repair (NER) is the most general repair mechanism for removing bulky lesions from the genome, and defective NER is implicated in various pathological conditions including cancer and neurodegenerative diseases. It is the sole pathway to repair UV induced pyrimidine dimers and [6,4]-photoproducts. It was shown that NER activity has a CR in mouse brain and the core NER protein XPA oscillates at the same phase with Bmal1 and anti-phase with Crytopchrome1, leading the hypothesis that there is a link between CR and NER. In this study, the effect of CRY1 on the repair of [6,4]-photoproducts in mouse embryonic cells lacking the negative loop of the CR was investigated.
MATERIALS and METHODS: Per1/2(-/-) cells were produced by using TALEN

genome editing, and nr1d1/2, Cry1/2(-/-) cells were prepared from them by the CRISPR/Cas9 system. CRY1(+/+) cells were the ancestor of Per1/2(-/-),nr1d1/2(/-),Cry2(-/-) lines. Two cell lines (Cry1(+/+) and Cry1(-/-), both Cry2,Per1/2, nr1d1/2 KO) were exposed to ultraviolet-C (25 J/m^2) radiation, and the NER was evaluated for each group by Immunoslot Blot. The data were analyzed with ImageQuant software.
RESULTS: Our data show that CRY1 expression does not have an effect on the repair of [6,4] photoproducts when cell lines were exposed to 25 J/m^2 UV-C.
CONCLUSIONS: More studies are needed to clarify the possible role of specific circadian rhythm components on NER.
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Research Projects Coordination Unit (G.K.-E.)
Keywords: CRY1, Circadian rhythm, Nucleotide excision repair, Immunoslot blot, Ultraviolet radiation

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Investigation of Antioxidant activity in Plants Commonly Grown in Kahramanmaraş Region

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OBJECTIVES:The use of plants to cure several kinds of human diseases has a long history. Various parts of plants such as leaf, stem, bark, root, etc. are being used to prevent, allay symptoms or revert abnormalities back to normal. Although there are scientific studies about the antioxidant activities of some plants is limited. In this study, it was made to determine the antioxidant activities of different plants in commonly grown in Kahramanmaraş region which known to be used among the public.
MATERIALS and METHODS:In our study, antioxidant activities of three different plants belonging to different families in Kahramanmaraş region were investigated. for this purpose, we studied menengiç (Pistacia terebinthus L.), ışgın (Rheum ribes L.) and çiriş otu (Asphodelus aestivus). Firstly, the plants cut into small pieces with a knife. Then, the plants were homogenized with three volumes of ice-cold 1.15 % KCI. The activities of antioxidant enzymes and malondialdehyde (MDA) levels were measured in the supernatant obtained from centrifugation at 14.000 rpm. The activities of superoxide dismutase (SOD) and catalase (CAT) as antioxidant enzymes and MDA levels in plants were masured as spectrophotometric.
RESULTS:While the highest CAT was found to be the maximum in Rheum ribes, It was found as lowest in Asphodelus aestivus ($p<0.05$). Also, SOD activity was found as highest in Rheum ribes ($p<0.05$). However, the lowest SOD activity was found in Pistacia terebinthus ($p<0.05$). While the levels of MDA were found as highest in Rheum ribes, the lowest MDA levels were found in Asphodelus aestivus ($p<0.05$).
CONCLUSIONS:Our results indicated that Rheum ribes has the highest antioxidant enzyme capacity due to the highest metabolic activity of all them.
Keywords: Rheum ribes. Asphodelus aestivus, Pistacia terebinthus.

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Resveratrol, a natural antioxidant, attenuates liver ischemia/reperfusion injury in rats

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OBJECTIVES:Oxidative stress mediators are believed to contribute to the liver ischemia/reperfusion (I/R) injury. Resveratrol, a polyphenol found in grapes, is shown to be a strong antioxidant in various tissues, with a property of an estrogen-receptor agonist. Therefore, we investigated the effects of resveratrol on oxidative injury in the liver.
MATERIALS and METHODS:Female Wistar rats were randomly allocated into three groups (n = 8, each). The sham group (as control) was only subjected to surgical procedures, while other animals were subjected to liver ischemia (60 min) and subsequent reperfusion (60 min). One group received resveratrol (15 mg/kg, 0.3 mL/day intraperitoneally) for both 5 days before surgery and 15 min before ischemia (I/R+resveratrol group), while the other was treated intraperitoneally with 0.09 % saline as group (0.3 ml/day) (I/R group). At the end of this experimental, activities of catalase (CAT), superoxide dismutase (SOD) and the levels of malondialdehyde (MDA) were measured as spectrophotometric in liver tissues homogenates.
RESULTS:In the I/R rat liver, we detected severe tissue injuries ($p<0.001$), the significant increases in the tissue levels of MDA ($p<0.001$), and the decrease in activities of SOD and CAT ($p< 0.001$), compared to the sham control. Resveratrol significantly ameliorated the liver injury, decreased MDA levels to the sham control levels ($p<0.001$). Resveratrol also restored the SOD and CAT activities.
CONCLUSIONS:These results suggest that resveratrol could protect liver tissue against I/R injury with its potent antioxidant properties.
Keywords: Resveratrol, liver ischemia/reperfusion, antioxidants