ORAL PRESENTATIONS (OP)

OP-1

How Are The Identification Errors Occur In Medical Laboratory Processes? Four Sample Cases From Real Laboratory Life.

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Aim: The preanalytical period is the most frequent error occurring part of all laboratory procedures. In various studies, the rate was reported as 56%, 68.2 %, and 61.9 %. The most critical sub-step in the preanalytical phase is the phlebotomy process and the riskiest part in phlebotomy is the identification of the patient. In order to manage possible mistakes proactively, we explained the cases in details which we experienced. **Case histories: Case 1:** Baby A is a male and 3 months old baby and has the down syndrome. Baby B is another 1.5 months old baby with an unspecified fever. Identification error is made by the physician during requesting tests. The clinician corrects the requesting error and informs the laboratory. **Case 2:** Patient A, is 77 years old and gives a blood sample for monitorization of her chronic renal disease. When the result of patient A comes out, the physician questions the patient's blood sampling process due to not compatible with the diagnosis and with her previous results. the second result is consistent with chronic renal failure. Retrospectively by examining all patients with high creatinine results dated on that day and at that time, the sample of the other patient that exposed to the mislabeling is also found to have been coincidentally rejected for hemolysis **Case 3:**The names and surnames of the children of the nurse B who works in hospital A start with the same letters The nurse took the samples from both children at home and mislabeled the tubes. The pathological TSH result of child C, in fact, belongs to the other child D. Detailed interview between the nurse(mother) and the laboratory specialist showed that samples are mixed during labeling the tubes. **Case 4:** A laboratory technician working in hospital A applies to his emergency department for his sick child. At the same time, four of the examination beds are full and the nurse places the blood samples (in syringes) taken from each patient, side by side on the workbench and in next step she put the barcodes. The technician noticed mislabeling. The declaration of nonconformity made by us, the training was repeated. Possible mismatching and potential error have been prevented by the laboratory technician. **Discussion:** Laboratory medical safety plays an important role in ensuring patient safety. Patient and laboratory safety are the main objectives of quality management in healthcare. The most important outcome of these reported misidentification error cases is any health professional mustn't forget these errors have the highest risk score in terms of patient safety and one of the main responsibilities of each healthcare facility is to manage identification errors.

K**eywords :** identification errors,preanalytical errors,patient safety

OP-2

Human Leucocyte Antigen B27 Measurement Using Flow Cytometry After 5 Days of Sample Collection

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Aim: The relationship between ankylosing spondylitis (AS) and HLA-B27 is one of the strongest known association between a major histocompatibility complex (MHC) antigen and a disease. Flow cytometry

analysis is a widely used method for HLA-B27 measurement. HLA-B27 expression on T cell is determined using a specific monoclonal antibody and analysis on the day of sample collection is ideal. The aim of this study is to investigate of HLA B27 negative blood samples whether nonspecific antibody bindings result in positive results, when analyses are delayed.

Materials and Methods: Venous blood samples were obtained from 15 patients diagnosed with AS. The samples were collected into vacutainer test tubes containing EDTA. First HLA-B27 measurements were performed on the day of samples collection. Samples were kept +4 degrees and the analyses were repeated after 5 days. Flow cytometric measurements: HLA-B27 antibody in peripheral blood T cells were stained with anti-HLA-B27 antibody conjugated with fluorescein and anti-CD45 antibody conjugated with allophycocyanin (APC) in accordance with manufacturer's instructions. The samples were incubated in the dark at room temperature for 20 minutes, analyzed using flow cytometer (Beckman Coulter Navios) and HLA-B27 software (Kaluza). Statistical significance level was determined as 0.05. Analyzes were performed using the MedCalc Statistical Software version 12.7.7 (MedCalc Software, Belgium).

Results: Intraclass correlation coefficient of HLA-B27 between two groups was 0.99. Lymphocyte levels did not differ statistically ($p > 0.650$).

Conclusion: Flow cytometry is a special method and is not available in all clinical laboratories. When sample sent to reference laboratories, analyses can not be performed on the day of sample collection. After analyzing 5th day samples, no false positive results were observed.

Keywords : ankylosing

OP-3

Impact Of Storage Conditions On The Natriuretic Peptides Pre-Analytical Stability Using Different Analytical Methods And Biological Variability Concept.

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Introduction: Previous studies of Brain Natriuretic Peptide (BNP) and N-terminal (NT)-proBNP pre-analytical stabilities are only expressed using statistical differences. However, having a significant statistical difference does not mean that it is biologically different. The aim of our study was to assess the in vitro stability of BNP and NT-proBNP at various temperatures during 48h and using different analytical methods. We evaluated the results using approaches that consider both analytical and biological variations.

Materials and Methods: Seven EDTA tubes were obtained from 10 patients hospitalized in the intensive care unit of our hospital which agreed to participate and signed an informed consent. Samples were transferred to the laboratory within 10 minutes after sampling. For each patient, one of these samples was immediately centrifuged and stored at -80°C. Then three samples were stored at room temperature (RT), the three others being stored at 4°C. After 4, 24 and 48 h, one sample was removed from each storage condition, centrifuged and stored at -80°C. The next day, all samples were thawed, centrifuged and measured in duplicate with Fujirebio Lumipulse° G BNP, Roche Elecsys proBNP II, Abbott Architect BNP and Alere NT-proBNP Architect. We evaluated BNP and NT-proBNP stability using ANOVA

repeated measures analysis of variance, the Acceptable Change Limit (ACL) that takes the analytical coefficient of correlation (CV) in consideration and the Total Change limit (TCL) that takes both the analytical and biological CV in consideration. Biological CV is 10% for NT-proBNP and 22.3% for BNP.

Results: Whatever method, ANOVA showed that BNP already significantly decreased after 4H at RT ($p<0.01$). At 4°C the decrease became significant after 24H ($p<0.01$). On the contrary, NT-proBNP remained stable up to 48H at RT. Analytical CV was 4.0, 1.2, 1.4 and 4.1% for Abbott BNP, Roche NT-proBNP, Fujirebio BNP and Abbott-Alere NT-proBNP, respectively. This derived an ACL of 11.1, 3.3, 3.9 and 11.4% for these methods, respectively. According to the ACL concept, BNP was stable up to 4H at RT with both techniques but at 4°C Lumipulse°G BNP showed significant degradation after 4H whereas Architect BNP showed none until 48H. NT-proBNP was stable at any time and temperature according to the ACL concept . Biological and analytical CVs derived a TCL of 15.7, 6.0, 11.8 and 12.4% for Abbott BNP, Roche NT-proBNP, Fujirebio BNP and Abbott-Alere NT-proBNP, respectively. The TCL method demonstrated no significant degradation of BNP until 24H at RT while it was stable up to 48H at 4°C for both techniques. NT-proBNP was also stable with the TCL concept .

Conclusions: Our results show that NT-proBNP is more stable than BNP regardless of the storage conditions up to 48h. BNP is unstable if kept at RT for more than 4h. However, samples can be kept at 4°C for 24h without being significantly impaired. We highlighted the impact of the biological dimension as a result will first be important to a physician if it has a biological impact on the patient. Therefore, a result which shows a statistical increase or decrease is not significant until it has a clinical outcome and with TCL, we showed that the samples can be kept at RT longer, before showing a relevant degradation. Thus it is important to consider stabilities with tools that consider both analytical and biological variations.

Keywords : BNP, Natriuretic peptides, NTproBNP, Heart failure

OP-4

Analysis Of Daily Variation In Serum Prolactin Levels Of Women In Reproductive Age With Data Mining

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Aim: Any factor resulting in variation of results should be recognized and avoided for more accurate clinical assessment. One of the most considerable source of variation is the diurnal change. Prospective studies to determine diurnal variation values are challenging to design and conduct in daily practice, as multiple sampling from the same patients is required for these kind of studies. Data mining approach facilitates analysis of retrospective laboratory data. Prolactin (PRL) is one of the hormones with diurnal pattern and a useful diagnostic tool especially for assessment of patients with secondary amenorrhea, galactorrhea and/or infertility. The aim of this study is to demonstrate the timewise distribution pattern of serum PRL results by data mining approach for determining most appropriate sampling time.

Materials and Methods: 6-year laboratory records (2012-2018) including serum PRL results of female patients were obtained from laboratory information system (LIS). Initial number of records was 16,999. Results of female patients from 18 to 49 years of age were extracted for analysis. As history of drug usage and diagnosis are not commonly available for all records, individuals with recurrent PRL reports were

considered as follow-up patients and not included (n = 13,580). As reference interval is 0 - 23.3 ng/mL and values above 23.3 and below 50 ng/mL are considered as slightly increased, PRL level under 50 ng/mL was selected as inclusion criteria (n=12,869). All results distributed within daytime (08.00-18.00) were evaluated according to their sampling times as 1-hour intervals. Mean values were given for intervals. R 3.5.0 (R Working Group, Vienna, Austria) was utilized for statistical analyses.

Results: The mean values of each hour interval were compared with ANOVA and the differences between them were found to be statistically significant ($F(10, 12858) = 21.97$, $p < 0.001$). We observed a peak in the morning (08.00, 19.2 ng/mL) and a decline during afternoon (15.00, 15.1 ng/mL). There was an inclining trend in the evening (18.00, 16.2 ng/mL) and the overall mean value of PRL for all hour intervals was 16.6 ng/mL. The closest mean value among hour intervals belongs to 11.00, which was 16.9 ng/mL. The difference between nadir mean values was found to be 27.1% which is higher than minimum quality specification criteria but slightly lower than desirable TEa of serum prolactin analysis which is 22% and 29.4%, respectively.

Conclusion: These results which were obtained by data mining concur with diurnal pattern of variation in PRL levels. Higher PRL levels in the early morning can be related to sleep which is one of the main factors affecting PRL levels. Sampling for PRL testing has to be at least two hours later than patient's wake-up time. Our results suggest that 11.00 can be an ideal time for sampling.

Keywords : Prolactin, data mining, daily variation

OP-5

Effective Utilization Rates, Awareness Of Quality Indicators And Expectations From Medical Laboratories, A Pilot Study From Turkey

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Aim: Many clinical decisions about health status of patients; such as making a definitive diagnosis, setting up an action plan for treatment, or monitoring responses to treatment, are based on laboratory data. The quality practices applied in medical laboratories and compliance rates between clinical decisions and laboratory test results are not yet known completely. We aimed to investigate clinicians' knowledge about quality procedures in laboratories, compatibility of laboratory test results with physical examination and anamnesis, and support rates of medical laboratories in clinical decisions.

Materials and Methods: Physicians from one private foundation university, one education and research hospital and one local state hospital, were recruited for the research. Eighty physicians in total completed the questionnaire which had fourteen queries in it.

Results: Seventy-six percent of respondents stated that medical laboratory test results correlated with their preliminary diagnoses, based on anamnesis and physical examination findings. Sixty-one percent of the physicians stated that they had partial knowledge of internal and/or external quality studies conducted in clinical laboratories but did not receive any training about them. Most importantly, 73% of participants

stated that laboratory test results played a supportive role for clinical decisions, such as discharge from hospital, indications for surgery, intensive care unit referral, and patient follow-up time.

Conclusion: This preliminary study showed clearly and objectively impressive and constructive roles of medical laboratories as numerical terms rather than words.

Keywords : Compliance, quality indicators, utilization of medical laboratories

OP-6

Analysis Of Coagulation Unit Preanalytical Quality By Six Sigma And Pareto: In Sample Collection

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Aim: Six Sigma and Pareto analysis methods were used to evaluate the quality of the preanalytical sample collection phase and identify the most common sources of error per month Coagulation Unit.

Materials and Methods: Our preanalytical error sources and numbers were based on the prothrombin time rejection for February 2018; the numbers of and reasons for the preanalytical errors were determined. Using the sigma scale, errors were converted into billion-point defects. After calculating the percentage of preanalytical errors, the cumulative percentages were calculated and a pareto chart was drawn. Sources of error that are below 80% on the pareto chart and less than 4 above the sigma value were identified as priority areas for improvement.

Results: Three hundred and eighty-eight (routine laboratory 346, emergency laboratory 42) of 1728 (routine laboratory 1194, emergency laboratory 534) samples were rejected. According to Pareto's principle, it was observed that 80% of the preanalytical errors were due to inadequate blood/anticoagulant ratios and clotted samples. The numbers and sigma values of the preanalytical errors were as follows: improper ratio of blood to anticoagulant (n:232, sigma:2.7), clotted (n:79, sigma:3.2), inadequate (n:53, sigma:3.4), inaccurate container (n:13, sigma:4), wrong recording (n:3, sigma:4), wrong patient (n:3, sigma:4), empty tube (n:1, sigma:4.8), wrong labeling (n:1, sigma:4.8), or others (n:3, sigma:4).

Conclusions: The most common preanalytical errors in sample collection were determined as inappropriate blood/anticoagulant ratios and clotted samples by Pareto and six Sigma analysis.

Keywords : Preanalytical errors; coagulation; prothrombin time; six sigma; pareto analysis

OP-7

Rational Use of Laboratory Test Request Procedure: University Experience for Vitamin B12 and Folate Tests

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Aim: Rational Use of Laboratory Rational Test Request Procedure released by Ministry of Health, Republic of Turkey on 06 March 2018 recommends 365 day request interval for Vitamin B12 and Folate tests. In this study we aimed to determine the rate of recurrent testing for Vitamin B12 and Folate.

Materials and Methods: Numbers of Vitamin B12 and Folate test requests for year 2017 were obtained from laboratory information system. Patients were divided into two groups as adult and pediatric. Requests were evaluated based on Vitamin B12 and folate tests per patient in a year, number of repeated requests and also as low, normal and high based on reference range for each test.

Results: There were 33462 Vitamin B12 tests requested in year 2017 and 8296 (25%) of them were repeated test request in this year. Among the 8296 repetition of tests for Vitamin B12, 1506 (18%) of them were requested from pediatric and 6790 (82%) test from adult patients. The most frequent repetitions were from Internal Medicine inpatient and outpatient clinics (62%) within adult patients. From the most to the least, requests were from Nephrology (28%), Hematology (18%), Neurology (13%), General medicine (8%) and Gastroenterology (5%). In pediatric population, most frequent repetition came from Pediatric Gastroenterology (%35) and Pediatric Hematology (%23) inpatient and outpatient clinics. It is noteworthy that repeated Vitamin B12 result levels were normal (81%) and high (12%) when requested in the same year. 33255 Folate tests requested in year 2017 and 8234 (25%) of them were repeated test requests. 6620 (80%) of 8234 repeated test requests were from adult patients and 1614 (20%) of them were from pediatrics. Within adult patients most frequently repeated folate test requests came from Internal Medicine inpatient and outpatient clinics (70%), especially Nephrology (32%), Hematology (21%) and Neurology (13%). Repetition tests were from Pediatric Gastroenterology (37%), Pediatric Hematology (32%) most frequently among pediatric patients. When repetition of folate results were evaluated, most of the result levels were either normal (89%) or high (10%).

Conclusions: Although the Ministry of Health recommends once a year testing in the Rational Use of Laboratory Rational Test Request Procedure, we observed a much higher number of Vitamin B12 and folate test repetitions. Laboratory tests should answer a specific question and be performed only if their results can have an impact on patient care. Unnecessary repetition of tests is one of the most common causes accounting for inappropriate laboratory utilization. Prevention of inappropriate laboratory requests by clinicians, for our hospital starting from Internal Medicine and Pediatrics would help to decrease the work load in our laboratory and will help to cut the cost both for the hospital and the country.

Keywords : Rational Use of Laboratory Test Request Procedure, Vitamin B12, Folate, Appropriate Test Request

OP-8

Effect of Pneumatic Tube Delivery System on Hemolysis-Is it Clinically Significant?

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Aim: In hospitals, laboratory(Lab) specimens are transported either by pneumatic tube systems(PTSs) or manually by personnel.Although PTS is faster compared to manual delivery, it can cause hemolysis.Hemolysis can affect the results of some biochemical parameters such as aspartate aminotransferase(AST), lactate dehydrogenase(LDH), potassium(K).In this study, we aimed to investigate whether the PTS established at Dokuz Eylül University Hospital(DEUH) causes hemolysis and if so is this difference clinically significant.

Materials and Methods: In our study, blood collected into "sampling bags" attached to the blood bags from 100 healthy blood donors were used. Blood from the same donor aliquoted into 6 separate 5-mL

gelled tubes(BD Vacutainer® SST II Plus) 5 of the tubes were filled with 3-4 mL of blood and 1 tube transported by a courier (HC) and 4 tubes were sent to the Lab by PTS from different units with different distances. These units were;

1. Pediatric emergency room(227m)
2. First floor operating room(42m)
3. Second floor operating room(47m)
4. Outpatient blood collection unit(160m)

Last tube was filled fully and sent via TBS from the farthest unit to evaluate the impact of tube fill volume.The PTS carriers have protective cover for opening.PTS run at 3m/sec.When carrier reaches the station in the Lab, it is slowed down by the air pressure and dropped slowly in to the basket.All specimens were centrifuged at 3500 rpm for 10 min.AST, LDH and K levels were measured by Beckman AU5800 analyzer with dedicated kits. HC specimen group was accepted as "control" and the results of the samples sent with PTS were compared with this group.

Results:LDH was the most affected parameter from hemolysis. LDH levels were significantly higher in all the samples coming from different units ($p<0.05$). AST and K results in samples sent from Unit 4 were not different from the control group. It was thought that the samples were delivered more cautiously and correctly by putting a sponge into the conveyor tube to prevent abnormal shaking of the tubes since the Unit-4 is part of the Lab. Unit-1 had the longest distance, and samples sent from here had significantly higher K levels ($p<0.05$) and similar AST levels compared to the controls.With the fully filled tubes the results of all 3 parameters were not significantly higher from the control group.For this reason,the most important factor to prevent hemolysis was thought to be appropriately filled blood tubes.To assess whether changes due to hemolysis were clinically significant, %bias between the results was compared using the precision/bias formula based on biological variation.While the number of K results with a significant difference was less than 5% in all the samples sent from 4 different units, this ratio was over 30% in LDH. In AST, this difference was around 10% in the samples from the 2nd and 3rd units (shortest distances) and below 5% in the other units.

Conclusion: In order to avoid the differences caused by hemolysis in the samples transferred with PTS, a sponge should be used and the tubes should be appropriately filled to prevent abnormal shaking.It is important to prevent hemolysis since it may lead to clinically significant differences in patient test results in some parameters.Considering that each hospital uses PTS with different characteristics (speed, distance, etc.), it will be useful to validate their PTS prior to use.

Keywords : Pneumatic Tube Delivery System, Clinically Significant, Hemolysis

OP-9

Our Laboratory Experience About Interference of ACTH Measurement

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Aim: Interference is not common in immunoassays, but when it occurs, it leads to discordant results, time consuming, expensive additional tests and inappropriate treatment. Interference may be caused by

presence of endogenous antibodies such as heterophilic antibodies, antianimal antibodies or autoantibodies as well as by exogenous antibodies that are given for therapeutic intentions. In this case report we aimed to present a case of subclinical hypercortisolism with high levels of adrenocorticotropin stimulating hormone (ACTH). We considered the possibility of interference due to unexpectedly high ACTH levels, which was inconsistent with the clinical findings.

Materials and methods: A 51-year-old female patient admitted to the clinic for the evaluation of adrenal mass and hypertension. Her physical examination was not compatible with Cushing syndrome. Overnight dexamethasone suppression test (DST) was unable to suppress cortisol (114.5 nmol/L). Evaluation for pheochromacytoma and primary hyperaldosteronism as well as adrenocortical carcinoma and metastasis were unremarkable. Hypophysis MR showed possible pituitary microadenoma. Genetic testing for ARMC5 mutation was negative.ACTH mesurements were performed by a solid phase, two-site enzyme chemiluminescent system (analytical range; 1.1-333 pmol/L, Immulite 2000 XPi, Siemens Healthcare diagnostics). We used four different methods for establishing the interference. 1)In order to evaluate assay interference, measurement on a different analytical platform was performed. Samples were tested on a solid-phase, two site electrochemiluminescence immunoassay platform (analytical range; 0,2-440 pmol/L; Elecsys E170; Roche Diagnostics). 2)Plasma ACTH concentration was measured after serial dilutions with distilled water (1/2, 1/4, 1/8) to check for non-linearity suggesting assay interference . 3)Plasma samples were subjected to precipitation with PEG 6000 solution to remove interfering antibodies. ACTH concentration was measured in supernatants. 4)Samples were analysed using heterophilic antibody blocking tubes (Scantibodies Laboratory Inc., USA) (analytical range; 1.1–333 pmol/L, Immulite 2000 XPi, Siemens Healthcare Diagnostics)

Results: Basal plasma ACTH level was 58.5 pmol/L (0-10.1 pmol/L). Repeated measurements of ACTH were all elevated (55.9 pmol/L, 50.2 pmol/L, 54.3 pmol/L respectively, 0-10.1 pmol/L). Her 24 hour urine cortisol was normal. Her ACTH level measured on a different analytical platform was 1.2 pmol/L (1.58-13.92 pmol/L).Post-PEG ACTH concentration was undetectable. Her rheumatoid factor (RF) level was increased (>120 IU/ml (reference range: <4IU/ml)), which was analyzed using AU5800 platform (Beckham Coulter). Finally, plasma ACTH levels were measured after serial dilutions (1/2, 1/4, 1/8, 1/16, 1/32) to check for lack of linearity and recovery (parallelism). Results of serial dilutions are respectively 17.6 pmol/L, 9.13 pmol/L, 4.7 pmol/L, 1.24 pmol/L, <1.1 pmol/L.

Conclusion: When clinical findings and assay results are discordant, the interference option must be considered. In this case report, RF may be the possible reason for ACTH interference, however high levels of RF does not rule out interference caused by other antibodies. The unnecessary diagnostic and therapeutic interventions can be costly to both patients and hospitals. If necessary, interference should be eliminated by precipitation with PEG 6000 solution or by analysing with heterophilic antibody blocking tubes.

Keywords : ACTH, Interference, Immunoassay

OP-10

Implementing a Total Laboratory Automation System: Experience of a University Laboratory

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Aim: Intra-laboratory turnaround time (TAT) is a key indicator of total laboratory performance. The aim of our study was to evaluate the intra- laboratory TAT of Hafsa Sultan Hospital Central Laboratory after laboratory automation (TLA) (Beckman Coulter Power Processor Systems Brea, Kaliforniya, ABD) implementation (October-December 2016) and to compare it to that in the preautomation period (October-December 2015).

Materials and Methods: Intra-laboratory TAT was evaluated both as the mean TAT enrolled and the percentage of outlier (OP) exams. Mean, median and percentage of outlier (OP) for IR-TAT were compared as pre and post automation using seven representative tests (Albumin, Alanin Aminotransferaz (ALT), Urea, Potassium, Beta Human Chorionic Gonodotrophin (β-hCG), Troponin I, Thyroid Stimulating Hormone (TSH)) based on different methods and requests. Comparison tests were carried out using t test in OpenEpi program.

Results: The mean IR-TAT for routine Albumin, ALT, Urea, Potassium, β-hCG, Troponin I and TSH were; 105.6, 105, 104.4, 104.5, 122.8, 112.5 and 133.6 minutes, respectively at the post TLA period. For urgent tests mean IR-TAT were 64.9, 62.8, 62.7, 61.2, 68.7, 50.4, 75.8 minutes respectively again at the post TLA period. Contrary to expectations, mean IR-TAT were increased for all urgent tests and β-hCG, Troponin I and TSH from the routine test group. Longer mean IR-TAT was the effect detected by the the unexpected volume increase (%32.8) in urgent samples. As corrective activity Stat tests were introduced for Emergency Department. Stat tests were assessed in a different autoanalzer outside TLA and sample type changed from serum to plasma for Troponin I. The mean IR-TAT for stat tests for Albumin, ALT, Urea, Potassium, β-hCG, and Troponin I were all decreased; 38.8, 38.1, 38, 38.1, 61.2 and 41.9 minutes respectively in July-September 2017 afterwards. When outliers were examined at 60 minutes, all except for β-hCG were found to be <10%. The outliers for the emergency tests were <10% for all at 180 minutes.

Conclusion: TLA helps to efficiently manage large volumes of samples. However, the longer IR-TAT of urgent samples yielded a need for stat implementation with manual processing at both the initial centrifugation stage and front loading directly on to a new analyzer. Step by step corrective strategies such as stat implementation and change of sample type resulted in definite IR-TAT improvement.

Keywords : Turnaround time, Total laboratory automation, Stat tests

OP-11

Emphasizing Clinical History In Thalassemia Screening

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Aim: Thalassemia is still common through the Mediterranean region and reliable assessment of thalassemia screening tests is an important public health issue. Clinical history of the patient is very

important in the laboratory evaluation of thalassemia. Our goal in this study is to emphasize the importance of evaluating thalassemia test reports with patients' clinical details.

Materials and methods: We used UK NEQAS Hematology, HbA_2/HbF & Abnormal Hemoglobin external quality program samples in this study. Six external quality assessment samples for two evaluating periods were analyzed with the Ion Exchange HPLC method on the Tosoh G8 HPLC Analyzer in Pamukkale University Hospital Central Laboratory. Clinical details and Red Blood Cell, Hemoglobin, Mean Corpuscular Volume and Mean corpuscular hemoglobin results belonging to of each sample were sent to us in the same deliveries. All samples analyzed and interpretations submitted to evaluation program available on https://www.ukneqash.org/SampleEntry. In this site, all participants could select the most appropriate clinical interpretation of anamnesis and laboratory findings from predefined options.In our laboratory; we accept reference ranges for HgbA2 and HgbF respectively 3.5%-8% and 1%-10% covered with Tosoh HgbA2 and F internal quality control with intraassay CV < %5, interassay CV < %5.

Results: Sample 1, 2 and 3 had no abnormal hemoglobin fraction with normal Hgb A2 and HgbF levels. Samples 4 had abnormal hemoglobin peak matching with Hgb C retention time at 32.1%. Sample 5 and 6 had abnormal hemoglobin peaks matching with Hgb S retention time at 28.9% and 16.6% respectively. In terms of clinical details of these samples, only Sample 1 and Sample 5 had abnormal hemogram results; as microcytosis respectively 76.3 fL and. 72 fL.

Conclusion: The evaluation of thalassemia screening tests and other laboratory data may cause incomplete or misdiagnosis without clinical details. In our study, we revealed this important point via using an external quality program. Clinical interpretations of our laboratory and other laboratories participating in the external quality control program were compatible. In this program, complete blood count results, important clinical details for evaluating abnormal hemoglobin fractions were given to laboratory with samples. For instance, Sample 4 as belonging to a female whose ethnic origin African at age of 32. The patient made application for antenatal screening and her MCV 76.3 fl (Adult reference ranges 79-96 fl), MCH 24.0 pg (27-32 pg) and she had Hemoglobin C fraction in HPLC analysis. From this point of view, we offer partner testing and consultation to hematologist. Without clinical details and hemogram results, we couldn't decide these interpretations. For further examinations, iron status might be revealed as an excluding criteria for iron deficiency anemia in the differential diagnosis of microcytic anemia.

Keywords : thalassemia, thalassemia screening, clinical interpretation, laboratory evaluation

OP-12

Assessment Of PAPP-A And Serum Amiloid A Levels And Thyroid Functions In Patients With Metabolic Syndrome

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Aim: The metabolic syndrome (MetS) is characterized by the presence of central obesity, impaired fasting glucose, dyslipidemia, hypertension which leads to cardiovascular events in future. MetS is associated with systemic inflammation and endothelial dysfunction as well. Previous studies have

demonstrated that PAPP-A and SAA may be potentially important biomarkers of plaque instability and inflammation in patients with Acute Coronary Syndrome and can be used for the risk prediction in cardiovascular events. Firstly we aimed to evaluate the levels of SAA and PAPP-A in patients with MetS in order to assess if these parameters would provide prediction for the possibility of ACS development. Secondly to evaluate the levels of TSH, fT3, fT4 and anti-thyroid antibody (anti-TPO) if existence of subclinical/clinical hypothyroidism and/or autoimmune thyroiditis may contribute the severity of MetS. Thyroid hormones have pleiotropic effects on lipid and glucose metabolism, blood pressure, energy expenditure. Recently, serum TSH is also found to be associated with adverse changes in lipid metabolism which is another risk factor of cardiovascular disease.

Materials and Methods: The experiment (MetS) and control groups were consisted of 64 patients (32 men+32 women, 25-45 years old). The experiment group was firstly diagnosed as MetS in Endocrinology Clinic of Medical School. We included the patients in the study by using the diagnostic criterias which was determined by Turkish Endocrinology and Metabolism Society.

Results: The data was assessed by Mann Whitney U test. Comparison of the parameters that we analyzed to diagnose and categorize the MetS and control groups represented all statistically significant difference. Levels of fasting blood glucose, HbA1C, total cholesterol, total trigliseride, insulin were significantly higher in MetS group compared to control group ($p<0.05$) While the comparison of LDL-cholesterol levels between groups showed no significant difference, the HDL-cholesterol levels in MetS group were significantly higher as compared to control group. The subjects in MetS group were getting statin therapy and that might led a decrease in their LDL and an increase in their HDL levels. There were no significant differences between the groups in terms of TSH, fT3, fT4, PAPP-A and SAA levels ($p>0.05$). The only significant difference between groups was Anti-TPO levels, as the Anti-TPO level of control group was significantly higher when compared to MetS group. This result was considered to be arosen from biological variation of three subjects in control group. While there has been a significant difference between groups about Anti-TPO levels, both of these levels were considered to be negative in regard to the insert of Anti-TPO test.. Thyroid dysfunction wasn't found in our MetS group and so that wouldn't be a contributing cause in the progression of their illness.

Conclusion: Based on our data, analyses of PAPP-A and SAA levels at the beginning of MetS as an inflammatory and a predictory biomarker for following up the progression of MetS wasn't meaningful. Our MetS group was relatively young and firstly diagnosed, and they were also getting statin therapy. The possible change in the levels of these biomarkers should be determined after a long follow-up of these patients. Our data can be documented as the first record of this parameters and long term follow-up data of these subjects may provide benefit.

Keywords : Metabolic Syndrome, PAPP-A, Serum Amyloid-A, fT3, fT4, Anti-TPO

OP-13

The Relationship Between Mean Platelet Volume And Hba1c Levels

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Aim: MPV is reported to be higher in diabetic patients. We aimed to investigate the relationship between MPV and glycemic parameters in the general population.

Materials and Methods: A total of 1171 randomly selected patients admitted to our hospital between 01.01.2018 and 30.06.2018 were retrospectively analyzed through the hospital information system. Patients were divided into two groups in terms of their HbA1c levels as follows: first group: ≤6.5 %; second group>6.5 %).

Results:There were positive associations between MPV and HbA1c ($r = 0.336$; $P < 0.001$). MPV levels of second group was higher than first groups MPV levels.

Conclusions: The results of this study show that HbA1c level is associated with MPV levels.

Keywords : Diabetes; HbA1c; Mean platelet volume

OP-14

Cardiac Biomarkers in Hemodialysis Patients

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Aim: Chronic kidney disease, is a group of diseases that occur chronic inflammatory and degenerative changes in the renal parenchyma. Chronic renal failure is a table resulting from the progression of chronic kidney disease. Conservative treatment and renal replacement therapy is applied in patients with chronic renal failure (1). Cardiovascular disease (CVD) is the most important cause of morbidity and mortality in patients in all stages of chronic kidney disease and receiving renal replacement therapy (2). In this study; we aimed to investigate the effect of hemodialysis on cardiovascular markers used frequently, by evaluating plasma levels of NT-proBNP, TnI, CK-MB.

Materials. And Methods: 78 hemodialysis patients and 30 healthy controls were enrolled into the study. Demographic and dialysis datas of patients were recorded before study. Samples were taken in lithium heparin tube for all participants and plasma NT-proBNP, TnI, CK-MB concentrations were measured by immunoassay.

Results: There were no significant differences in demographic datas between patients and control group. In the control group, plasma NT-proBNP, TnI, CK-MB concentrations were ($\bar{x} \pm SD$) 80.40 ± 24.92 ng/l, 0.005 ± 0.06 ng/ml, 2:21 ± 1.24 ng/ml respectively. Plasma NT-proBNP, TnI, CK-MB concentrations were 10765.71 ±8525.20 ng/L, 0.0142±0.0174 ng/ml, 2,21±1,24 ng/ml in hemodialysis patient group. Plasma NT-proBNP and TnI concentrations were significantly higher in patients compared to the control group ($p <0,05$). There were no significant changes in plasma CK-MB concentrations between two group ($p>0,05$).

Conclusion: We belived that, the hemodialysis procedure itself causes microinfarcts in myocardium and elevated cardiac troponin levels. We suggest that; these patients should be followed more closely for CVD in terms of close and long-term.

Keywords : CK-MB, NT- proBNP, TnI, Hemodialysis

OP-15

Changes In Oxidative Stress Parameters And Inflammatory Markers In Hand Osteoarthritis Patients

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Introduction: Hand osteoarthritis (HOA) is a common degenerative joint disease (mostly seen in women), mainly affecting proximal (PIPs) and distal interphalangeal joints (DIPs), and first carpometacarpal joints (CMCs). HOA which progresses generally with systemic inflammation has two forms: non-erosive HOA (NEHOA) and more severe form, erosive HOA (EHOA). In pathogenesis of OA, increased free radicals and oxidative stress were blamed to cause chondrocyte dysfunction leading to tissue damage. This study investigates the changes in various oxidant/antioxidant parameters and inflammatory molecules in HOA patients and compares the results among erosive, non-erosive HOA groups and healthy individuals.

Materials and Methods: A total of 80 participants were included in the study; 30 in control, 42 in NEHOA and 8 in EHOA group. All subjects were questioned about their age, sex, history of the symptoms, presence of sensitive and swollen joints, smoking habits, other systemic diseases and medications. Blood samples were analyzed for fasting glucose, erythrocyte sedimentation rate (ESR), C reactive protein (CRP), interleukin-1beta (IL-1b), interleukin-6 (IL-6), malondialdehyde (MDA), myeloperoxidase (MPO), catalase (CAT), ceruloplasmin (Cp), arylesterase (ARYL), paraoxonase (PON), stimulated paraoxonase (SPON), total antioxidant status (TAS), total oxidant status (TOS) and thiol-disulfide homeostasis tests (TDHT).

Results: ESR, fasting glucose and IL-6 levels were significantly different in three groups with the significance values $p<0.001$; $p<0.001$ and $p=0.019$, respectively and the highest concentrations were obtained in patients with EHOA. There were no significant differences in IL-1b, CAT, Cp, ARYL, PON, SPON, TAS and TOS concentrations among three groups. MDA levels of HOA patients were lower than control group ($p=0.014$) while MPO, native thiol and total thiol values were different with $p<0.001$ significance (for each parameter) among three groups.

Conclusion: Our findings show a significant difference in oxidative stress parameters between HOA patients and controls. However, the absence of difference between HOA forms with the exception of MPO levels and elevated IL-6 concentrations in EHOA patients suggest that there might be another underlying factor in the ethiolopathology of this HOA form .

Keywords : Hand osteoarthritis, oxidative stress, antioxidant capacity, inflammation

OP-16

Vitamin D and Vitamin D Receptor: Another Aspect of Gestational Diabetes Mellitus

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Aim: Vitamin D exerts its most effects by binding to its primary receptor, Vitamin D receptor (VDR). Besides, the effects of vitamin D on glucose metabolism (insulin secretion and insulin receptor expression) are also mediated through VDR. The aim of our study was to examine serum 25-(OH) vitamin D3 and serum VDR levels in gestational diabetes mellitus patients.

Materials and Methods: Blood samples obtained during 24-28 weeks of pregnancy of patients with GDM (n=30) and age, BMI, and gestational age-matched control subjects (n=33). Both groups were examined for changes in the levels of glucose, insulin, HbA1c, 25-(OH) vitamin D3, VDR.

Results: There were no significant differences in serum 25-(OH) vitamin D3 and fasting insulin levels between control and GDM groups (p=0.115, p=0,182). But serum VDR levels was significantly higher in GDM group than control group (p=0.001).

Conclusion: Although there was no significant difference between the two groups regarding 25-(OH) vitamin D3 levels, it is notable that VDR levels were higher in GDM patients. To further define the role of vitamin D in the pathophysiology of GDM, it may be useful to conduct more extensive studies about VDR.

Keywords : Gestational Diabetes Mellitus, Vitamin D receptor, Vitamin D

OP-17

Vitamin D Supplementation Does Not Improve Plasma Thiol/Disulfide Homeostasis

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Aim: This study examined the relationship between thiol/disulfide homeostasis and different vitamin D levels and supplementation.

Materials and Methods: A total of 203 healthy children were included in the study. According to the vitamin D levels [25 (OH) vitamin D], the participants were divided into four groups: severe deficiency (Group 1: <10 ng/ml), deficiency (Group 2: 10-20 ng/ml), insufficiency (Group 3: 20-30 ng/ ml), and sufficiency (Group 4: >30 ng/ml). Furthermore, Group 5 was formed to include children supplemented with Vitamin D.

Results: Native thiol was lower in Group 5 than in Groups 2, 3 and 4, but was similar when compared between the other groups (p=0.003). The disulfide level was higher in Groups 1, 4 and 5 than Groups 2 and 3 (p<0.001). Total thiol was lower in Group 5 than in Group 4 (p=0.032). The ratio of native thiol/total thiol was lower in Groups 1 and 5 compared to Groups 2 and 3, and in Group 4 compared to Group 3 (p<0.001). The ratios of disulfide/total thiol and disulfide/native thiol were higher in Groups 1 and 5 than in Groups 2 and 3 whereas only the disulfide/total thiol ratio was higher in Group 4 than in Group 3 (p<0.001).

Conclusions: In healthy children, severe deficiency of vitamin D causes impairment of thiol/disulfide homeostasis and increases protein oxidation, which cannot be reversed by external vitamin D supplementation.

Keywords : Vitamin D; thiol/disulfide homeostasis; healthy children; oxidative stress.

OP-18

The Importance Of Plasma Presepsin In Determining Stapler Line Leakage After Morbid Obesity

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Aim: To be able to prevent morbid obesity in the long-term, laparoscopic sleeve gastrectomy (LSG) is one of the most effective surgical interventions. However, leakage and bleeding from the stapler line are significant complications.The aim of this study was to determine the role of the levels of plasma presepsin in the detection of stapler leakage.

Materials and Methods: The study included 300 patients with LSG due to morbid obesity and 40 control subjects. Before any medical treatment was applied, blood samples were taken from patients at 12 hours preoperatively and on days 1, 3, and 5 postoperatively. Evaluation was made of plasma presepsin levels, white blood count (WBC), C-reactive protein (CRP) and Neutrophil-Lymphocyte ratio (NLR), in all patients with sleeve gastrectomy line leakage.

Results: The WBC, CRP, NLR and presepsin values measured on days 1, 3 and 5 postoperatively were determined to be higher in patients with leakage compared to those without. The predictive value of presepsin (p=0.001), CRP (p=0.001) and NLR (p=0.001) was determined to be statistically significantly higher than that of WBC (p=0.01) .

Conclusion: The results of the study suggest that presepsin levels could have a role in the detection and follow-up of stapler line leaks after LSG. Elevated presepsin levels, on postoperative day 1 in particular, could have a key role in the early detection of possible complications which are not seen clinically.

Keywords: Bariatric Surgery; Laparoscopic Sleeve Gastrectomy; Morbid Obesity; Presepsin; Sta

OP-19

Association Of ABO and Rhesus Blood Groups With Cancer

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Aim: The aim of this study was to determine the association of ABO and Rhesus blood groups with incidence of cancer.

Materials and Methods: 13109 patients with cancer who were admitted to Eskişehir Osmangazi University Hospital between the years of 2010-2017 were included in the study. ABO and Rh typing of patients were noted. The results were compared with the distribution of blood group in Eskişehir.

Results: According to our results, there is no significant difference between ABO and Rh blood groups ($p>0.05$), but there is significant difference between the groups when compared with the incidence of the blood groups in Eskişehir ($p=0.009$). It was determined that the risk of cancer is increased in Rh^+ and especially in O Rh^+ blood group, decreased in Rh^- and especially in B Rh^- blood group. When the most common cancers types were examined, it was found that the risk of blood groups are same as all group in lung cancer. The risk of ovarian cancer is low in O blood group but, high in A Rh^+. It was found that O Rh^+ blood group has high risk in prostate and bladder cancers but, in prostate cancer A Rh^+ blood group has low risk. In breast cancer B Rh^- and in corpus uteri cancer A Rh^- blood groups have low risk. O Rh^- and B Rh^+ blood groups have low risk but, O Rh^+ blood group has high risk in thyroid cancer.

Conclusion: In the future the identification of these increased risks may be important for early diagnosis.

Keywords : ABO, Rhesus, blood groups, cancer,

OP-20

Taurine Values In Postoperative Period After Cardiovascular Surgery

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Aim: Taurine is the most abundant amino acid in many mammalian tissues that is not used in protein synthesis.It is widely distributed in animal tissues. Its antiinflammatory and hypoglycemic effects were previously shown. Cardiopulmonary bypass, aortic cross-clamping, skin incisions, blood product transfusions, hematoma are pro-inflammatory processes.

Materials and Methods: Thirty-four patients (9 female, 25 male)(age: 48-69 years) were included in the study. Serum taurine levels were measured on 3rd postoperative day. Twenty patients underwent on-pump coronary bypass surgery (CABG), 3 patients mitral valve replacement, 2 patients aortic valve replacement, 1 patient hemiarch replacement, 3 patients off-pump CABG, 1 patient both aortic and mitral valve replacement, 3 patients closure of atrial septal defect and 1 patient carotid endarterectomy. Taurine amino acid analyses were carried out by ARACUS Amino Acid Analyzer (Membrapure-Germany). The device analyzes the amino acids by post-column derivatization with ninhydrin. Normal adult serum taurine concentration ranges between 45 to 130 micromol/L. At the same time c reactive protein (crp) and HbA1c values were recorded.

Results: Eight out of 34 patients have normal serum taurine levels during postoperative period. Plasma taurine levels of remaining patients were below normal range *($p<0.005$).* In patients with high C reactive protein, the taurine level is low. Methyl prednisalone used in therapy was positively correlated with taurine levels. There was a positive correlation between taurine and HbA1c.

Conclusion: Taurine levels may be low for some surgical reasons. The negative correlation between taurine level and CRP supports what is known about the antiinflammatory effect of taurine. Further studies including the preoperative taurine levels should be done. it may be suggested that taurine may be given as nutritional supplement especially to be kept high in the postoperative period.

Keywords : taurine, antiinflamatuar effect, nutritional support

OP-21

Alkaline Phosphatase Interference in an Unconjugated Estriol Assay Causing a False Positive Down's Syndrome Screening Result.

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Aim: Decreased unconjugated estriol (uE3) concentrations increase the calculated risk of Down's syndrome. Therefore, falsely low uE3, due to assay interference, have the potential to cause false-positive screening results. Here we present a 35 years old woman with a pregnancy of 17+2 weeks.

Material and Methods: A second-trimester screening test was performed on the UniCelDxI 800 (Beckman Coulter, Brea, CA, USA) analyzer and her uE3 level was 0.21 ng/mL (0.21 MoM), inappropriately low. Risk calculated for down syndrome was 1/8. For verification, measurements were repeated on IMMULITE 2000 XPi (Siemens Healthcare Diagnostics Inc., USA). uE3 result was 0.614 ng/mL (0.97 MoM). The risk for down syndrome was negative with this system. We suspected assay interference for uE3.

Results: Serial dilutions of serum samples revealed nonlinearity. The uE3 level was increased by 36.3 % with heterophile antibody blocking tubes. The post-polyethylene glycol recovery resulted approximately the same uE3 levels as IMMULITE 2000 XPi system. Addition of ALP Scavenger to serum, increased the uE3 result by 90% showing that the interference was due to increased alkaline phosphatase levels in patient serum.

Conclusion: Laboratories should be aware that falsely low uE3 results due to interference may be obtained and increase the calculated risk of Down's .

Keywords: case report, alkaline phosphatase, unconjugated estriol, false positive, interference

OP-22

High Carrier Ratio In Healthy Subjects Of R202Q Mutation In *MEFV* Gene In Province Of Kahramanmaras-Turkey.

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Aim: Familial Mediterranean Fever (FMF) is an autosomal recessive genetic disease. Although as it can be seen in countries that are generally coastal to the Mediterranean, it can also be seen certain rates all over the world due to migrations. With the intensification of research, it appears that many patients carry different polymorphisms.

Characterized by clinical symptoms such as abdominal pain, fever, arthritis, arthralgia and erythema. Although diagnosis is clinically, the identification of the type of mutation with genetic studies is important in giving direction the treatment. The R202Q mutation can be found in our region as a polymorphism, often alone or in combination with a compound or multiple mutations. For this study we randomly sampled blood from 50 healthy hospital personnel who did not have any FMF clinical signs and not have FMF in order to see how often in our region.

Materials and Methods: The R202Q mutation in the exon 2 gene region was investigated in the blood of the recipient. The DNA obtained from the blood samples was evaluated in the sequence analyzer according to the exons after specific steps.

Results: As a result, heterozygous R202Q mutation was found in 17 (34.0 %) healthy individuals, homozygous R202Q mutation in 1 (2.0 %), R202Q/E148Q complex mutation in 2 (4.0 %), E148Q heterozygote mutation in 2 (% 4), E230Q heterozygous mutation was detected. No mutation could be detected in 28 (56.0 %) cases. Finally R202Q mutation carrier rate was as high 38.0 %.

Conclusion: According to these findings although the R202Q mutation is seen at a very high rate, it is clinically asymptomatic and should be considered as polymorphism except some in patients with clinical findings of homozygous form. It is thought that it would be useful to investigate the genotype phenotype association especially in cases of homozygous occurrences with other mutations.

Key words: R202Q mutation, healthy people, Turkey

OP-23

Can Pregnancy Associated Plasma Protein-A be a Diagnostic Marker In Patients with Psoriasis?

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Aim: Psoriasis is a chronically relapsing inflammatory common disease (affecting about 2% of the population worldwide) of the skin. Psoriasis has also complications such as hyperplasia, leukocyte infiltrate, and an increased vessels in the dermis. Presence of lymphoid clusters in the dermis of psoriatic plaques has been reported in recent studies. Pregnancy-associated plasma protein-A (PAPP-A) plays a role in the development and ageing processes by modulating growth hormone (GH) effects on lipid, glucose and protein metabolism, inflammation, as well as on cardiovascular function in adults. Availability of IGF-1 at receptor level is influenced by membrane-bound metalloproteinase PAPP-A , which cleaves IGFBP-4 bound to IGF-1. PAPP-A is therefore considered an important regulator of IGF-1. Elevated plasma PAPP-A concentration is associated with the extent of coronary artery disease. Interaction between PAPP-A and the anti-inflammatory cytokine IL-10 levels has been observed. It has been reported that elevated PAPP-A is detrimental only when IL-10 levels are low. Pregnancy-associated plasma protein-A (PAPP-A) is a putative marker of inflammation and ischaemic diseases. Our aim was to investigate the relationship of serum PAPP-A levels with psoriasis disease

Materials and Methods: 44 male, 46 female subjects were included to this study. Participants consisted of 45 psoriasis patients and 45 healthy participiants.

A total of 90 serum samples were analyzed with Roche pregnancy-associated plasma protein-A commercial immunoassay kit. Statistical analysis was performed with SPSS v21. $p<0.05$ value was considered as statistically significant.

Results: Although the levels of PAPP-A were higher in patient group, there was no significant difference for serum levels of PAPP-A in patients [0.0065 (0.0040-0.0130)] and controls[0.0062 (0.0040-0.017)] ($p=0.403$).

Conclusions: Our results demonstrate no change of serum PAPP-A levels with disease. Serum concentrations of PAPP-A might not be considered as a diagnostic parameter in patients with psoriasis.

Keywords : Psoriasis, PAPP-A , İnflammatory

OP-24

Differences In Serum Levels Of Lysophosphatidic Acid And Orexin/Hypocretin In Normal Weight And Obese Patients, Along The Continuum From Health People To Alzheimer's Disease.

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Aim: obesity has a strong association with vascular and metabolic diseases, but increasing evidence indicates that it also modulates non-vascular diseases such as Alzheimer's disease (AD)**.** Nevertheless, the relation between obesity and the risk of AD has not been extensively studied, and the results published to date are conflicting. Altered levels of orexin/hypocretin and lysophosphatidic acid (LPA), both implicated in the genesis and complications of obesity, would cause an increased phosphorylation of *tau* which is the major protein involved in the pathogenesis of AD. Aim of the present study was to identify a possible relationship between obesity and AD, evaluating the serum levels of orexin and LPA in normal weight or obese subject, along the continuum from healthy people, to subjects at risk of AD, i.e. with subjective memory complaints (SMC) and/or mild cognitive impairment (MCI), up to AD patients.

Materials and methods: 80 subjects were enrolled and divided into four groups: 20 with probable AD, 20 with amnestic MCI, 20 with SMC, and 20 healthy subjects. For each group, 10 obese and 10 normal weight people, distinguished by body mass index, were included. Serum levels of orexin and LPA were measured using ELISA test.

Results: statistical analysis by univariate analysis of covariance (ANCOVA) showed higher levels of orexin in obese than in normal weight people, but the difference was not significant in MCI and AD groups. Elevated levels of orexin were also observed in healthy subjects, obese and normal weight, compared to other groups, with a significant difference for MCI and AD patients. Higher values of LPA were found in obese compared to normal weight subjects, but the differences were not significant in MCI and AD groups. Instead, in obese subjects, a significant reduction of LPA levels was measured in all patients compared to healthy subjects. A direct correlation was found between orexin and LPA in all examined groups, except for normal weight SMC group, which showed no correlation, and normal weight healthy subjects, which showed an inverse correlation.

Conclusion: the results demonstrated a relationship within orexin /hypocretin, LPA, obesity and conditions with or at risk of AD. These results could be useful to better understand the role of obesity in AD, the etiopathogenesis of AD, the identification of subjects at risk, and the search of new therapeutic strategies.

Keywords : Alzheimer's disease, lysophosphatidic acid, orexin, hypocretin

OP-25

Does Table Salt Help Pass A Drug Test In Urine?

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Aim: Urine drug testing plays an important role in monitoring illicit drug use for medico-legal purposes. One of the major challenges of urine drug testing is adulteration, a practice involving manipulation of a urine specimen with chemical adulterants to produce a false negative test result. Easily obtained chemicals are used for his purpose. Due to table salt being one commonly used adulterant, we conducted a study to investigate the effect of table salt on cannabinoid, amphetamin and morphine urine tests.

Materials and Methods: Twenty different urine samples were used for the study. Cannabinoid, amphetamine and opiate assays were analyzed using the Cloned Enzyme Donor Immunoassay (CEDIA) method. Creatinine assays were measured using the alkaline picrate method with an Abbott Arhıtect C 8000 otoanalyzer. pH, nitrite and densities were measured with strips. 20 samples in total were chosen, out of which 10 were Cannabinoid positive, 5 were amphetamine positive and 5 were opiate positive. We portioned 1mL from each sample and added 0.25mg of table salt to each tube. After adding the table salt to the samples we then repeated the drug and urine integrity tests utilizing the same methods.

Results: The urine integrity tests (pH, nitrite, density and creatinine) produced results that were within the acceptable range. The 10 samples for which previously the cannabinoid tests were positive produced negative test results. Amphetamine and opiate tests produced the same results as before the table salt was added.

Conclusion: The study shows the importance of survailince while obtaining the sample as it is not possible to identify a possible manipulation of the urine specimen during analytical and post-analytical phases.

Keywords : table salt, cannabinoid, amphetamine, opiate, urine

OP-26

1,25-Dihydroxyvitamin D3 Attenuates Matrix Metalloproteinase Expression By İnhibition Of İnflammatory Process İn Chondrosarcoma Cells

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Introduction: In the pathogenesis of osteoarthritis, the homeostasis between degradation and formation in articular cartilage is changing in favor of degradation (1). Synthesis and activation of matrix metalloproteinases (MMPs), and their natural inhibitors TIMPs are thought to be directly related to the inflammatory process in osteoarthritis. Vitamin D and its receptor (VDR) are known to play a role in some inflammatory responses due to the reduction of inflammatory response and they increase proinflammatory cytokines (2). In this study, we aimed to determine effects of vitamin D on TNF-a treated cells in terms of MMP production in human chondrosarcoma cell line (SW1353).

Materials and methods: Expressions of several MMPs (MMP 1, 2, 3, 9, 13), their inhibitors (TIMP-1 and 2), S100a12, VDR and toll-like receptors (TLR-1 and 2) were determined in the presence/absence of $1,25(OH)_2D_3$ (10^{-6}, 10^{-7} and 10^{-8} M) and/or TNF-α (20 ng/mL). Cell viability and cytotoxicity of the

SW1353 were performed by using WST-1 and LDH detection kits after 2 days of treatment. mRNA expression of all parameters was evaluated by real-time PCR and protein expressions of MMPs, TIMPs, S100a12 and VDR were determined by immunohistochemical staining. Protein production of MMP 3, 9, 13, TIMP-1 and 2, and VDR in the culture medium/cell lysate were performed by ELISA method.

Results: Our results showed that mRNA expressions of VDR, TIMP-1 and 2 in SW1353 were increased in a dose-dependent manner with vitamin D treatment in the presence/absence of TNF-α while expressions of MMP 2, 3 and TLR-1 and 2 were decreased. TNF-α treatment significantly increased the mRNA expression of MMP-1, 3 and 13 in cells ($p < 0.001$) and vitamin D treatment reversed these effects. Immunohistochemical analyses revealed that especially S100A12 and VDR were markedly expressed in SW1353 cells. The ELISA assays showed that the protein production of TIMP-1, 2 were induced by vitamin D in the presence/absence of TNF-α in cells. Vitamin D diminished cytotoxic effect of TNF-a on SW1353 cells and reversed the declined cell growth rate caused by TNF-a in a dose-dependent manner.

Conclusion : Our data suggest that Vitamin D plays a significant role in MMP production stimulated by TNF-a and this effect is more likely through TLRs. Secondly, due to the inductive effect of Vitamin D on TIMPs and VDR production and cell proliferation in inflammatory conditions it can be a good candidate to act as a chondroprotective agent in cartilage degredative processes such as osteoarthritis.

Keywords: 1,25-dihydroxyvitamin D3,chondrosarcoma, MMP

OP-27

Effect Of Ozone On Colon Anastomoses In A Rat Peritonitis Model

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Aim: To investigate the effects of medical ozone therapy on the colon anastomosis of peritonitis model in rats.

Materials And Methods: Eighteen rats were randomly assigned into three equal groups; control, cecal punctuation and colon anastomosis and ozone therapy. Sepsis was performed with a cecal punctuation in groups 2 and 3. The medical ozone therapy was administered intraperitoneally for three weeks in group 3 while the other rats received a saline injection. At the twenty-second day, serum was obtained for TNF-α and IL-1β, the colonic burst pressures were measured and colonic tissue samples were obtained for MDA and MPO levels.

The histopathological examination was evaluated with H&E stain, and Ki-67, IL-1β, and the VEGF immunostaining densities were also compared.

Results: Intraperitoneal ozone administration reversed TNF-α, IL-1β, MDA and MPO levels and the colonic burst pressures. There was also a significant difference at immunostaining densities of histopathological examination.

Conclusion: Medical ozone therapy may contribute to tissue healing by affecting the proliferation and the vascularization thus has benefits of colonic anastomosis at peritonitis in rats.

Keywords : Ozone therapy, Peritonitis, Colon anastomosis

OP-28

Translating Mass Spectrometry-Based Protein Assays And The Challenging Road Ahead: Post-Translationally Modified Proteins As Biomarker Targets For Clinical MS Protein Tests

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Protein mass spectromertry (MS) assays are forecasted to be the next-generation tests for precise and enabling measurement of clinical protein biomarkers. But in the 30 years since the MALDI and ESI MS invention, only a dozen protein MS tests have been translated into clinical laboratories. Analytical performance requirements have been in place for some time, along with small molecules MS clinical tests precedents, so it seems that key clinical and economic drivers have not been met for their adoption. Even when MS approaches result in new protein biomarkers discovery, enzymatic immunoassays oftentimes replace MS in clinical lab tests. One way to drive translation and adoption of MS protein tests is to target protein features that could only be detected with MS - such as post-translational modifications (PTMs) – thus generating both content and demand. Discussed in this presentation will be some viable PTM protein targets and the path forward for these clinical MS protein tests.

Keywords : protein biomarkers, clinical, mass spectrometry, translation

OP-29

SHFI: A Novel Noninvasive Predictive Model for Significant Fibrosis in Patients With Chronic Hepatitis B

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Aim: This study aimed at creating a new predictive model of significant fibrosis in chronic hepatitis B using direct and indirect parameters and comparing this model with other noninvasive models for its validation in clinical settings.

Materials and Methods: Patients (n = 81), according to the ISHAK score, were classified as mild and significant fibrosis. Serum matrix metalloproteinase-2, tissue inhibitor of metalloproteinase-2, beta-nerve growth factor levels, and indirect parameters were analyzed. To evaluate the presence of significant hepatic fibrosis, well-known conventional models were also evaluated. The cut-off values of each model were determined using receiver operating characteristic curves to distinguish patients with mild and significant fibrosis.

Results: Significant hepatic fibrosis index-1 was constructed using the following equation: (matrix metalloproteinase-2 × age × prothrombin time × direct bilirubin) / (albumin × platelet). The sensitivity and specificity for significant hepatic fibrosis index-1 were 73.3% and 95.6%, respectively. Area under the curve of significant hepatic fibrosis index-1 was 0.895 ($P < 0.001$), which was higher than the other models. Due to limitations of matrix metalloproteinase-2, significant hepatic fibrosis index-2 was

constructed using a formula without matrix metalloproteinase-2. However, there was no significant differences between significant hepatic fibrosis index-1 and significant hepatic fibrosis index-2 or other models, except for 3 models.

Conclusions: Significant hepatic fibrosis index-1 employs a new marker; matrix metalloproteinase-2 along with routine parameters had the best diagnostic performance for significant fibrosis in patients with chronic hepatitis B. Using significant hepatic fibrosis index-1 or even significant hepatic fibrosis index-2 might be an alternative approach in place of liver biopsy to predict significant fibrosis in chronic hepatitis B cohort.

Keywords : Chronic Hepatitis B, Liver Fibrosis, Serum Marker

OP-30

Simultaneous Determination of Fat Soluble Vitamins by Liquid Chromatography Tandem Mass Spectrometry

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Aim: Fat-soluble vitamins, A, D and E, are required for their variety of functions on the anabolic and catabolic pathways. Additionally, antagonist or synergistic interactions have been shown between these vitamins, especially on their respective intestinal absorption (for vitamins A and E) and biological effects (for vitamins A and D). In this study, we aimed to develop and optimize a simple, fast, sensitive and simultaneous liquid chromatography tandem mass spectrometry (LC-MS/MS) method for quantification of 25-hydroxyvitamin-D_2 (25-OHD_2), 25-hydroxyvitamin-D_3, Vitamin A (retinol) and E (α-tocopherol).

Materials and Methods: To 100 µL sample, we added 20 µL of methanol containing 250 ng/mL d_6-25(OH)D_3 (internal standard) and vortex mixed (30secs). Just after, 100 µL $ZnSO_4$ (0,2 M) and 300 µL methanol were added and mixed for 30secs. After mixing, solution was centrifuged for 3 minutes at 12,000 rpm. Upper phase was separated and 50 µL was injected for analysis. Chromatographic separation was performed using a C18 column (50 x 2.0 mm x 1.7 µm) at 35°C with a binary mobile phase (A: 0.1% Formic acid in 95/5 in water-methanol (95/5, v/v); B: 0.1% Formic acid in methanol at flow rate 0.3 mL/min.

Results: Retention time for Vitamin 25(OH)D_3, 25(OH)D_2, retinol and α-tocopherol were 5.09, 5.19, 5.04 and 7.07 while linearity ranges were 6-92 ng/mL, 0.25-80.5 ng/mL, 0.3-2.2 mg/L and 0.08-16 mg/L, respectively. The precision of overall method ranged from as intra-day 2.85-10.92% and inter-day 3.15-12.01%. Limit of detection and limit of quantitation values were 0.8 ng/mL, 0.9 ng/mL, 0.05 mg/L and 0.02 mg/L and 2.40 ng/mL, 2.97 ng/mL, 0.165 mg/L and 0.066 mg/L for 25(OH)D_3, 25(OH)D_2, retinol and α-tocopherol, respectively.

Conclusion: We highly recommend the use of this sensitive, simple and reliable LC-MS/MS method for the monitoring fat soluble vitamins simultaneously in clinical laboratories.

Key words: Fat Soluble Vitamins, Liquid Chromatography tandem Mass Spectrometry, Method Development

OP-31

Serum Secreted Phospholipase A2 Levels In Cardiac Damage Determined Scintigraphically

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Aim: We aimed to investigate the relationship between serum secreted phospholipase A_2 ($sPLA_2s$) levels, other laboratory and demographic data, and the degree of cardiac damage scored scintigraphically.

Materials and Methods: Total 314 individuals (< 75 years) who had been requested Tc 99^m MIBI-myocardial perfusion scintigraphy with 2-day protocol, included this study. Blood pressure values and anthropometric measurements were recorded and fasting blood samples were taken before the scintigraphy process. Patients were divided into 4 subgroups according to the cardiac damage scored with scintigraphy; group 1: controls (N=156); group 2 patients with ischemia (N=91), group 3: with ischemia and scar (N=43), group 4 with only scar (N=24). Serum $sPLA_2s$ levels were measured by flourometric method (EnzChek Phospholipase A2 Assay Kit, Invitrogen, USA).

Results: There was no difference in age, sex, body mass index, and waist circumference values between the groups. Patients with cardiac damage at any level (group 2+3+4: N=158) had significantly higher $sPLA_2s$ than 156 controls (p=0.014); serum $sPLA_2s$ levels were higher (borderline) than the controls in (p=0.064) through post-hoc comparisons with Tamhane's T2 test. And there was a positive weak-moderate correlation between $sPLA_2s$ and gamma-glutamyl transpherase (GGT) in group 2 ($r_s = 0.301$; $p = 0.004$).

Conclusion: The correlation between $sPLA_2s$ enzyme activity, as an inflammatory marker, and GGT levels indicates a potential mechanism in the development of the cardiac ischemia; it may be linked with fatty liver and atherosclerosis. This finding supports other studies showing increased GGT levels could act as an independent risk factor in the process of coronary artery disease development.

Keywords : phospholipase A2, myocardial perfusion scintigraphy, coronary artery disease

OP-32

MicroRNAs As Biomarkers Associated With Overactive Bladder

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Aim: It has been demonstrated that there are abundant stable microRNAs (miRNAs) in plasma, which can be detected and are potentially disease-specific. The function of β3 adrenergic and muscarinic receptors are important in the pathogenesis of overactive bladder (OAB) syndrome. Alterations in the levels of miRNAs thought to influence the regulation of function of these receptors at the molecular level and may be useful in the evaluation of clinical findings. The aim of this study was to investigate whether plasma miRNAs can be used as biomarkers for the detection of OAB.

Materials and methods: The expression of let-7b-5p, miR-92a-3p, miR-98-5p, miR-142-3p, miR-200c-3p and miR-139-5p which target β3 adrenergic and muscarinic receptor genes were examined in plasma by comparing 59 patients with 56 healthy volunteers by quantitative reverse-transcription PCR. Expression levels of plasma miRNAs were compared using the Mann-Whitney U test. Receiver-operating characteristics (ROC) curves were established to evaluate the diagnostic value of plasma miRNAs to distinguish between patients and controls.

Results: Compared with the healty group, six miRNA expression levels were found different in the OAB patients. Although there was no correlation between the levels of miRNA expression with OAB symptom score, the expression of let-7b-5p, miR-92a-3p, miR-98-5p, miR-142-3p and miR-200c-3p was significantly higher in OAB patients compared to controls. The plasma level of miR-139-5p was significantly lower in OAB patients compared to controls. The miRNA panel was able to differentiate between OAB patients and controls. MiR-98-5p was up regulated ($P < 0.05$) in the blood of OAB patients, yielded an area under the ROC curve of 0.79 (94,3% sensitivity, 62,3% specificity) when distinguishing OAB patients from the controls.

Conclusion: The results of this study suggest that let-7b-5p, miR-92a-3p, miR-98-5p, miR-142-3p, miR-200c-3p are significantly upregulated and miR-139-5p is significantly downregulated in the plasma of OAB patients and they may serve as non-invasive molecular markers for OAB screening. A better understanding of the roles of miRNAs will shed light on the molecular mechanisms of OAB.

Keywords : Overactive bladder, Biomarkers, MicroRNA, Diagnostic

OP-33

Hematological changes in patients with diabetes type 2 treated with metformin

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Background: Type 2 Diabetes Mellitus is a worldwide disease that has high prevalence in our country.Metformin is the first line therapy and the most prescript drug to lower blood glucose.The most known side effect of long term metfromin therapy is malabsorbation of vitamine B12.We consider to evaluate the hematological changes that occur in diabetic patients taking for a long time(more than 3 year) metformin treatment.

Methods: We enrolled in the study 142 patients with type 2 diabetes,taking metfromin as part of their diabetes treatment,hospitalized at the Service of Endocrinology,and 252 patients without diabetes,or any other confounding disease,in different service of Internal Medicine.The data were collected from September 2016 to July 2017 from patients,medical records,and laboratory service.

Results: In the final analysis- for the Metformin group, there were 93(65.5%) female and 49(34.5%) male with a mean age 60±9.5 and for control group there were 113(41.1%) female and 162(58.9%) male with a mean age 63.2±13.8.Mean duration of Diabetes was 10.5±6.7 years, and mean time taking metformin was 9.3±6 years. Average Metformin dose was 1996, 4 mg/day. Hematological parameters comparison

between two groups show a significant difference in: MCVμm³87.3±8.2 vs. 85.8±7.2,(p0.03), RDW% 13.7±1.4 vs.15±1.9, (p<0.01),LYM%32.9±8.3 vs.27.7±9.2, (p<0.01),GRA% 60.8±10.1 vs. 66.7±10.2, (p<0.01),PLTx10^3 mm³247.1±74.1 vs.215.3±70.0, (p<0.01), PCT% 0.2±0.07 vs.0.1±0.05, (p<0.01).

Conclusions: This study has demonstrated several changes in hematological parameters in patients treated with Metformin for a long period of time, but these results need further evaluation with more completed and significant laboratory assay.

Keywords : Diabetes Mellitus type 2,Metformin,Hematological change