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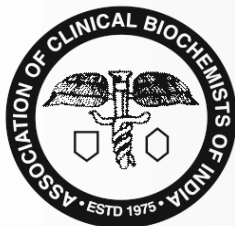
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P-167

Comparison of Three Different Methods of Genomic DNA Extraction and the Effect of Storage Temperature on Its Yield

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Good quality of extracted DNA is the primary step for any research in the field of molecular biology. Its extraction techniques have been improvised over the years in terms of quality and time. In present study, three different methods of DNA extraction were compared, namely DNAzol, TRI reagent and Spin column. DNA extraction was done by all three methods, in each of 10 whole blood samples taken for the study. The extracted DNA was then divided into three aliquots and stored at different temperatures (4°C, -20°C, -80°C). To study the effect of storage temperature, extracted DNA was subsequently measured on day 5, 10, 15 and compared with baseline. DNA quantification (yield) and quality check (Absorbance ratio at 260/280) was done using Nanodrop OneC. At baseline, the average yield (Mean±SD in ug/ml of whole blood) of DNA extracted by DNAzol, TRI and Spin column methods were 10.07±3.62, 30.26±6.04 and 29.42±10.72 respectively. The means of the absorbance ratio obtained for above methods were 1.99±0.06, 1.37±0.06 and 1.84±0.06 respectively. Measurement of values over succeeding days, at different temperatures, depicted no significant changes at 4°C and -80°C. A gradual increase in yield at -20°C was observed for DNAzol and TRI methods but did not show any significant variation in Spin column. This can be attributed to better solubilization of aggregates over time, that were formed in DNAzol and TRI but obviated from Spin column. To conclude, Spin column is the best method yielding high concentration of DNA per unit of whole blood with good absorbance ratio (slightly less only to DNAzol) and least variation with temperature. DNAzol method had the best absorbance ratio but the yield was significantly lower ($p < 0.05$) and TRI reagent was least precise with unacceptable absorbance ratios despite giving high yields that were comparable with Spin column method.

P-168

Pre-analytical Variables in Laboratory Testing

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The aim and objective of the present study was to enumerate and evaluate different types of pre-analytical errors in the clinical biochemistry laboratory and to compare the frequency of

errors in the pre-analytical phase of testing before and after training the technical staff posted in the clinical biochemistry laboratory. This study was done at Government General Hospital a tertiary care teaching hospital in Kurnool, Andhra Pradesh, for a period of three months from MARCH 2019 to MAY 2019. During this period different types of pre-analytical errors were monitored. Of the 26732 Samples received during the study period 580 Samples were found to be unsuitable for testing, accounting for 2.16% of rejection. All these samples were rejected due to different types of pre-analytical errors that are due to wrong timing of sample collection (0.72%), inadequate sample (0.69%), wrong vacutainer (0.21%), missing sample (0.17%), sample drawn from IV Site (0.15%), hemolysed sample (0.15%), wrong identification (0.08%). Of all samples received in clinical biochemistry laboratory the overall percentage of rejection is 2.16%. We also found that there was reduction in the frequency of errors before and after training the staff.

P-169

Awareness about Fasting-Related-Preanalytic-Factors for Glucose and Lipid Profile Testing Among Patients Visiting a Government-College-Hospital Versus Educated Community from Pali Rajasthan

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Fasting for 8-14 hours are required for fasting-blood-glucose (FBG) as well as lipid profile as per various guidelines of various countries. Preanalytic factors related to fasting become extremely important factors affecting the test result significantly. We compared the level of awareness with local educated community, two surveys were undertaken. A face-to-face survey was done on outpatients. Educated community from same region (at least 10th pass, ~68% pursuing Bachelor or higher degrees) was surveyed through SurveyMonkey. Exclusion criteria were fully trained health professionals e.g. doctor, technician, and nurse. Information collected included demographics; perception of hours-of-fasting required; whether water-intake, beverage, snacks, Religious food-Prasad/Sehri, smoking, drinking, medication, exercise are allowed, availability-source-nature of instructions, hours fasted, and compliance. 45 patients and 156 educated controls responded to the study. Patient fasting duration varied from 1 hour to 16 hours. Even among people with educated background surveyed, only 25% could guess the correct range for fasting duration. 60% of patients perceived that nobody explained to them anything about nature of fasting. 35% of educated survey respondents felt that they never received information from any source. Among patients: Of those instructed, 83% were aware and 72% were compliant about light snacks Regarding compliance about

tea/coffee was 67% for instructed vs 30% for the uninstructed. Even 33% of instructed thought religious food could be taken in morning, and 11% actually took them whereas 55% of the uninstructed group thought it was allowable and 19% took them. Even among educated 30% thought tea/coffee are allowed and 10% thought snacks are allowed and 3% thought religious food was allowed. Doctors were overburdened with patients and yet they were usual source and communication was not in print. It could be improved by introducing distribution of printed leaflets, posters and also training the nurses, phlebotomists and social workers.

P-170

Big Data Analysis Reveals the Existence of Seasonal Pseudohyperkalaemia Even in Temperate Climates

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Seasonal pseudohyperkalaemia has been described in colder northern hemisphere countries. The lower temperatures may inhibit red cell Na-K-ATPase allowing the efflux of potassium and higher measured levels. It has not been described in warmer subtropical climates. The aim was to determine if seasonal variation in serum potassium occurred in a temperate climate. We conducted a retrospective review of serum potassium results over two years in two South African provinces with different microclimates and seasonal temperatures. The study included patient samples from surrounding clinics and hospitals in Pretoria, Gauteng province, and in Durban, KwaZulu-Natal province, South Africa. Average temperature ranges were obtained from the South African weather service from the same period (June 2015-June 2017). A total of 91 420 results were analysed and we found a statistically significant difference between the January (summer) and June (winter) serum potassium levels ($p < 0.0001$). These results demonstrate that the winter months in South Africa are associated with significantly higher measured potassium results. Seasonal pseudohyperkalaemia may be more widespread than realized and can occur in more temperate climates and laboratories should take the appropriate action when transporting samples as this could influence interpretation and clinical management.

P-171

Evaluation of Sigma Metrics of Clinical Chemistry Assays: Importance of the Allowable Total Error (TEa) Target

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Analytical quality is a prerequisite for the clinical laboratory, but it can be difficult to assess it. Sigma metrics is an objective way to measure and quantify quality. It combines total allowable error (TEa), bias and precision. TEa for an analyte is obtained from literature and can vary based on the source of data used such as Biological Variation data or Clinical Laboratory Improvement Amendments (CLIA) guidelines. Hence, we conducted this study to highlight the importance of TEa goals. The objective of our study was to calculate and compare sigma metrics of 16 clinical chemistry assays using TEa data from various sources. Precision is expressed as coefficient of variation (%CV) and Bias was calculated from target mean provided by the manufacturer and lab mean. Sources of TEa used are Biological Variability (Desirable, Optimal & Minimum) and CLIA (Old Guidelines & New proposed guidelines 2019). Sigma metric was calculated by formula "Sigma metric = (TEa - Bias) / Precision". Triglyceride both the levels showed sigma > 6, with TEa biological variability desirable and old CLIA guidelines while Amylase showed sigma > 3 with Biological variability minimum and old CLIA guidelines whereas, it showed sigma < 2 with the Biological variability optimal & New CLIA guidelines. Sigma metrics as a quality assurance tool should be periodically used to monitor changes in assay quality. Laboratories need to improve their performance to reach the desired quality goals. Inconsistent TEa targets from different independent sources can create a dilemma and should be chosen based on assay performance. We found Biological Variability TEa values to be too demanding for routine performance whereas; old CLIA can be considered lenient.

P-172

Serum Separation: An Interesting Challenge

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Routine estimation of biochemical parameters of a blood sample in a tertiary-level cancer hospital is generally one of the most common and easy investigations to be performed. However, at times a simple procedure like this may become challenging due to various

P-284

The Effect of ANTI-MIRNA 144 on the Expression of a Globin Chain in PBMC (Peripheral Blood Mononuclear Cell) of Major β thalassemia Patients

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The main pathophysiology basis of β -thalassemia is excess unbound α -globin chain due to reduction α -globin expression. Reduction of α -globin chain can lead clinical improvement. Reduction of α -globin chain is an alternative therapy in β major thalassemia patients. microRNA (miRNA) can regulate α -globin chain through targeting transcription factor. Klf1 and GATA-1 erythroid transcription factor regulated by miRNA-144. This study was an experimental study using PBMC of major β thalassemia patient. PBMC divided into two groups that were not transfected and transfected anti-miRNA 144. The expression of miRNA-144 were detected using Exiqon's miRCURY LNATM universal RT microRNA PCR. The expression of α -globin chain protein were detected using immunoblotting technique. There are differences in the expression of miRNA-144 who have carried out anti-miRNA 144 transfections with those that have not been conducted transfections in PBMC major β thalassemia patients. There are no differences in the expression of α globin chain who have carried out anti-miRNA 144 transfections with those that have not been conducted transfections in PBMC major β thalassemia patients. Based on this study, the administration of anti-miRNA 144 cannot decrease the expression α globin chain expression in PBMC major β thalassemia patients.

P-285

Polymorphism of Vitamin D Receptor Gene Variants in East Indian Women with Polycystic Ovary Syndrome

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Polycystic ovarian syndrome (PCOS), the most common gynecological endocrinopathy. It affects 4-12% of women of reproductive age worldwide. Women with PCOS frequently suffer from metabolic disturbances including insulin resistance (IR), diabetes, obesity, hypertension and dyslipidemia. Evidences

suggests that vitamin D deficiency might be a causal factor in the pathogenesis of IR and metabolic syndrome in PCOS women. The aim of this study was to investigate the association of VDR variants (Cdx2 and DHCR7) genes with metabolic and endocrine parameters including 25(OH)D levels in PCOS women. Moreover we examined whether there are associations with PCOS susceptibility. Metabolic, endocrine and anthropometric measurements were performed in 100 PCOS patients and 100 control women. Genotyping of vitamin D receptor (VDR variant) Cdx2 and DHCR7 gene was performed between the groups. Mean serum hydroxy vitamin D [25(OH)D] were significantly lower in PCOS patients compared to controls. In PCOS women, the VDR Cdx2 "AA" genotype was associated with lower fasting insulin and HOMA-IR. Also the DHCR7 "GG" genotype had a significantly higher risk for 25(OH)D levels <20ng/ml when compared to other genotypes. Data from this study indicate that vitamin D deficiency is more frequent in PCOS patients than in controls. The present findings also suggest VDR gene (Cdx2) and vitamin D level related variant (DHCR7) are associated with metabolic and endocrine parameters including 25(OH)D levels in PCOS women. Thus, vitamin D supplementation have a favorable effect on glucose metabolism as well as overall morbidity in PCOS women.

P-286

Association of MTHFR Gene C677T Polymorphism and Breast Cancer Risk in Population of Bihar

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Cancer is a multifactorial disease that starts when cell grows out of control or cell performs uncontrolled division and crowd out normal cell (American cancer society). Breast cancer (BC) is the leading cause of death among women worldwide and it is a major public health problem. Disturbance in folate metabolism may be involved in predisposition to BC and a specific gene is responsible in folate metabolism. Methylene tetra hydro folate reductase gene (MTHFR) is an important enzyme that is involved in folate metabolism. There are two polymorphism associated with this gene (C677T and A1298C) (4). The functional polymorphism C677T may lead to decreased enzyme activity and affect chemo sensitivity of tumor cell. The aim of the study is to elucidate the association of MTHFR C677T polymorphism and breast cancer risk. MTHFR C677T polymorphism in breast cancer patients (N=60) and control group (N=50) (without any type of cancer) was investigated. Inclusion criteria were diagnosed breast cancer patient (operative & inoperative cases). Exclusion criteria were control