Abstracts

Adolescent Obesity: A Case Report

[1]AK Roopa, [2]V Ananthan, [3]K Ramadevi

[1-3]Institute of Biochemistry, Madras Medical College, Chennai, Tamil Nadu, India

INTRODUCTION

The last two decades have witnessed an increase in obesity and related issues among children and adolescents. Obesity is a global phenomenon affecting all socioeconomic groups, irrespective of age, sex, or ethnicity. Etiopathogenesis of obesity is multifactorial and includes genetic, endocrine, metabolic, psychological, environmental, and sociocultural factors. The common endocrinological conditions associated with adolescent obesity are thyroid disorders and Cushing's syndrome. Diagnosis of these conditions are based on clinical history and testing the hormone levels.

CASE REPORT

An 18-year-old female presented with c/o excessive weight gain for past 4 months, recurrent respiratory tract infections, and episodic wheezing, which got relieved on administration of parenteral drugs in the hospital.
H/O irregular menses +
O/E patient was well built, moon face+, acanthosis nigricans+
Vitals stable

Biochemical Investigations

Impaired glucose tolerance was noted.
Lipid profile – High-density lipoprotein was decreased.
Thyroid function test was normal
24-hour urinary-free cortisol was normal
Plasma adrenocorticotropic hormone was normal

DISCUSSION

Based on the clinical history and laboratory findings, patient was provisionally diagnosed as exogenous Cushing's syndrome due to the repeated administration of exogenous steroids for asthmatic attacks, which contributes to 99% of Cushing's syndrome cases. Exogenous steroids will inhibit the hypothalamo-pituitary-adrenal axis causing adrenal atrophy, thereby causing reduced secretion of cortisol. Other tests that can be done to screen Cushing's syndrome are low-dose dexamethasone suppression test and late night serum or salivary cortisol.

CONCLUSION

Treatment is gradual withdrawal of steroids in order to prevent adrenal crisis. Judicial use of steroids in practice is recommended.

Serum 25-Hydroxy Vitamin D Levels in newly Diagnosed Cases of Essential Hypertension

[1]Erfana A Hazarika, [2]Kailash Bhattacharyya

[1,2]Assam Medical College and Hospital, Dibrugarh, Assam, India

INTRODUCTION

Vitamin D is mainly derived from endogenous ultraviolet-B-induced vitamin D synthesis in the skin, and the current high prevalence of vitamin D deficiency can, therefore, largely be attributed to lifestyle-related low sunlight exposure. Identification of vitamin D receptors in almost all human cells suggests a role of vitamin D in extraskeletal diseases including cardiovascular diseases. There are many potential mechanisms for vitamin D deficiency to produce hypertension. Antihypertensive effects of vitamin D can be mediated via the renin-angiotensin-aldosterone system or endothelial or vascular smooth muscle function. Taking these into account, this study was undertaken at Assam Medical College and Hospital, Dibrugarh, India, from July 2015 to June 2016 with the aim to determine the status of vitamin D in serum of newly diagnosed cases of essential hypertension.

AIMS AND OBJECTIVES

To estimate serum 25-hydroxy vitamin D levels in newly diagnosed cases of essential hypertension.

MATERIALS AND METHODS

The study group included 40 newly diagnosed cases of essential hypertension aged between 25 and 65 years. About 40 age- and sex-matched, healthy normotensive subjects were chosen as controls. The cases were chosen and grouped based on Joint National Committee VIII criteria. Total 25-hydroxy vitamin D was estimated by radioimmunoassay.

RESULTS

Mean (± standard deviation) serum 25 (OH) D levels were significantly ($p < 0.001$) decreased in cases (13.31 ± 3.90) as compared with controls (32.06 ± 9.68).

CONCLUSION

Vitamin D in patients was lower compared with normal healthy volunteers, and thus, underlines its significance in probable causation of essential hypertension. It may also be a pointer to the future management protocol of essential hypertension.

Lupus: A View from the Renal Angle

R Kowsalya

Institute of Nephro Urology, Victoria Hospital Campus, Bengaluru, Karnataka, India

INTRODUCTION

Systemic lupus erythematosus (SLE) can affect virtually any tissue or organ. This clinical heterogeneity of SLE poses a great demand for biomarkers that can differentiate, determine, monitor, stratify, and/or predict organ-specific involvement in patients with SLE. Lupus nephritis (LN) is one of the most common manifestations of SLE. Although therapy has improved over the years, nephritis is still one of the most threatening complications implying the hazard of terminal renal failure and increased mortality.

MATERIALS AND METHODS

The aims of this study were to study clinical, laboratory, and therapeutics of LN in order to improve its management. The study included 50 patients presenting with LN at the nephrology department at our super specialty postgraduate teaching institute.

RESULTS

The higher prevalence of LN was in females. The median age was 32 years. The main mode of renal presentation was nephritic syndrome. The clinical spectrum can range from benign subproliferative lesion to diffuse proliferative nephritis presenting with full blown progressive renal failure. The clinical course and outcome are highly variable. The key treatment was corticotherapy followed by immunosuppressive drugs. The short-term evolution was favorable, but in the medium term, many patients were lost or followed up irregularly.

CONCLUSION

Current care of patients with LN may further be improved by establishing new biomarkers for diagnosis and treatment monitoring, facilitating early diagnosis, and helping avoid over- and under-treatment. This potentially daunting task will require collaborative efforts and novel approaches moving forward.

Study of Association of Serum Lipids with Diabetic Retinopathy in Type II Diabetes

Pragati Khanorkar

Department of Biochemistry, Index Medical College & Research Center, Indore, Madhya Pradesh, India

INTRODUCTION

Diabetic retinopathy is a major cause of blindness worldwide. Large numbers of clinical studies have shown variable results regarding association of serum lipid levels as a risk factor for diabetic retinopathy.

AIMS AND OBJECTIVES

The present study was conducted to find out the role of serum lipids in the development of diabetic retinopathy in type II diabetes mellitus.

MATERIALS AND METHODS

The study included 120 subjects aged 40 to 70 years attending outpatient department at Index Medical College, Hospital and Research Center. Subjects were divided into three groups. Group I included 40 healthy nondiabetic subjects who served as control. Group II included 40 diabetic subjects with no signs of diabetic retinopathy and group III included 40 diabetics with diabetic retinopathy. Fundoscopy under homatropine was done in all the subjects. Triglyceride, total cholesterol, high-density lipoprotein, low-density lipoprotein, and very low-density lipoprotein measurements were done by ERBA EM-360 analyzer; results were recorded for all patients.

RESULTS

The present study showed that the increase in the duration of diabetes was associated with increase in incidence of diabetic retinopathy ($p < 0.0001$). Fasting blood sugar and hemoglobin (Hb)A1c were significantly raised ($p < 0.05$) in those with diabetic retinopathy as compared with those without diabetic retinopathy. Raised triglyceride levels were seen in patients with diabetic retinopathy ($p < 0.05$) as compared with those without diabetic retinopathy.

CONCLUSION

The present study suggests significant correlation between the mean blood glucose, HbA1c, and the duration of diabetes with incidence of diabetic retinopathy. The raised triglyceride level is positively associated with the incidence of diabetic retinopathy.

A Retrospective Analysis of Lipid Profile of the Patients attending Jawaharlal Nehru Institute of Medical Sciences and Its Cardiovascular Disease Implication

[1]Ch Rebika, [2]Th Ratanmani Singh, [3]RK Vidyabati Devi, [4]T Rajan Singh

[1-4]Department of Biochemistry, Jawaharlal Nehru Institute of Medical Sciences, Imphal, Manipur, India

INTRODUCTION

At this age of evidence-based medicine, how far we should rely on the criteria set by the National and International body depends upon its application in local settings. Should we need to establish an area-specific criteria based on local prevalence of cardiovascular diseases? Lipid profile has been used as a simple and reliable tool employed by experts for many years.

MATERIALS AND METHODS

We have analyzed the data of the past 6 months (January–June 2016) to see the prevalence of abnormal lipid profile in patients attending Jawaharlal Nehru Institute of Medical Sciences, Imphal, Manipur, India. A total of 333 subjects above the age of 18 years were submitted to lipid profile analysis, including serum levels of total cholesterol, fraction of cholesterol of low (LDLC), high (HDLC), and very low density (VLDLC) lipoproteins and triglycerides. Statistical analysis were done using Statistical Package for the Social Sciences (SPSS) version 20. The study was considered significant if $p < 0.05$.

RESULTS

Of the total 333 subjects, 33% (110) had LDLC in optimal level (<100 mg/dL), 31.4% (104) near/above optimal (100–129 mg/dL), 19.5% (65) borderline high (130–159 mg/dL), 11.1% (37) high (160–189 mg/dL), and 5.1% (17) very high LDLC level (>190 mg/dL). Univariate analysis of variance (ANOVA) shows significance between subjects effects of HDLC and LDLC (df = 1, f = 56.2, p = 0.000).

CONCLUSION

Current practice of interpretation of lipid profile will be more meaningful if we could implicate local factor in prediction of cardiovascular disease.

Effect of Shift Duties on Good Clinical Laboratory Practices: A Review

[1]Sudarshan Shelke, [2]Ajit Sontakke, [3]Pramod Ingale

[1,2]Department of Biochemistry, Krishna Institute of Medical Sciences, Karad, Maharashtra, India
[3]Lokmanya Tilak Municipal General Hospital and Lokmanya Tilak Municipal Medical College, Sion, Mumbai, Maharashtra, India

INTRODUCTION

The goal of clinical laboratory is to provide accurate laboratory results within time. Many laboratories work for 24 hours, due to which employees have to do their work in shift duties. This rotation has many negative aspects. We can use human factors engineering techniques to reduce these problems.

DISCUSSION

Due to shift duties, employees are subjected to increased stress, increased sick leaves, technical errors, accidents, and health problems. Melatonin and circadian rhythm play important roles.

There are significant increases in heart diseases. Women who worked night shifts for 30 years or more had a 36% higher risk of breast cancer. Some people have memory problems. Others become negative, hostile, or depressed. Many shift workers suffer from problems relating to social or familial relationships.

Through the use of human factors engineering techniques, many of the negative aspects of shift work can be reduced or eliminated. The recommendations included intervention, training for supervisors, facility improvements, schedule recommendations, and training for shift workers. It is a full-scale approach that has potential to reap many benefits in improving health, safety, and morale of shift workers.

The first process should be comprehensive assessment of the current practices and staffing issues. Based on information, the manager should compile an action plan to improve weak areas. After interventions, reassessment can be done to verify implementation.

CONCLUSION

The clinical laboratory has a critical mission to serve the patients and their families by providing timely and accurate laboratory testing. A mistake in the laboratory made by a tired shift worker can be life-threatening to a patient. It is the responsibility of every organization to ensure the shifts required are managed in the most effective way, possibly to optimize the quality of work and the health and safety of the workers.

A Study on Hemoglobin A1c Level and Serum Pancreatic Lipase in Type 2 Diabetic Mellitus

[1]Sujeeta Oinam, [2]Romola Thiyam, [3]Th Opendro Singh, [4]Gyaneshwar W Singh

[1-4]Department of Biochemistry, Jawaharlal Nehru Institute of Medical Sciences, Imphal, Manipur, India

INTRODUCTION

Type 2 diabetes mellitus (T2DM) is a heterogeneous disorder caused by a combination of genetic and environmental factors, which adversely affect β-cell function and tissue insulin sensitivity. A cross-sectional study was carried out to find out any relation between serum pancreatic amylase level and hemoglobin (Hb)A1c in a small group of T2DM subjects.

MATERIALS AND METHODS

A group of 35 subjects were compared in which 15 were T2DM and 20 normal control subjects without diabetes in order to ascertain any possible relation between pancreatic lipase and HbA1c.

RESULTS

Of the 15 T2DM subjects, 12 were female and 3 were male. The overall mean age of the female subject was 45.6 (±7.6) and that of male subjects was 49.2 (±8.8) including control subjects. Mean HbA1c was 8.7% (±3.5) for the diabetic subject and 5.1% (±1.5) for the control subjects. Lipase was 85.1 U/L (±46.27) in diabetic subjects and 39.1 U/L (±77.37) in the control groups. Nonparametric test using Mann–Whitney test for the independent sample for HbA1c were significant [t = 4.18, df = 33, sig. (2-tailed) = 0.000], but not significant for lipase [t = 2.04, df = 33 and sig (2-tailed) = 0.049]. Related sample tests using Wilcoxon signed rank test were highly significant (p < 0.000).

CONCLUSION

Our observations show a significant correlation between pancreatic lipase activity and HbA1c concentration between case and controls. However, no significance gender difference was noted. The study needs a further evaluation in larger subjects.

When does Serum Ceruloplasmin Peak in Acute Myocardial Infarction?

[1]Sweta Das, [2]Anita Bijoor

[1,2]St. John's Medical College, Bengaluru, Karnataka, India

INTRODUCTION

Ceruloplasmin (Cp) is an acute-phase protein. It is an important intravascular antioxidant and free radical scavenger, and it protects tunica intima against free radical injury. Its level is known to rise immediately after cellular damage [as in acute myocardial

infarction (AMI)]. Many recent studies show a strong relationship of circulating Cp levels and myocardial damage in patients with AMI. Hence, a study was done to assess the rise in level of Cp in patients diagnosed with AMI.

AIMS AND OBJECTIVES

To estimate the level of serum Cp in patients with AMI.

MATERIALS AND METHODS

A total of 5 subjects were included. Patients diagnosed with AMI admitted to the coronary care unit, St John's Medical College, Bengaluru, Karnataka, India were included. About 2 mL of blood was collected for 5 consecutive days under aseptic precautions. This was allowed to clot. The serum was separated and analyzed for serum Cp by method of Ravin.

RESULTS

The level of serum Cp was observed to peak on day 4 in AMI patients.

CONCLUSION

Serum Cp was found to increase gradually over a period of 4 to 5 days in patients diagnosed with AMI. The levels of serum Cp was found to be maximum on day 4. The levels of Cp on day 5 were found to be similar those of day 4.

Study of Serum Vitamin D Levels, Marker of Inflammation and Surrogate Marker of Endothelial Dysfunction in Hypertensive Patients

[1]Duryodhan Sahoo, [2]Roma Rattan, [3]Srikrushna Mahapatra

[1-3]Srirama Chandra Bhanja Medical College & Hospital, Cuttack, Odisha, India

INTRODUCTION

An association between hypertension and inflammation has been implicated, but it is presently unclear whether inflammation is predominantly the cause or effect of hypertension.

The C-reactive protein (CRP) can stimulate monocytes to release proinflammatory cytokines, such as interleukin (IL)-6, IL-1β, and tumor necrosis factor (TNF)-α inducing endothelial cells to express intracellular adhesive molecules-1 and vascular cell adhesion molecules-1, which promote inflammation.

Nitric oxide causes smooth muscle relaxation and vasodilation. Calcitriol inhibits cytokine-mediated cell activation as well as adhesion molecule expression that involves TNF-α. Induction of adhesive molecule is crucial for the progression of endothelial damage and atherosclerosis.

Calcitriol also acts as an endogenous inhibitor of the renin–angiotensin system, which links a role of vitamin D3 in hypertension.

AIMS AND OBJECTIVES

This study aims at evaluating the association of vitamin D3, inflammation, and endothelial dysfunction in hypertensive patients.

MATERIALS AND METHODS

- This is a case–control study consisting of 60 cases with equal number of age- and sex-matched controls.
- Tests done (in Toshiba TBA120FR autoanalyzer) using standard kits from Agappe diagnostic
  - Fastingserum lipid profile, high-sensitivity CRP (hs-CRP), by Toshiba TBA 120FR autoanalyzer.
  - Serum nitric oxide by Griess method.
  - Serum vitamin D done by using enzyme-linked immunosorbent assay.

RESULTS

We observed there is an inverse relationship between hs-CRP and nitric oxide, vitamin D3 and hs-CRP, but a positive correlation between reduction of vitamin D3 and reduction of nitric oxide.

CONCLUSION

Vitamin D deficiency could be a modifiable risk factor for young hypertensive patients. We suggest larger clinical trials to determine whether vitamin D supplementation prevents the development of hypertension.

Maple Syrup Urine Disease: A Case Report

[1]GC Siva Sankari, [2]K Menaka Shanthi, [3]K Pramila, [4]K Ramadevi

[1-4]Institute of Child Health and Hospital for Children, Madras Medical College, Chennai, Tamil Nadu, India

INTRODUCTION

Maple syrup urine disease is a rare autosomal recessive disorder with an incidence of 1 in 185,000 infants. It is a type of organic acidemia named after the presence of sweet smelling urine, an odor similar to that of maple syrup. It occurs when there is a partial or complete deficiency of branched chain alpha ketoacid dehydrogenase that oxidatively decarboxylates branched chain amino acids like leucine, isoleucine, and valine, which accumulates in the blood leading to encephalopathy and progressive neuronal degeneration. Thiamine pyrophosphate acts as a cofactor. Morbidity can be reduced by early diagnosis, trial of thiamine therapy, and frequent amino acid monitoring.

CASE REPORT

A 2-year-old first-born female child, born of second-degree consanguineous marriage, was admitted in the neurology ward with global developmental delay and history of seizures.

Birth History

Full-term normal delivery.
Baby did not cry immediately after birth. Birth asphyxia present.
History of neonatal seizures at 2nd week of birth.
On examination, microcephaly was present.

Biochemical Investigations

Serum lactate levels were elevated.
Serum uric acid level elevated.
Leucine and alanine ratio increased.
Urine metabolic screening – 2,4-Dinitrophenylhydrazine test was positive.
Tandem mass spectrometry showed elevated levels of branched chain amino acids, such as valine, leucine, and isoleucine.
The magnetic resonance imaging of the brain showed diffuse global hypomyelination with widened sylvian fissure.
The electroencephalogram was of normal study.

DISCUSSION

Biochemical investigations confirmed that it is a case of maple syrup urine disease. The neurotoxicity is due to increased level of leucine, which interferes with the transport of neutral amino acids that crosses the blood–brain barrier. The alpha ketoacids which accumulate increase anaerobic glycolysis and blood lactate levels. Thiamine-rich diet was advised and condition improved. Parents were counseled for regular follow-up visits.

Comparison of High-density Lipoprotein in Anemic and Nonanemic Patients

[1]Mafooza Rashid, [2]Shradha Mishra, [3]Gautam Sarkar

Subharti Medical College, Meerut, Uttar Pradesh, India

INTRODUCTION

Anemia is one of the commonest medical conditions affecting individuals throughout the world. The major section of affected includes individuals from the poorer section of society, particularly, women in the reproductive age group.

Anemia compromises with the delivery of oxygen to the peripheral tissues and thus, has the potential of affecting the optimal functions of all physiological activities.

While paraphernalia of the body functions have been associated with a fall in blood hemoglobin concentrations, in the present study, we decided to explore the association of hemoglobin levels with high-density lipoprotein (HDL).

AIMS AND OBJECTIVES

To compare the HDL level in anemic patients as compared with normal controls.

MATERIALS AND METHODS

A total of 30 consecutive anemic patients attending the medicine outpatient department were subjected to HDL estimation. A total of 14 individuals with normal hemoglobin concentration were also subjected to HDL estimation.

Data obtained were displayed in a scattered plot.

RESULTS

The HDL was directly correlated with the hemoglobin concentration.

CONCLUSION

A high HDL level is known to be cardioprotective and vice versa. Our study points out to the significance of hemoglobin concentration in the context of HDL concentration, and thus, adds to the importance of maintenance of hemoglobin concentration as a cardioprotective factor.

Fasting *vs* Nonfasting Serum Sample for Thyroid-stimulating Hormone in Pregnancy

[1]Mandayal Jamatia, [2]Simant B Singh, [3]K Pratibha

[1-3]Department of Biochemistry, ESIC – Post Graduate Institute of Medical Science & Research, Bengaluru, Karnataka, India

OBJECTIVES

To study and compare fasting *vs* nonfasting serum sample for thyroid-stimulating hormone (TSH) in healthy pregnant women.

MATERIALS AND METHODS

A prospective case–control study was conducted in Employees' State Insurance Corporation Medical College, Bengaluru, Karnataka, India with 50 cases each for fasting *vs* nonfasting serum sample in healthy pregnant women. Serum TSH level was estimated in healthy individuals and age group <35 years. The serum TSH level was estimated by chemiluminescence immunoassay method in an autoanalyzer. The measured parameters were expressed as mean ± standard deviation and compared using t-test/analysis of variance at 5% level of significance.

RESULTS

Serum TSH levels were found to be reduced in the postprandial sample compared with fasting sample values. This may have an impact on the diagnosis and management of hypothyroidism, especially where even marginal changes in TSH may be clinically relevant as in subchorionic hematoma and pregnancy.

CONCLUSION

The TSH levels showed a statistically significant reduced value in postprandial serum samples in comparison with fasting serum values.

A Case–control Study of Serum Vitamin D Levels in Alcoholic Liver Disease Patients

[1]Nimmy M James, [2]C Vibha, [3]HL Vishwanath

[1-3]Department of Biochemistry, Bangalore Medical College and Research Institute, Bengaluru, Karnataka, India

INTRODUCTION

Hypovitaminosis D has been recently recognized as a worldwide epidemic. Although the main function of vitamin D is to regulate bone metabolism, its deficiency has been related to many other organ systems. Vitamin D deficiency was previously shown to be associated with an increase in the prevalence of diabetes, hypertension, hyperlipidemia, and peripheral vascular disease. There has been a growing interest in the association of hypovitaminosis D with liver diseases. Thus, the study is conducted to investigate the association of serum vitamin D3 levels with alcoholic liver disease.

OBJECTIVES

To measure serum vitamin D3 levels in patients diagnosed with alcoholic liver disease.

MATERIALS AND METHODS

A case–control study of 30 alcoholic liver disease patients of age group 25 to 65 years, who were classified according to Child-Pugh Score in Victoria Hospital, attached to Bangalore Medical College and Research Institute, Bengaluru, Karnataka, India and 30 healthy individuals of the same age group with no family history of liver diseases from general population was performed. Data analysis was done by Pearson's Correlation analysis, chi-square test, Odd's ratio, and Student's t-test.

RESULTS

Mean serum vitamin D3 level in alcoholic liver disease patients is 18.73 ± 7.03 ng/mL and in the controls is 28.76 ± 8.30 ng/mL respectively, and they are statistically significant ($p < 0.00001$).

CONCLUSION

The vitamin D3 levels in alcoholic liver disease patients were very much lower than in normal population. It is unfortunate that the present study reveals that levels of Vitamin D3 in normal population are also in the borderline. Therefore, vitamin D3 must be investigated regularly with alcoholic liver disease patients, and adequate supplementation should be given mandatorily.

Serum Calcium and Serum Phosphate in Type II Diabetic Patients

[1]Rahima R Malek, [2]Gagandeep K Sidhu, [3]Anuja Adarsh

OBJECTIVES

Diabetes is one of the most important public health challenges to all nations. The study was done to assess serum phosphate and calcium levels in type II diabetic patients in comparison with those of control subjects.

MATERIALS AND METHODS

There were 30 diabetic patients and 30 nondiabetic subjects in the same age group included in this study. Serum phosphate (by ammonium molybdate method), serum calcium (by Arsenazo III method), and blood sugar levels (by glucose oxidase–peroxidase method) were measured on fully autoanalyzer among the diabetic and control groups.

RESULTS

Serum phosphate levels were significantly lower in diabetic patients (1.62 ± 0.05 mg/dL) as compared with control subjects (3.61 ± 1.16) (p-value < 0.001). Serum calcium levels were significantly lower in diabetic patients (7.85 ± 0.73) as compared with controls (9.27 ± 1.74) (p-value 0.001).

CONCLUSION

Hypocalcemia and hypophosphatemia are significantly associated with hyperglycemia in patients with type II diabetes and should be regularly checked in diabetic patients.

Dyslipidemia and Inflammatory Markers in Association with Hemoglobin A1c in Type II Diabetes Mellitus

[1]Ratna R Gogulamudi, [2]Priscilla Chandran, [3]NN Sreedevi

[1-3]Department of Biochemistry, Nizam's Institute of Medical Sciences, Hyderabad, Telangana, India

INTRODUCTION

Type II diabetes mellitus has become a pandemic in recent years with associated high morbidity and mortality owing to its complications. We tried to study the association of inflammatory markers with glycemic control in these patients, over a period of 3 months.

OBJECTIVES

To find out the association between inflammatory markers with hemoglobin (Hb)A1c in type II diabetes mellitus.

MATERIALS AND METHODS

A total of 60 diabetic patients were recruited into the study. The clinical history including duration of diabetes was recorded, and total cholesterol (mg/dL), low-density lipoprotein cholesterol (mg/dL), high-sensitivity C-reactive protein (hsCRP) (mg/dL), and serum ferritin (ng/mL) along with HbA1c (%) were estimated. Subjects were divided into two groups based on HbA1c (cutoff 7%) as poor control group (A1c > 7%) and good control group (A1c < 7%). Statistical analysis is done by Student's t-test. The p-value < 0.05 is considered statistically significant. The results are expressed in mean $\pm$ standard deviation (SD).

RESULTS

The mean $\pm$ SD of hsCRP in good control group (< 7) is 2.9 ± 1.79 and in poor control group is 18.27 ± 8.1, which was found to be statistically significant (p-value = 0.0001). The mean $\pm$ SD of serum ferritin in the good control group (< 7) is 283.87 ± 161.63 and in the poor control group is 555.37 ± 330.3, which was found to be statistically significant (p-value = 0.0002).

CONCLUSION

Low-grade inflammation exists in diabetes mellitus type II, and it is positively related with dyslipidemia (except for high-density lipoprotein-cholesterol) in diabetics.

Serum Ionized Calcium Levels in Children in Indian Population compared with Western Data

[1]Saswati K Rath, [2]Rina Tripathy, [3]Srikrushna Mahapatra, [4]Sucharita Mohanty

[1-4]Department of Biochemistry, Sri Rama Chandra Bhanja Medical College & Hospital, Cuttack, Odisha, India

INTRODUCTION

Calcium is the fifth most abundant element, and is the most prevalent cation in the human body. The plasma concentration of calcium depends directly on net balance of bone mineral deposition and resorption, intestinal absorption, and renal excretion. Ionized calcium binds to negatively charged sites on protein molecules, competing with hydrogen ions for the same binding sites on albumin, and other calcium-binding proteins.

An ionized calcium within the reference range implies adequate calcium homeostasis, as this is a direct measure of calcium in its active form.

AIMS AND OBJECTIVES

To evaluate the serum ionized calcium levels in pediatric age group in the Indian population.

MATERIALS AND METHODS

About 600 cases of adults (>14 years) and 600 cases of children (group I – neonates, group II – infants, and group III – >1 to 14 years) were included in this retrospective study.

Exclusion criteria

- Cases of renal failure
- Bone defects, e.g., rickets, etc.
- Malnourished cases
- Intake of too much of calcium salts or vitamin D as dietary supplements

Blood samples were collected from patients admitted Sri Rama Chandra Bhanja Medical College and Hospital (SCB MCH) and Sardar Vallabhbhai Patel Post Graduate Institute of Paediatrics (SVP PGIP), Cuttack, Odisha, India. The serum ionized calcium levels were measured by ion selective electrode method in the biochemistry lab of SCB MCH and SVP PGIP.

RESULTS

The serum ionized calcium levels in adults were found to be within their reference range,[1] whereas in children, the levels were found to be below the reference range[2] in more than 50% of the studied population.

CONCLUSION

Based on the results, the reference range of serum ionized calcium levels in the pediatric age group in the Indian population needs to be further assessed with a larger population study and confirmed.

A Study of Interrelationship between Vitamin D, Cortisol, and Depression

[1]Sudeshna Ray, [2]Subhashree Ray, [3]Viyatprajna Acharya, [4]Bratati Singh, [5]Surjeet Sahu

[1-5]Department of Biochemistry, Institute of Medical Sciences and SUM Hospital, Bhubaneswar, Odisha, India

INTRODUCTION

According to the World Health Organization, around 350 million people of all ages were suffering from depression in 2012. In India, around 9% people reported having an extended period of depression within their lifetime and around 36% suffered from major depression.

There are numerous vitamin D receptors in the brain (neuroglia, prefrontal cortex, substantia nigra, etc).

Vitamin D helps in the transcriptional activation of serotonin (an important neurotransmitter influencing mood, sleep, appetite, and other brain functions). Thus, low vitamin D levels can be related to depression.

Several studies have also shown that depression patients have high cortisol levels and low vitamin D levels.

OBJECTIVES

- To measure serum vitamin D levels in patients with depression.
- To assess the level of cortisol in depression patients.
- To study the correlation between vitamin D and cortisol level in study subjects.

MATERIALS AND METHODS

Place of study: Department of Biochemistry and Department of Psychiatry, Institute of Medical Sciences and SUM Hospital, Bhubaneswar, Odisha, India
Study period: 2 years
Study design: Prospective cohort study
Sample size: Around 50 cases

Inclusion criteria

- Patients who are newly diagnosed with depression by International Statistical Classification of Diseases and Related Health Problems 10 diagnostic criteria by the psychiatrist.
- Age between 20 and 60 years.

Exclusion criteria

- Pregnant women or women with postpartum depression.
- Age less that 20 years or more than 60 years.
- Patients who are having vitamin D supplementation or other diseases like osteoporosis, etc.
- Known cases of depression who are on antidepressant treatment.

CONCLUSION

The study will be conducted by taking approximately 50 cases and age- and gender-matched controls in Institute of Medical Sciences and SUM Hospital Bhubaneswar, Odisha, India after getting informed consent from the cases. Ethical clearance has already been done.

Growth Hormone Deficiency: A Case Report

[1]T Poornima, [2]V Ananthan, [3]K Pramila, [4]K Ramadevi

[1-4]Institute of Biochemistry, Madras Medical College, Chennai, Tamil Nadu, India

INTRODUCTION

Growth hormone (GH) deficiency is a disorder that involves the pituitary gland, which produces GH and other hormones. When the pituitary gland does not produce enough growth hormone, growth will be slower than normal. The GH is needed for normal growth in children, while in adults it is required to maintain the proper amounts of body fat, muscle, and bone. In adults, low or absent GH can also cause emotional symptoms, lack of motivation, and fatigue.

CASE REPORT

An 18-year-old male presented with complaints of short stature. He was suspected to have GH deficiency and was evaluated.

INVESTIGATIONS

X-rays showed bone age of 13 years compared to the chronological age of 18 years. Magnetic resonance imaging of brain showed thinned out anterior pituitary gland. Clonidine stimulation test was done. Samples were taken at 30, 60, 90, 120, and 150 minutes, and GH was determined, which was conclusive of GH deficiency. Thyroid function test was normal.

DISCUSSION

Based on the investigations, the case was diagnosed as GH deficiency. Other tests supporting the diagnosis are 24-hour GH secretion test, arginine stimulation test, glucagon stimulation test, etc. Treatment is GH replacement (0.03–0.05 mg/kg). Earlier the diagnosis and treatment, the better the chance for the child to grow to near normal adult.

Glycated Hemoglobin Marker for Long-term Glycemic Control

[1]Ajay Puri, [2]VJ Chrungoo

[1,2]Department of Biochemistry, Acharya Shri Chander College of Medical Sciences, Jammu, Jammu and Kashmir, India

INTRODUCTION

Studies have suggested that glycated hemoglobin (HbA1c) levels in type II diabetes mellitus (DM) patients mostly remain elevated, yet some such patients, with or without tight glycemic control, have HbA1c levels nearly close to or within the normal reference range. Diabetes mellitus has a major and increased deleterious impact on individual as well as national productivity. Such people are at greater risk of cardiac, peripheral arterial, and cerebrovascular disease. The HbA1c was recommended as a widely accepted parameter for complication risks of type II DM. Thus, HbA1c has been suggested as a better indicator of chronic hyperglycemia and its long-term complications.

MATERIALS AND METHODS

The present study was conducted on two groups – healthy subjects and type II DM patients without complications – and HbA1c was estimated by turbidimetric inhibition immunoassay.

RESULTS AND DISCUSSIONS

In the present study, the mean and standard deviation (SD) of fasting plasma glucose in group I is 4.74 ± 0.55 and in group II it is 8.76 ± 1.03. The mean and SD of postprandial plasma glucose in group I is 6.26 ± 0.37 and in group II is 13.42 ± 1.78.

The mean and SD of HbA1c in group I is 29.33 ± 4.50 and in group II is 73.59 ± 11.66, and p-value of all these parameters is <0.001, which is highly significant.

CONCLUSION

The present study confirms earlier studies that HbA1c levels, fasting blood glucose levels, and postprandial blood glucose levels are tightly correlated. Thus, it is indicated that HbA1c can be used to assess the glycemic status of an individual for attaining the treatment goal of preventing long-term complications of DM.

Elucidation of the Mechanism of Anticancer Activity of *Piper nigrum* Extract on Colon Cancer Cell Line

[1]Akila Prashant, [2]MVSST Subbarao, [3]D Devananda, [4]Prashant Vishwanath, [5]MN Suma

[1-5]Department of Biochemistry, Centre of Excellence in Molecular Biology and Regenerative Medicine, JSS Medical College and Hospital Mysore, Karnataka, India

INTRODUCTION

The present study was taken up considering the rising trend of colorectal cancer and death caused due it in India and our previous studies with ethanolic extract of *Piper nigrum* (EEPN) showing effective anticancer activity.

AIMS AND OBJECTIVES

Here, we have revealed the mechanism of the anticancer activity of EEPN on colon cancer cell line.

MATERIALS AND METHODS

The EEPN in concentrations of 3 µg/mL (PN1) and 6 µg/mL (PN2) was used to treat the colon cancer cell line HCT116. The cell death in the treated flasks was compared with that of untreated flasks (control) as well as that treated with 1% dimethyl sulfoxide (vehicle control). The apoptotic cells were examined under fluorescent microscope using dual fluorescent staining solution (1 µL), containing 100 µg/mL of acridine orange and 100 µg/mL of ethidium bromide. The relative change in expression of cyclin D1 and p53 in the treated and untreated flasks was studied by Western blot and quantitative real-time polymerase chain reaction (PCR).

RESULTS

No significant apoptosis was detected in the control group and in vehicle control group. Both early and late apoptotic cells were seen in cells treated with 3 µg/mL of EEPN. Late-stage apoptotic cells, with concentrated and asymmetrically localized orange nuclear ethidium bromide staining, were detected in cells treated with 6 µg/mL of EEPN. The Western blot analysis showed downregulation of cyclin D1 along with upregulation of p53 protein. This was confirmed by quantifying the messenger ribonucleic acid levels of these proteins by real-time PCR.

CONCLUSION

Downregulation of cyclin D1 and upregulation of p53, in turn, upregulates p21, which later binds to cyclin E–cyclin-dependent kinase (CDK)4/6 complex, inactivating the complex. The inactivated complex cannot phosphorylate retinoblastoma protein, which complexes with E2F turning it inactive. The Rb–E2F complex acts as a growth suppressor and prevents progression through the cell cycle, which is arrested in the G1 phase and finally undergoes apoptosis.

Serum Cholesterol Levels in Patients with Depression

[1]Ananya Chakravorty, [2]Syeda M Rohman

[1,2]Department of Biochemistry, Gauhati Medical College and Hospital, Guwahati, Assam, India

INTRODUCTION

Depression is a common psychiatric disorder in both the sexes. Various studies have hinted at an association between altered serum cholesterol levels and major depressive disorder (MDD). While some of the studies found higher levels in patients than in controls, some found no association at all. Recent studies, however, hint at lowered levels of serum cholesterol in patients of MDD.

AIM

To determine total serum cholesterol levels in patients suffering from MDD and observe the values for possible alterations.

MATERIALS AND METHODS

The subjects of the study were 30 patients with major depression, diagnosed according to the interview under International Statistical Classification of Diseases and Related Health Problems 10, and 30 normal control subjects. The two groups were matched for sex and age, and none of the subjects had alcohol/drug abuse, abnormal electrocardiograms, or unstable medical conditions. Venous blood samples were drawn at overnight fasting state, and serum cholesterol levels were determined and measured using standard kits and methods.

RESULTS

The patients suffering from depression were found to have lowered levels of serum cholesterol than their age- and sex-matched counterparts ($p < 0.0001$). Levels of serum cholesterol generally increased with increasing age both in cases and controls; however, levels in cases were nevertheless lower than levels in controls ($p < 0.001$). About 27 of the 30 cases had lower total serum cholesterol levels than their healthy age- and sex-matched counterparts. Mean value of total serum cholesterol was 127.99 mg/dL in the cases and 171.067 mg/dL in the controls.

CONCLUSION

The study showed lowered levels of serum cholesterol in the patients suffering from MDD than their age- and sex-matched healthy counterparts. The possible mechanism could be the lowered microviscosity of brain cell membranes due to lowered membrane cholesterol (in free exchange with plasma cholesterol) leading to reduced exposure of serotonin receptors and reduced uptake thus, reducing the brain serotonin concentration.

Serum Level of Prolactin in Migraine Patients

[1]Ananya Kundu, [2]Atanu Biswas, [3]Mousumi Mukhopadhyay

[1,3]Department of Biochemistry, Institute of Post Graduate Medical Education and Research, Kolkata, West Bengal, India
[2]Department of Neurology, Bangur Institute of Neurosciences, Institute of Post Graduate Medical Education and Research, Kolkata, West Bengal, India

INTRODUCTION

Migraine is a very common debilitating disorder, characterized by recurrent attacks of headache. In the absence of specific biomarker, diagnostic criteria are laid down by clinical findings only. Different theories regarding pathophysiology of migraine have been proposed, in which hypothalamo-pituitary axis, hormones, and role of different neurotransmitters have been implicated. In this context, the present study investigates the prolactin level in migraine patients.

AIMS AND OBJECTIVES

To study correlation between serum prolactin level in migraine and nonmigraine primary headache patients.

MATERIALS AND METHODS

Study area

Department of Biochemistry, Institute of Post Graduate Medical Education and Research, Kolkata and Department of Neurology, Bangur Institute of Neurosciences (BIN).

Study population

Patients attending Neurology outpatient department of BIN suggestive of migraine and other primary headache, selected after screening by exclusion criteria.

Study period

March 2015 to July 2016 (ongoing study)

Sample size

About 102 patients of migraine and other primary headache.

Study design

Noninterventional, observational, cross-sectional study.

RESULTS

Among a total of 102 patients of primary headache, 59 (57.8%) patients suffered from migraine, 41 (40.2%) patients from tension type headache (TTH), and 2 (1%) patient from cluster headache. Diagnosis was done according to the guideline by International Headache Society.

Among 102 patients, 65% patients are female and 35% are male. Among the migraineurs, 17 (28.8%) have prolactin <10 ng/mL, 24 (40.6%) had prolactin level 10 to 25 ng/mL, and 18 (30.5%) had prolactin level >25 ng/mL.

Among TTH patients, <10 ng/mL prolactin level was found in 22 (53.6%) patients and 10 to 25 ng/mL prolactin was found in 19 (46.3%) patients, and no patient was found to have prolactin >25 ng/mL. Both the patients with cluster headache had prolactin level below 10. Prolactin level was found to be significantly higher in migraine patients than other primary headache patients (p-value 0.0005).

CONCLUSION

Serum level of prolactin was found to be helpful in differentiating migraine from other primary headache.

Is Vitamin D Deficiency Associated with Metabolic Syndrome in Polycystic Ovarian Disorder Patients?

[1]Aniljeet S Trehan, [2]Piyush Bansal, [3]Prerna Panjeta, [4]Renu Garg, [5]Himanshu Madaan

[1-5]Department of Biochemistry, BPS Government Medical College for Women, Sonepat, Haryana, India

INTRODUCTION

Polycystic ovarian disorder (PCOD) is the most prevalent endocrine disorder among women of reproductive age (14–17% prevalence in women of fertile age), and is associated with insulin resistance and increased prevalence of metabolic syndrome. There is increasing evidence supporting low vitamin D (Vit-D) to be a risk factor for insulin resistance and metabolic syndrome. There are conflicting reports on prevalence of Vit-D deficiency (VDD) in PCOD and its relation with metabolic syndrome. Meta-analysis by Jia et al and Krul Poel et al showed that the levels of Vit-D in the PCOD group were remarkably lower than in the controls, and Vit-D levels correlated inversely with insulin resistance respectively. However, Kim et al, Sadhir et al, and Moini et al reported no significant differences in Vit-D levels in PCOD and controls.

AIMS AND OBJECTIVES

To compare vitamin D levels in PCOD patients with age-matched healthy controls and study association of vitamin D levels with presence of metabolic syndrome in PCOD patients.

MATERIALS AND METHODS

The case–control study was conducted in the Department of Biochemistry, BPS Government Medical College for Women, Khanpur, India, in collaboration with Department of Obstetrics and Genecology. About 50 females in the age group 18 to 40 years diagnosed with PCOD on basis of Rotterdam criteria were taken as study group. About 50 age-matched healthy females (18–40 years age) were taken as controls. Subjects with thyroid abnormalities, hyperprolactinemia, other endocrine abnormalities, other causes of infertility, other acute or chronic diseases, history of calcium/Vit-D supplementation, and history of long-term medication use were excluded.

Vitamin D (25-OH-cholecalciferol) levels along with routine investigations (lipid profile etc.) were performed in all subjects.

RESULTS

Will be discussed in presentation.

CONCLUSION

Will be discussed in presentation.

Pheochromocytoma or Adrenal Cortical Tumor: A Case Presentation on Preanalytical Error

[1]Anubhuti

[1]Department of Biochemistry, Post Graduate Institute of Medical Education and Research
Dr. Ram Manohar Lohia Hospital, New Delhi, India

INTRODUCTION

There are many factors that contribute to accurate test results in the chemistry laboratory. These factors can be broken down into three areas: Preanalytical, analytical, and postanalytical. The preanalytical phase of total laboratory testing process is where the majority of laboratory errors occur. Preanalytical errors can occur at the time of patient assessment, test order entry, request completion, patient identification, specimen collection, specimen transport, or specimen receipt in the laboratory. It is found that preanalytical errors predominated in the laboratory, ranging from 31.6 to 75%. A case of malignant adrenal cortical tumor got confused with pheochromocytoma due to faulty patient preparation.

CASE REPORT

A 65-year-old female who had been hypertensive for 1 year presented with pain in right upper abdomen, increased frequency of micturation, and loss of appetite and constipation for the past one-and-half months. The computed tomography of abdomen showed right suprarenal mass. On investigation, 17-ketosteroid levels, dehydroepiandrosterone levels, and 24-hour urinary excretion of cortisol were found to be slightly raised suggesting pheochromocytoma. The patient underwent adrenalectomy; however, histopathologically and on immunohistochemistry, it was suggested to be adrenal cortical tumor.

OBSERVATION

It was found that patient was on beta blockers, as she was hypertensive, and 24-hour urinary samples were sent without discontinuing the drugs. The drugs that can cause false elevations of metanephrines include tricyclic antidepressants, levodopa, labetalol, ethanol, sotalol, amphetamines, buspirone, benzodiazepines, methyldopa, and chlorpromazine. Thus, faulty patient preparation led to confusion in the diagnosis of adrenal cortical tumor with pheochromocytoma.

CONCLUSION

Paying close attention to the preanalytical variables associated with blood collection will help to ensure accurate test results in the chemistry department, as well as all areas of the clinical laboratory.

Study of Serum 25-Hydroxy Cholecalciferol Levels in Preeclampsia Patients at Silchar Medical College and Hospital

[1]Aparajeeta Bora, [2]Mauchumi S Pathak, [3]Biswadeep Choudhury, [4]Mainak Roy, [5]Shafique Ahmed

[1-5]Silchar Medical College & Hospital, Silchar, Assam, India

INTRODUCTION

The sunshine "vitamin D" is unique because unlike others, it can be obtained from food as well as synthesized from sunlight. Cholecalciferol (vitamin D3) and ergocalciferol (vitamin D2) are the two available dietary forms. Serum 25-OH vitamin D is the best marker of whole body vitamin D status. The prevalence of vitamin D deficiency and insufficiency ranges from 8 to 100%, depending on the country of residence. It has been suggested to be a predisposing factor in the peripheral vascular phase modulation, which will result in inadequate placental development, decrease immunological tolerance for implantation, and triggering of preeclampsia.

AIMS AND OBJECTIVES

To estimate and evaluate the serum vitamin D [25 (OH) cholecalciferol] levels in preeclampsia patients and study its association and significance in preeclampsia.

MATERIALS AND METHODS

The present case–control study was conducted for a period of 1 year, among admitted pregnant ladies in the Department of Obstetrics and Gynecology, Silchar Medical College and Hospital. About 100 pregnant women, primigravida (>20 weeks of gestation) below 35 years with preeclampsia were included in the case group. Serum 25-OH vitamin D levels of the case group were compared with that of 100 normotensive healthy pregnant women in the control group using Access 2 Immunoassay Systems, by the principle of chemiluminescence in the clinical laboratory. Statistical evaluation and correlation of findings was done using suitable statistical tools.

RESULTS

Serum 25-OH vitamin D concentration was found to be significantly lower in preeclamptic cases compared with normal healthy pregnant controls with mean ± standard deviation [11.1 ± 4.2 *vs* 21.9 ± 3.28 ng/mL] (p < 0.001).

CONCLUSION

The identification of vitamin D deficiency in vulnerable population is important because it will develop better clinical approach for prevention and diagnosis of women at risk of preeclampsia at an early stage where it is still possible to minimize that risk.

Lipase/Amylase Ratio to Predict Alcoholic *vs* Gallstone as Etiology of Acute Pancreatitis in Population of Upper Assam

[1]Arpita Saxena, [2]Monigopa Das, [3]Ratnesh Kumar

[1-3]Assam Medical College, Dibrugarh, Assam, India

INTRODUCTION

Approximately 80% of cases of acute pancreatitis are associated with gallstone or chronic alcohol abuse. The course of disease is essentially the same, but difference arises in management. Lipase/amylase (L/A) ratio can be used to distinguish the etiology. We studied serum L/A ratio in differentiating alcoholic from gallstone acute pancreatitis in Assam Medical College and Hospital.

AIMS AND OBJECTIVES

To study serum amylase, lipase, and L/A ratio in patients of acute pancreatitis and decide a possible cutoff value for serum L/A to distinguish between gallstone (biliary) and alcohol as etiology.

MATERIALS AND METHODS

Prospective hospital-based study on serial admission of 549 patients after applying inclusion and exclusion criteria and classified as having alcoholic or gallstone acute pancreatitis. Blood sample collected in emergency department and subjected to analysis in Seimens autoanalyzer by spectrophotometry.

RESULTS

Amylase has positive correlation 0.252 at 99% confidence interval with diagnosis of alcoholic pancreatitis. In alcoholic pancreatitis, mean L/A ratio is 4.0. In gallstone pancreatitis, mean L/A ratio is 1.67, while maximum being 5.66 and minimum 0.28 having standard deviation of 0.91. Using Spearman's rho correlation method, L/A ratio correlation is –0.700, confidence interval 99%. If L/A ratio = 2.3, we find +likelihood ratio (LR) = 5.63, –LR = 0.17, sensitivity 85.7%, and specificity 84.8%, which can be used as cutoff for diagnosis.

CONCLUSION

We find that in the population of the Northeastern India region, L/A ratio of 2.3 and above predicts likelihood of acute pancreatitis being of alcoholic origin in whom no acute intervention is indicated, while ratio below 2.3 to be of gallstone origin in whom early intervention shall be of value.

Vitamin D and Chronic Myeloid Leukemia: A Controversy

[1]Asha Kumari, [2]Rajender Kumar, [3]Veena S Ghalaut

[1-3]Department of Biochemistry, Pt. Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India

INTRODUCTION

Vitamin D is not truly a vitamin, as it can be derived from cholesterol endogenously. It has been related with biological functions like hormones. Recently, it was reported to correlate with a myriad number of diseases including cancer. However, the results accruing are controversial.

AIMS AND OBJECTIVES

To estimate levels of Vitamin D in 25 cases of chronic myeloid leukemia (CML) and compare with 25 healthy age- and sex-matched controls.

MATERIALS AND METHODS

This cross-sectional study was conducted in the Department of Biochemistry, Pt. Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, India. The diagnosis in cases was made by history, clinical examination, total and differential leukocyte count, bone marrow examination, and cytogenetic studies. Serum vitamin D levels were estimated by a commercial enzyme linked immunosorbent assay kit for human vitamin D.

OBSERVATIONS AND RESULTS

In the present study, mean serum vitamin D level in group I was 23.04 ± 7.95 ng/mL. In group II, mean serum vitamin D level was 23.75 ± 8.65 ng/mL (8.07–44.11 ng/mL). In males, mean serum vitamin D level in group I was 24.5 ± 8.5 ng/mL and in group II was 24.3 ± 10.7 ng/mL. In females, mean serum vitamin D level in group I was 21.9 ± 7.5 ng/mL and in group II was 23.2 ± 7.0 ng/mL.

CONCLUSION

There was no significant correlation observed between vitamin D levels and CML.

Assessment of Serum Activity of Aspartate Aminotransferase, Serum Albumin, and Calcium (Total) in Clinically Diagnosed Cases of Psoriasis in Upper Assam: A Hospital-based Study

[1]Avik Roy, [2]Kailash Bhattacharyya

[1,2]Department of Biochemistry, Assam Medical College, Dibrugarh, Assam, India

INTRODUCTION

Psoriasis is a chronic recurrent papulosquamous disorder characterized by epidermal hyperplasia. There has been a lot of recent research on consideration of psoriasis as a systemic disease, with researchers being of the view that dermatological manifestations represent only a part of the spectrum. Various specific biochemical parameters play significant roles in the etio-pathogenesis of the disease. An attempt was made, in this study, to detect those biochemical changes in clinically diagnosed cases of psoriasis.

AIMS AND OBJECTIVES

- To assess various biochemical parameters like aspartate aminotransferase (AST), albumin, and calcium (Ca^{2+}) in psoriatic patients.
- To study the role of serum AST, albumin, and serum concentration of Ca^{2+} (total) in the disease activity, progression, and severity of psoriasis.
- To help in understanding of the complicated etiopathogenesis of psoriasis.

MATERIALS AND METHODS

About 50 clinically diagnosed cases of psoriasis were selected. Clinical examination and the various biochemical tests (serum transaminases by Reitman and Frankel's method, serum albumin by bromocresol green method, and serum Ca^{2+} (total) by O-cresolphtalein method) were performed at the time of enrollment of the patients and compared with age-and sex-matched healthy controls.

RESULTS

Hypoalbuminemia was seen in 24% of psoriasis patients (p-value < 0.0001), elevated AST was seen in 54% (p-value 0.0406), and hypocalcemia was observed in 36% of the patients (p-value 0.1770), when compared with controls.

CONCLUSION

Hypoalbuminemia, hypocalcemia, and elevated serum AST levels were observed in psoriasis patients. Various biochemical changes are important in understanding the etio-pathogenesis of the disease.

Hyperuricemia in Renal Transplant Recipients as Predictor of Decreasing Graft Function: A Retrospective Study

[1]E Bhavya, [2]Priscilla Chandran, [3]Rachel Jacob, [4]Mahesh A Devi

[1-4]Nizam's Institute of Medical Sciences, Hyderabad, Telangana, India

INTRODUCTION

Uric acid is the end product of purine metabolism, and is excreted mainly by the kidneys. It plays an important role in the onset of new renal disease, exacerbation of an existing renal disease, and is also elevated frequently in patients of renal transplantation.

AIMS AND OBJECTIVES

This study was designed to estimate the prevalence of posttransplant hyperuricemia and establish the correlation between estimated glomerular filtration rate (eGFR). and uric acid in adult renal transplant recipients over time for early prediction of decreasing graft function.

MATERIALS AND METHODS

A retrospective observational study on 84 adult renal transplant recipients was conducted between January 2010 and June 2016 in Nizam's Institute of Medical Sciences, Hyderabad, India. Clinical and laboratory data were obtained from the hospital electronic database.

RESULTS

Of 84 patients selected for this study, 56 were males and 28 females. The median age was 31 years. Out of all of them, hyperuricemia was detected in 51% of the recipients at 1 month from transplantation. After 6 months, there is a 14% increase in the number of hyperuricemic subjects. Mean eGFR decreased significantly along with an increase in the uric acid concentration during 6 months of posttransplant period, especially in the patients that were found hyperuricemic at 1 month of transplantation.

CONCLUSION

Hyperuricemia was a significant risk factor for decreased graft functioning in renal transplant patients, demonstrated by decreasing eGFR. The risk is more in subjects who demonstrated increased uric acid level immediately posttransplant.

Role of Serum Uric Acid in Acute Stroke Patients

[1]K Chandra Kala, [2]K Nirmaladevi, [3]A Arshiya Begum

[1-3]K.A.P. Viswanatham Government Medical College, Tiruchirappalli, Tamil Nadu, India

INTRODUCTION

Stroke is the third most common cause of death in the world after coronary heart disease and cancer, especially in the elderly. The prevalence of hyperuricemia in stoke is 35.2% in men and 8.7% in women in developing countries, and it is significantly higher in patients with acute stroke than normal population. Serum uric acid role in stoke is controversial. Serum uric acid is a soluble pro-oxidant and antioxidant.

AIMS AND OBJECTIVES

In this study, we determined serum uric acid levels in patients with acute stroke, and assessed its relationship with other risk factors, such as fasting blood sugar (FBS), lipid profile, hypertension, alcohol, and smoking.

MATERIALS AND METHODS

In this cross-sectional study, we assessed 40 patients with acute stroke (confirmed by computed tomography and magnetic resonance imaging of the brain), who were admitted in Mahatma Gandhi Memorial government hospital Trichy, and age- and sex-matched controls from May 2016 to July 2016. Patients with known risk for thromboembolic disorders were excluded from the study. Clinical records of patients and age- and sex-matched controls and their serum uric acid (uricase Method), FBS [glucose oxidase–peroxidase], and lipid profile levels (direct) were investigated. Finally, data were analyzed using Statistical Package for the Social Sciences software 19.

RESULTS

About 40 acute stroke patients and controls were studied. Mean age of the patients was (56.23 ± 13.01) years. Regarding the data obtained, mean serum uric acid level in patients was (5.95 ± 1.56) and in control group was (5.13 ± 1.13). There was significant change of uric acid between patients and control $(p = 0.001)$. There was no significant correlation between triglycerides $(p = 0.225)$, very low-density lipoproteins $(p = 0.225)$, FBS $(p = 07)$, hypertension $(p = 0.12)$, and alcohol between patients and control; $p \leq 0.05$ was considered significant.

CONCLUSION

Due to increased serum uric acid level in patients with acute stroke, it can be considered as an independent risk factor for the acute stroke. Treatment aimed at reducing serum uric acid can be useful to prevent fatal outcome of acute stroke.

Fasting Blood Glucose Level and Fasting Lipid Profile in Patients of Essential Hypertension visiting Jorhat Medical College and Hospital

Chiranib Bania

Jorhat Medical College and Hospital (JMCH), Jorhat, Assam, India

INTRODUCTION

Hypertension is a common and major health problem in India and worldwide. It is the most common factor of cardiovascular diseases (CVDs), which increases the risk of stroke, myocardial infarction, and heart and renal failure. According to the world health report of 2003, CVDs will be the largest cause of death in India and disability by 2020 in India. The changes in serum lipid profile levels should be actively investigated, but a few studies have established relation between hypertension and hyperlipidemia. In 2020, 2.6 million people in India are predicted to die due to coronary artery disease, which constitutes 54.1% of all CVD deaths. Dyslipidemia and hypertension are one of the commonest risk factors for coronary artery disease. Hypertensive patients have higher lipid profile than normotensive patients.

There are reports showing hypertension and diabetes are the leading comorbidities in the general population, as there is substantial overlap between hypertension and diabetes in both etiology and diseases mechanism. There are only few reports worldwide showing dysglycemia during high blood pressure, which recently has obtained interest.

Hypertension is grossly divided into essential hypertension or primary hypertension or idiopathic hypertension and secondary hypertension. Essential hypertension, by definition, has no identifiable cause. It is the most common type of hypertension, affecting 95% of hypertensive patients. Essential hypertension is likely to be consequences of an interaction between environmental factors and genetic factors. Prevalence of essential hypertension increases with age and with relatively high blood pressure at younger ages, these individuals are at increased risk for the subsequent development of hypertension. Some modifiable risk factors are high salt intake, saturated fat, less dietary fiber, alcohol intake, less physical activity, etc. Abnormalities in serum lipid and lipoprotein levels are recognized as major modifiable cardiovascular disease and essential hypertension risk factors. In the northeast, prevalence of essential hypertension is 33.3%.

AIMS AND OBJECTIVES

- To measure the changes of serum lipid profile and fasting blood glucose level in clinically diagnosed patients with essential hypertension visiting Jorhat Medical College and Hospital (JMCH), Jorhat, Assam, India.
- To study the association of different levels of the components of serum lipid profile and fasting blood glucose concentration in clinically diagnosed patients of essential hypertension between 20 and 40 years visiting JMCH.

MATERIALS AND METHODS

Permission/clearance from the Institutional Human Ethical Committee was obtained prior to commencement of the study to be undertaken. The place of study is JMCH, and the duration of study is 1 year. The sample size is 340 (using the formula $n = Z2P \times Q/D2$), where $Z = 1.96$, $P =$ prevalence (33.3%), $Q = 1 - P$, $D = 0.05$, and the type of study is cross-sectional hospital-based study.

The study was carried out among clinically diagnosed essential hypertension patients in JMCH, Jorhat, India.

Cases were selected among the essential hypertension patients attending the outpatient department and ward of the medicine department of JMC, Jorhat, fulfilling the below mentioned inclusion and exclusion criteria.

Inclusion criteria

- Patients of age group 20 to 40 years
- Patients already diagnosed as essential hypertension.
- Newly diagnosed cases of essential hypertension.
- Previously diagnosed cases of essential hypertension in which patient is undergoing treatment.

Exclusion criteria

- Patients with other associated major disorders and in which hypertension was diagnosed later.
- Patients with systemic illness like diabetes, hypertension, hypothyroidism, renal disease, liver disease, obesity, and cancer.
- Already diagnosed cases of secondary hypertension.
- Patients on contraceptive pills for duration around 10 years.

RESULTS

From the present study, it has been seen that serum lipid profile and serum fasting blood glucose level change in patients having essential hypertension.

CONCLUSION

From the present study, it was observed that serum cholesterol, serum triglycerides, serum low-density lipoprotein (LDL), and serum very low-density lipoprotein (VLDL) increases with the increase of fasting blood glucose level. The Pearson's correlation coefficient was found to be positive between these parameters. However, serum high-density lipoprotein (HDL) shows negative correlation with fasting blood sugar level. The p-value of fasting blood sugar level with serum HDL, serum LDL, serum VLDL, serum cholesterol, and serum triglycerides is significant.

A Mass Spectrometric Analysis of Serum Proteome in Oral Cancer: A Step toward finding a Serum Biomarker

[1]Debapriya Rath, [2]Rajiv Bharadwaj, [3]Sudama Rathore, [4]Pradeep K Patra

[1,3,4]Department of Biochemistry, Pt. Jawahar Lal Nehru Memorial Medical College, Raipur, Chhattisgarh, India
[2]India Applications Laboratory, Waters India, Bengaluru, India

INTRODUCTION

Oral cancer has emerged as the most prevalent malignancy in India. The increasing incidences of this cancer have been attributed to the rampant tobacco abuse by the population. The World Health Organization has reported oral cancer as having one of the highest mortality ratios among other malignancies with a death rate at 5 years from diagnosis at 45%. The lack of a potential surrogate serum biomarker of the cancer has been one of the major factors limiting the ability of the medical science in combat against this disease.

AIMS AND OBJECTIVES

The aim of the study was to analyze the serum proteome of oral cancer patients and compare it with normal individuals in order to shortlist the potential molecules that can serve as biomarkers.

MATERIALS AND METHODS

Serum samples were collected from oral cancer patients diagnosed by histopathology and from normal individuals. The serum proteins were separated by polyacrylamide gel electrophoresis with sodium dodecyl sulfate. The gel bands were cut into 1-mm cubes and proteins were subjected to in-gel trypsin digestion followed by elution of the peptides. The peptides were analyzed by mass spectrometry, and the data were analyzed using the Swissprot human protein database.

RESULTS

About 32 proteins were identified, which had significant difference between the case and the control groups. About 14 of these proteins had a peptide identification score of more than 100, with ceruloplasmin precursor (EC 1.16.3.1) (Ferroxidase) having the highest score. The maximum fold change among these 14 proteins was observed for a kininogen precursor protein having accession number P01042.

CONCLUSION

In this study, oropharyngeal cancer samples were analyzed for profiling major protein-based biomarkers and their relative abundance in serum. The results can be utilized in further studies for confirmation, assay development, and validation of serum marker for oral carcinoma.

Serum Uric Acid and Serum Phosphorus in Patients of Chronic Kidney Disease

[1]Deepa Telgote, [2]Reena Wagh

[1,2]Department of Biochemistry, Government Medical College and Hospital, Nagpur, India

OBJECTIVE

To analyze serum uric acid and serum phosphorus in patients of chronic kidney disease.

MATERIALS AND METHODS

Serum uric acid and serum phosphorus were estimated in patients of chronic kidney disease in the outpatient department and inpatient department in the Government Medical College and Hospital, Nagpur, India. Fasting blood samples were collected from 30 healthy controls and 30 undialyzed and 30 hemodialyzed diagnosed patients with chronic renal failure (CRF) aged 30 to 70 years.

RESULTS

There was a significant increase in levels of serum uric acid and serum phosphorus (p < 0.001) in undialyzed patients with CRF, and decrease in serum uric acid and serum phosphorus in patients of chronic kidney disease after hemodialysis.

CONCLUSION

The study suggests that serum uric acid and serum phosphorus might prove to be a biomarker in early detection of the disease and can also be useful as a prognostic marker for CRF.

Effects of Menopause and Hypothyroidism on Lipid Profile

[1]D Dalal, [2]K Dahiya, [3]VS Ghalaut, [4]R Kumar

[1-4]Department of Biochemistry, Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India

INTRODUCTION

Menopause is a physiological event, which signifies the end of reproductive period. Various hormonal changes occur in this stage, which effects lipid metabolism. There are higher chances of cardiovascular diseases in postmenopausal state, which may have a relation with lipid profile in body. Thyroid hormone disorders are also associated with altered lipid profile. It is necessary to study lipid profile in postmenopausal hypothyroid women for a better understanding.

OBJECTIVE

To study lipid profile in postmenopausal hypothyroid women, which includes triglycerides (TG), total cholesterol, high-density cholesterol (HDL), low-density lipoproteins (LDL), and very low density lipoprotein (VLDL) cholesterol.

MATERIALS AND METHODS

This study was conducted in the outpatient department of Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India, in which 30 serum samples of hypothyroid postmenopausal women were analyzed in an autoanalyzer (Hitachi Roche) for lipid profile, i.e., TG, HDL, LDL, and VLDL using Friedewald's formula, and mean was calculated of each of the parameter and compared.

RESULTS

The mean concentration of various parameters of lipid profile among postmenopausal hypothyroid was poor than among postmenopausal euthyroid women.

CONCLUSION

From the above findings, we conclude that menopause and hypothyroidism lead to changes in lipid profile by increasing total and LDL and VLDL cholesterol and decreasing HDL cholesterol. As we know, cardiovascular risks increase after menopause. Derangement of lipid metabolism can be a cause for the same, and measures should be taken among hypothyroid postmenopausal women to maintain healthy lipid profile level.

Association of Immunoglobulin Levels and High-sensitivity C-reactive Protein in Chronic Kidney Disease Patients

[1]Lakshmi Deepika, [2]Noorjahan, [3]Priscilla Chandran, [4]NN Sridevi

[1-4]Nizam's Institute of Medical Sciences, Hyderabad, Telangana, India

INTRODUCTION

Chronic kidney disease (CKD) is associated with significantly increased morbidity and mortality resulting from cardiovascular disease (CVD) and infections. It is possible that these two complications are linked to alterations in the immune system in CKD that contributes to the high prevalence of infections and inflammation.

AIM

This study aims at comparing the levels of immunoglobulins and inflammatory marker high-sensitivity C-reactive protein (hsCRP) between healthy controls and CKD patients.

MATERIALS AND METHODS

A total of 62 subjects were taken. Among these, 25 were healthy controls and 37 were diagnosed CKD patients. Biochemical parameters analyzed were Sr. creatinine, immunoglobulin G (IgG), IgA, IgM, and hsCRP. Methods used to estimate are Kinetic Jaffe's method for Sr. creatinine, immunoturbidimetry method for Sr. immunoglobulins and Sr. hsCRP in autoanalyzer.

RESULTS

Out of 62 subjects, 37 were CKD patients [male (M) = 26, female (F) = 11] and 25 were healthy controls (M = 18, F = 7) whose mean age (yrs) was (40 ± 17.5) and (37.7 ± 6.8) respectively, and this showed no significant difference between the two groups ($p = 0.41$). Mean and standard deviation of Sr. creatinine (mg/dL) between CKD patients and controls were (5.5 ± 3.1) and (0.9 ± 0.2), with $p < 0.00001$. The CKD patients showed significant decrease in immunoglobulins (mg/dL) (IgG [(888 ± 369) vs (1197 ± 189), $p = 0.00037$], IGA [(209 ± 151) vs (231 ± 85), $p < 0.00001$], and IgM [(59 ± 40) vs (112 ± 56), $p = 0.00003$]), whereas hsCRP (mg/L) showed significant increase (40.3 ± 52.5) vs (1.45 ± 1.41) with $p < 0.00001$ compared with control group.

CONCLUSION

Reduced renal function is a significant risk factor for cardiovascular events and death in CKD patients. Uremia is associated with a state of immune dysfunction characterized by immunodepression that contributes to the high prevalence of infections, as well as by immunoactivation resulting in inflammation that may contribute to CVD. The immune system deterioration by itself or through predisposition to infections leads to inflammation, which significantly contributes to the high premature mortality in CKD patients. Therefore, measures aimed at attenuating immune abnormalities in CKD may lead to decrease in morbidity and mortality in these patients.

A Comparative Study of Blood Biochemical Markers in Stroke

Dibyaratna Patgiri

Department of Biochemistry, Gauhati Medical College and Hospital, Guwahati, Assam, India

INTRODUCTION

Strokes are caused by disruption of the blood supply to the brain from either blockage or rupture of blood vessels. Yearly, 15 million people worldwide suffer a stroke. India ranks second worldwide in terms of deaths from stroke. The incidence of stroke increases with age. Hypertension and male sex are other risk factors for stroke.

AIMS AND OBJECTIVES

The present study aimed to evaluate the relationship between common biochemical tests with the incidence of stroke and arrive at a hypothesis of whether it is possible to predict the occurrence of stroke from those parameters.

MATERIALS AND METHODS

The study consisted of 50 patients of acute stroke, admitted in a tertiary hospital. The control population consisted of two groups – 50 age- and sex-matched controls with hypertension (hypertensive control group) and 50 age- and sex-matched controls with no obvious disease constituted the normal control group.

Biochemical parameters assessed in blood of all participants included sodium, potassium, magnesium, glucose, and lipid profile.

Statistical calculations were made to find out any statistical significance among the assessed parameters in the three groups using Statistical Package for the Social Sciences version 20. The p-value < 0.05 was taken to indicate statistical significance.

RESULTS

Blood sugar, sodium, total cholesterol, triglycerides, and low-density lipoprotein cholesterol levels were significantly higher in cases as compared with that in both groups of control. The high-density lipoprotein cholesterol and magnesium levels were significantly lower in cases as compared with that in both groups of control. Potassium levels did not show any statistical significance.

CONCLUSION

A blood test to diagnose stroke will go a long way in helping the physician to take life-saving decisions. Also, if the same test can foretell the chances of having a stroke in a person who is apparently healthy, then that can be used as a screening tool for prediction of stroke in the community.

A Comparative Study of Different Blood Collection Tubes for Analysis of Biochemical Investigations

[1]Dipti Tiwari, [2]Pramod Ingale, [3]Shubhangi Wankhade

[1-3]Lokmanya Tilak Municipal General Hospital and Lokmanya Tilak Municipal Medical College, Sion, Mumbai, Maharashtra, India

INTRODUCTION

Biochemical investigations contribute a lot of information for the diagnosis and management of patients. Samples for majority of the biochemical tests are collected in plain, heparinized, or gel tubes. Using each of these tubes has certain advantages and disadvantages. So, it was thought to carry out a comparative study of these three different tubes to find out the most suitable tube type for biochemical investigations in a tertiary care center.

AIMS AND OBJECTIVES

To carry out a comparative study of different blood collection tubes for biochemical investigations with the objective of finding out the most suitable type of tube in a tertiary care center.

MATERIALS AND METHODS

Samples for various biochemical investigations were collected in three different tube types, i.e., plain tube – red top, heparinized tube – green top, and gel tube – yellow top. Various parameters were studied for each of these tubes like quantity of serum/plasma obtained, quality of serum/plasma obtained, time required for serum separation, hemolysis, clotting, and any problems encountered during analysis.

CONCLUSION

It was observed that plain tubes after proper centrifugation produce good quality of serum free from fibrin threads, but require longer time for separation. Use of heparinized tubes helps to get good quality plasma in the shortest possible time. Gel tubes give the best quality of serum, completely separating it from cells but have a major drawback of gel getting aspirated in the probe, thus blocking the equipment and causing severe impact on the quality of results.

Serum Uric Acid and Liver Enzyme Levels in the Geriatric Age Group: A Comparative Study

[1]Elteza T Jahir, [2]Nirmali Mattack

INTRODUCTION

Uric acid (UA) is the final oxidation product of purine metabolism in humans and primates, and is excreted in urine. Although hyperuricemia has traditionally been considered as a cause of gouty arthritis and kidney stones, mechanisms have been proposed by which hyperuricemia could be regarded as a risk factor for development of liver dysfunction. Oxidative stress, insulin resistance, and systemic inflammation are now known to be important risk factors for the development or progression of the most important liver diseases.

AIMS AND OBJECTIVES

- To compare the levels of serum UA and liver enzymes [alanine aminotransferase (ALT), aspartate aminotransferase (AST), gamma-glutamyl transferase (GGT)] in the geriatric age group.
- Statistical analysis of findings

MATERIALS AND METHODS

Cases comprised 30 patients who were attending geriatric outpatient department of GMCH. Controls comprised 30 healthy patients.

The ALT, AST, GGT, and UA were assayed by photometric methods. Statistical analysis was done using GraphPad InStat 3.1.

CONCLUSION

There are significant elevations of values of ALT, AST, GGT, and UA in the geriatric age group. Hence, the elevation of serum UA levels along with the classical liver enzymes might be a risk factor for incidence of chronic liver disease in the elderly.

Prevalence of Refractive Error in Sickle Cell Disease

[1]Gajendra K Singh, [2]Dnyanesh Amle, [3]PK Khodiar, [4]PK Patra

[1,2,4]Department of Biochemistry, Pt. Jawahar Lal Nehru Memorial Medical College, Raipur, Chhattisgarh, India
and Dr. Bhim Rao Ambedkar Memorial Hospital, Raipur, Chhattisgarh, India
[3]Sickle Cell Institute, Raipur, Chhattisgarh, India

OBJECTIVE

To study the prevalence of refractive errors in patients of sickle cell disease in the age group 5 to 39 years.

MATERIALS AND METHODS

The study was a cross-sectional study of subjects of sickle cell disease of age group 5 to 39 years, who attended the outpatient department of Sickle Cell Institute, Raipur, Chhattisgarh, India Department of Biochemistry, Pt. Jawahar Lal Nehru Memorial Medical College, Raipur, Chhattisgarh, India. Subjects were screened for defective vision with the help of Rosenbaum's vision screener and physical examination. Data were analyzed to determine the prevalence of refractive errors among subjects of sickle cell disease.

RESULTS

About 232 subjects of sickle cell disease were examined, out of which 130 were male and 102 were female. The mean age of the study group was 11.5 years. The prevalence of uncorrected refractive error was 8.62%.

CONCLUSION

The prevalence of uncorrected refractive error was 8.62% in subjects of sickle cell disease, which is similar to the prevalence of refractive error in general population.

Relationship of Cancer Antigen 15–3 and Carcinoembryonic Antigen with Clinicopathological Parameters in Patients with Metastatic Breast Cancer in Chhattisgarh

[1]Harish Uraon, [2]PK Patra, [3]PK Khodiar, [4]Vivek Choudhary

[1]Late Shri Lakhi Ram Agrawal Memorial Government Medical College, Raigarh, Chhattisgarh, India
[2,3]Pt. Jawahar Lal Nehru Memorial Medical College, Raipur, Chhattisgarh, India
[4]Regional Cancer Center, Dr. Bhim Rao Ambedkar Memorial Hospital, Raipur, Chhattisgarh, India

INTRODUCTION

Breast cancer is the most common cancer in women, and it is also the leading cause of mortality among women. Cancer antigen (CA) 15–3 is an established tumor marker for breast cancer. Cancer antigen 15–3 has great value in early diagnosis of recurrence of breast cancer.

AIMS AND OBJECTIVES

To study the relationship of CA 15–3 tumor marker and carcinoembryonic antigen (CEA) levels with clinicopathological parameters in patients with metastatic breast cancer (MBC) of Chhattisgarh.

MATERIALS AND METHODS

About 94 female MBC patients participated in the study. All patients, aged between 25 and 48 years, participated in the study, and body surface area and body mass index ranged between 1.30–1.98 and 13.06–39.51 respectively. Tumor marker CA 15.3 and CEA level assessment was done by enzyme-linked immunosorbent assay, and clinicopathological parameters were also recorded. Hematological test was measured by cell counter and biochemical assay was measured by an autoanalyzer. We also measured tumor size in all patients, using ultrasound imaging. The data were analyzed using Statistical Package for the Social Sciences (20.0).

Spearman's correlation and analysis of variance were performed for data analysis.

RESULT AND OBSERVATIONS

Of the 94 patients, elevated CA 15–3 and CEA levels at initial diagnosis of recurrence were identified in 63 (57.4%) and 31 (34.2%) patients respectively. Elevated CA 15–3 and CEA levels were significantly associated with breast cancer molecular subtypes ($p < 0.001$ and $p = 0.032$ respectively). Elevated CA 15–3 level was correlated with bone metastasis ($p = 0.017$). However, the incidence of elevated CEA levels did not differ between patients with a single and those with multiple metastatic sites.

CONCLUSION

Elevated CA 15–3 and CEA levels at initial diagnosis of recurrence were found to be associated with breast cancer molecular subtypes, whereas an elevated CA 15–3 level was significantly correlated with bone metastasis and an elevated CEA level was observed regardless of metastatic site.

Self-directed Learning in Biochemistry: Do the Students Really Want It?

[1]Himanshu Madaan, [2]Piyush Bansal, [3]Renu Garg, [4]Prerna Panjeta, [5]Aniljeet S Trehan, [6]Manjeet Singh

[1-5]Department of Biochemistry, Bhagat Phool Singh Government Medical College for Women, Sonepat, Haryana, India
[6]Department of Physiology, Bhagat Phool Singh Government Medical College for Women, Sonepat, Haryana, India

INTRODUCTION

Self-directed learning (SDL) has been identified as an important skill for medical graduates, as these skills will equip the graduates for whatever the future holds and will keep them up-to-date when they are no longer on formal training programs.

AIMS AND OBJECTIVES

To introduce SDL in first-year Bachelor of Medicine, Bachelor of Surgery (MBBS) students and to assess the perception of students about SDL.

MATERIALS AND METHODS

The study was conducted involving all the first-year MBBS students admitted during 2015 to 2016 in the Department of Biochemistry of Bhagat Phool Singh Government Medical College for Women, Khanpur Kalan, Sonepat, Haryana, India. A total of two sessions, i.e., one each for a group of 50 students, of SDL were held. For the first topic (vitamin A and vitamin E), group I (R. No. 401–450) was the SDL group, and group II (R. No. 451–500) was the teacher-directed learning group (TDL). For the second topic (vitamin D and vitamin K), a crossover was done. At the end, the understanding of the topic was tested by conducting an objective test for both the groups.

RESULTS

On comparison of the scores of whole class, the SDL group (mean = 58.56 ± 15.86) had statistically significantly better performance than the TDL group (mean = 53.05 ± 17.18). The student feedback collected showed that although 70% students were of the opinion that the SDL technique helped the students in improving their learning skills, yet 65.5% were not in favor of incorporating SDL as a means of teaching learning method.

CONCLUSION

In this study, the students have rejected the concept of SDL and favored the continuation of TDL for being more examination-oriented. Students clearly describe that they trust and prefer their teachers compile the topic from many resources, cover all important points, updates and concepts, explain the concepts well, and finally provide good summaries thus, preparing them for exams.

Serum Lipid Profile Values and their Association with Psychiatric Disorder Patients

[1]Jadab K Phukan, [2]Jyoti Hazarika, [3]Anil C Sarmah

[1]Department of Biochemistry, Lokopriya Gopinath Bordoloi Regional Institute of Mental Health, Tezpur, Assam, India
[2]Department of Microbiology, Lokopriya Gopinath Bordoloi Regional Institute of Mental Health, Tezpur, Assam, India
[3]Central Laboratory, Lokopriya Gopinath Bordoloi Regional Institute of Mental Health, Tezpur, Assam, India

INTRODUCTION

Several studies have investigated the relationships of lipid levels with psychiatric patients, and their results revealed an association between lipid derangement and psychiatric disorders.

AIMS AND OBJECTIVES

The aim of our study is to evaluate the lipid profile alteration in psychiatric disorder and compare with normal control.

MATERIALS AND METHODS

This study was conducted at the Department of Biochemistry, Central Laboratory, Lokopriya Gopinath Bordoloi Regional Institute of Mental Health, Tezpur, Assam, India. About 100 newly admitted psychiatric patients were included in this study and compared

with 60 age- and sex-matched normal subjects. In both the groups, we have measured lipid profile, which includes serum total cholesterol (TC), triglycerides (TGs), high-density lipoprotein-cholesterol (HDL-C), low-density lipoprotein-cholesterol (LDL-C), very low density lipoprotein-cholesterol (VLDL-C), and cardiovascular risk factors (R1 and R2).

RESULTS

The levels of serum TC, TGs, LDL-C, and VLDL-C and risk factors in psychiatric patients were significantly increased as compared with control group (p < 0.05). However, serum HDL-C level was significantly decreased in test group (p > 0.05).

CONCLUSION

In our study, it is clearly evident that psychiatric disorders are associated with significantly higher levels of lipids (constituents of lipid profile) and risk factors for coronary heart disease.

Study of Significance of Serum Magnesium, Glycosylated Hemoglobin, and Serum Lipid Profile in Diabetes Mellitus

[1]Jona Hazarika, [2]SM Rahman

[1]Postgraduate Student, [2]Associate Professor and Head
[1,2]Department of Biochemistry, Gauhati Medical College and Hospital, Guwahati, Assam, India

INTRODUCTION

Diabetes mellitus (DM) is a highly prevalent disease worldwide. Diabetes and its complications are a significant cause of mortality, morbidity, and increased economical burden to the country's health sector. Hypomagnesemia has long been associated with DM and this association is compelling for its wide-ranging impact on diabetic control and complications. Glycosylated hemoglobin (HbA1c) has been postulated as a biochemical model for the pathogenesis of diabetic sequelae through glycosylation reactions. Hence, this work is carried out to study the correlation between HbA1c, magnesium status, and serum lipid profile in controlling diabetic complications.

AIMS AND OBJECTIVES

- To study HbA1c and serum lipid profile in type II DM.
- To gather information about the degree of control of diabetes and magnesium status.
- To study the correlation between serum magnesium, HbA1c, and serum lipid profile in patients with diabetic complications.

MATERIALS AND METHODS

The study was conducted in a tertiary care hospital with 60 subjects (40 with diabetes and 20 normal healthy controls) by data collection method. All the 60 subjects were in the age group of 45 to 60 years. Those who were hypertensive, chronic alcoholics, had adverse renal functions, or were taking diuretics were excluded from the study. For the purpose of study, they were divided into three groups as follows:
- *Group I*: Twenty participants without diabetes
- *Group II*: Twenty patients with diabetes, but no clinically evident diabetic complications
- *Group III*: Twenty patients with diabetes and associated complications

RESULTS

In our study, we observed that HbA1c level in diabetic patients (groups II–III) was significantly higher as compared with control group I (p < 0.0005).

The average serum magnesium level was lower in groups II and III patients as compared with group I. Patients in group III showed more hypomagnesemia (p < 0.005) as compared with group II.

The serum cholesterol values were significantly higher in group III (p < 0.005) and group II (p < 0.01) as compared with group I as well as serum triglyceride values were higher in group III (p < 0.005) and group II (p < 0.01) as compared with group I.

CONCLUSION

The study revealed that a definite lowering of serum magnesium levels in diabetic patients who had complications. Higher levels of glucose in the blood contribute to more binding and consequent higher levels of HbA1c, more specifically, in diabetics with complications than those without complications.

The patients with diabetes have a higher degree of atherosclerosis burden due to dyslipidemia than people without diabetes. Therefore, by studying the mentioned parameters we can diagnose the chronicity and various complications associated with diabetes.

A Comparison of Spot Urine Protein – Creatinine Ratio with 24-hour Urine Protein – Creatinine Ratio

[1]Jyothirmayi, [2]Noorjahan, [3]Priscilla Chandran, [4]Rachel Jacob

[1-4]Nizam's Institute of Medical Sciences, Hyderabad, Telangana, India

INTRODUCTION

Measurement of urinary proteins is one of the useful and important markers for assessing the degree of renal impairment. Protein measurement in a 24-hour urine sample is the traditional standard method for the detection of proteinuria. However, 24-hour urine collection is time-consuming, inconvenient, and subject to collection errors, and, many times, it is not feasible or practically possible to collect a 24-hour urine sample. As an alternative, random spot sampling for urine protein-to-creatinine ratio has been investigated.

AIMS AND OBJECTIVES

To compare a less cumbersome spot (random) protein–creatinine ratio with 24-hour urine protein – creatinine ratio for detection of proteinuria.

MATERIALS AND METHODS

We measured the spot urine protein – creatinine ratio and 24-hour urine protein – creatinine ratio in 40 patients (male 24, female 16) prospectively over a period of 2 months from June and July 2016, who attended the Nizam's Institute of Medical Sciences nephrology clinic in the age group of 20 to 60 years. Urine protein was analyzed using turbidimetry method, and urine creatinine analyzed using kinetic Jaffe method using Cobas c501 analyzer. We compared spot urine protein – creatinine ratio with 24-hour urine protein – creatinine ratio in the same patient. Data were analyzed by Pearson's correlation.

RESULTS

We observed a very good correlation between spot (random) protein – creatinine ratio and 24-hour urine protein – creatinine ratio with r-value of 0.9, which was statistically highly significant (p-value≤0.00001).

CONCLUSION

We conclude that the spot (random) protein – creatinine ratio can replace a 24-hour urine protein – creatinine ratio in general practice. This simplifies procedures for the patient as a 24-hour urine collection is no longer necessary. Another advantage is that spot urine protein – creatinine ratio is a simple test, which provides a rapid and reliable result in clinical practice to estimate proteinuria.

Correlation between Serum Anti-Müllerian Hormone Levels and Age in Breast Carcinoma Patients

[1]Jyoti Bala, [2]Shashi Seth, [3]Rakesh Dhankhar, [4]Veena S Ghalaut

[1-4]Department of Biochemistry, Pt. Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India

INTRODUCTION

Anti-Müllerian hormone (AMH) is a protein hormone expressed by the granulosa cells of the ovary during the reproductive years and controls the formation of primary follicles by inhibiting excessive follicular recruitment by follicular stimulating hormone.

AIMS AND OBJECTIVES

Our objective is to evaluate serum AMH levels and correlate them with age in breast carcinoma patients.

MATERIALS AND METHODS

The present study was conducted in the Department of Biochemistry in collaboration with the Department of Radiotherapy, Pt. Bhagwat Dayal Sharma, University of Health Sciences, Rohtak, Haryana, India. About 30 female patients who were not on chemotherapy after confirmed diagnosis of breast carcinoma were enrolled in the study group and 30 healthy age-matched female volunteers were enrolled as controls.

Blood samples were collected from the participants and assayed for AMH by a sandwich enzyme-linked immunosorbent assay. Females on oral contraceptive pills/hormone therapy or drugs affecting hormone levels were excluded from the study.

RESULTS

The study group AMH values ranged between 0.82 and 2.76 ng/mL (mean ± standard deviation [SD] = 1.67 ± 0.44) as compared with 1.24 to 2.68 ng/mL of control group (mean ± SD = 1.9 ± 0.37), and this difference was statistically significant (p < 0.05). Negative correlation was seen between age and serum AMH levels in breast cancer patients, but was not statistically significant (r = –0.097, p > 0.05).

CONCLUSION

There was significant decrease in AMH levels in study group as compared to control group indicating that breast cancer patients have decreased underlying ovarian reserve, and, hence, decreased fertility than age-matched healthy women. Also, negative correlation was found between age and serum AMH levels indicating that with increase in age, serum AMH levels decline in breast carcinoma.

Study of Leukemia Cell Interactions with Platelet Exosomes

[1]Jyotsna Kailashiya, [2]Debabrata Dash

[1,2]Department of Biochemistry, Institute of Medical Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, India

INTRODUCTION

Exosomes are nanoscale fragments released from many cells like leukocytes, endothelial cells, and platelets, circulating in the blood. There is increasing evidence that many cancer cells interact with these circulating exosomes. We have examined interaction of leukemia cells and platelet exosomes (PEs) in this study. Fluorescent-tagged PEs were incubated with leukemia cell line K562 *in vitro*. The PEs were characterized by nanoparticle-tracking analysis. Cell interactions were examined by flow cytometry and fluorescence microscopy. As a result, we found that these leukemia cells start interacting with PEs within 5 minutes of incubation. The PEs were uptaken by and fluorescence was distributed in cytoplasm of K562 cells. These results confirm that leukemia cells interact with PEs and engulf them. The possible mechanism is through selectins and other cell surface receptors-mediated interaction and phagocytosis.

Association of Vitamin D with Thyroid Status in Elderly Population attending a Tertiary Care Hospital in North India

Kanchan Taneja

Jaypee Hospital, Noida, Uttar Pradesh, India

AIMS AND OBJECTIVES

Vitamin D deficiency is a common health problem across the globe. In recent studies, it has been evident that it plays a significant role in reducing incidences of autoimmune diseases through its immunomodulatory action. However, its role in thyroid diseases is still not clear.

We aimed to examine the relationship between vitamin D and thyroid status in elderly population attending the outpatient department for health checkup in a tertiary care hospital.

MATERIALS AND METHODS

Serum vitamin D (25-OH) levels and thyroid hormones [thyroid-stimulating hormone (TSH), triiodothyronine (T3), and thyroxine (T4)] were measured in 30 patients with hypothyroidism and 30 healthy subjects. Vitamin D deficiency was designated at levels lower than 20 ng/mL. Thyroid hormones (TSH, T3, and T4) and vitamin D levels were measured by chemiluminescence immunoassay.

RESULTS

Serum 25-OH vitamin D was lower in hypothyroid patients than in controls, but was statistically insignificant (p > 0.05). Its level was insignificantly decreased in females than male patients (t = –1.32, p > 0.05).

CONCLUSION

Our results are contrary to various studies that proved to have hypovitaminosis D in hypothyroid individuals as compared with healthy population, which further mandates a large population-based study to signify the role of vitamin D in thyroid diseases.

A Study of Correlation between Total Cholesterol and Total Bilirubin of Gallstone and Serum of Stone Formers

[1]Kaushik Nath, [2]Kailash Bhattacharyya

[1,2]Department of Surgery and Biochemistry Assam Medical College & Hospital, Dibrugarh, Assam

INTRODUCTION

The prevalence of gallstone disease is steadily rising in India and has far surpassed that of other Southeast Asian countries. Cholesterol and bilirubin, both readily available in our body, play an important role in the pathogenesis of gallstone formation by precipitating in the bile of the patients.

AIM

To study the correlation, if any, between total cholesterol and total bilirubin content in gallstones and the serum of the subjects.

MATERIALS AND METHODS

About 40 gallstones and blood samples were collected from subjects admitted for cholecystectomy in the surgery department of Assam Medical College Hospital, Dibrugarh, Assam, India. The stones were categorized morphologically into cholesterol gallstones, pigment gallstones, and mixed gallstones; the stones were chemically analyzed to quantitatively measure the total cholesterol and total bilirubin content, which was correlated with the values obtained from the serum of the subjects.

RESULTS

Out of 40 gallstones, 16 (40%) were pigmented gallstones, 13 (32.5%) were mixed gallstones, and 11 (27.5%) were cholesterol gallstones.

In pigment gallstones, a significant moderate positive correlation was seen between serum bilirubin and bilirubin content of pigment stones ($r = 0.546$; $p < 0.05$), while cholesterol showed very weak nonsignificant negative correlation ($r = -0.014$, $p > 0.05$).

Mixed gallstones and cholesterol gallstones showed nonsignificant correlation between the serum content of total cholesterol and total bilirubin to that of gallstones.

CONCLUSION

A significant positive correlation between the serum bilirubin and that of bilirubin content in pigment gallstones leads us to the conclusion that hyperbilirubinemia may be associated with pigment gallstone disease.

Association of Vitamin D with Serum Lipids and Atherogenic Indices in Type II Diabetes: A Study from Shillong, Meghalaya

[1]Kaustubh Bora, [2]Alice A Ruram

[1,2]Department of Biochemistry, North Eastern Indira Gandhi Regional Institute of Health & Medical Sciences Shillong, Meghalaya, India

INTRODUCTION

The role of vitamin D in relation to glucose metabolism and diabetes has been much explored in recent times. However, vitamin D in relation to lipid metabolism in diabetics has been described infrequently. Dyslipidemia and atherogenic changes are common complications of type II diabetes (T2D), and a major cause of diabetic morbidity and mortality. Meghalaya in Northeast India receives very low cloud-free sunshine hours. Anecdotally known as "the wettest place on earth," the relationship of vitamin D with lipid parameters in diabetics from Meghalaya is thus of special interest.

OBJECTIVE

To determine the association of 25-hydroxyvitamin D (25-OH-D) with serum lipids and atherogenic indices.

MATERIALS AND METHODS

The 25-OH-D concentrations were measured in 280 T2D patients by chemiluminescence immunoassay. Their association with serum lipids [*viz.* total cholesterol (TC), high-density lipoprotein (HDL)-cholesterol, low-density lipoprotein (LDL)-cholesterol, triglycerides (TGLs)] and atherogenic indices [*viz.* atherogenic coefficient and atherogenic index of plasma (AIP)] was evaluated by univariate and multivariate statistical approaches. Serum lipid measurements were performed by homogeneous enzymatic assays using commercially available photometric kits. All biochemical estimations were verified for quality using 3rd-party control materials.

RESULTS

Low vitamin D (25-OH-D < 30 ng/mL) was rampant in our T2D sample. The 25-OH-D values correlated significantly with TC (r = 0.26, p < 0.01), HDL-cholesterol (r = 0.13, p < 0.05), LDL-cholesterol (r = 0.15, p < 0.05), and TGL (r = 0.32, p < 0.01) levels. Significant relationship with AIP (r = 0.22, p < 0.01) was also found. The variation in these parameters was documented across 25-OH-D categories based on quartiles. Results were verified after controlling for confounders.

CONCLUSION

Vitamin D may be an important regulator of serum lipids and atherogenic indices in T2D. Prospective studies should be carried out to examine the impact of vitamin D supplementation on these variables in the setting of T2D.

Study of Salivary Calcium, Phosphorus, and Alkaline Phosphatase Levels in Leukemia

[1]Kumar Saurabh, [2]Veena S Ghalaut, [3]Jyoti Bala

[1-3]Department of Biochemistry, Pt. Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India

INTRODUCTION

Leukemia patients often present with different types of oral manifestations at various stages of the disease. Saliva is important for enamel maturation and remineralization, and salivary markers predict the oral health status in systemic disease where function of salivary glands and composition of saliva are affected.

AIMS AND OBJECTIVES

The aim of the present study was to estimate salivary calcium, phosphorus, and alkaline phosphatase (ALP) levels in leukemia patients and compare with their age- and sex-matched healthy controls.

MATERIALS AND METHODS

The present study was conducted in the Department of Biochemistry, in collaboration with the Department of Medicine (Clinical Hematology unit) of Pt. Bhagwat Dayal Sharma, University of Health Sciences, Rohtak, Haryana, India. Thirty patients of leukemia after confirmed diagnosis, who were not on chemotherapy drugs, were included in the study group. Age- and sex-matched healthy individuals were enrolled as controls. Unstimulated saliva was obtained from the leukemia patients and healthy controls, which was analyzed for calcium, phosphorus, and ALP by autoanalyzer on the same day.

RESULTS

Mean salivary calcium, phosphorus, and ALP levels in leukemia patients were 5.01 ± 1.52 mg/dL, 16.16 ± 7.06 mg/dL, and 17.88 ± 13.56 U/L respectively, while in control group, mean salivary calcium, phosphorus, and ALP levels were 5.12 ± 1.23 mg/dL, 10.73 ± 2.34 mg/dL, and 17.68 ± 4.43 U/L respectively. Salivary calcium (p > 0.05) levels in leukemia group were lower than control group and were not significant. Mean salivary phosphorus (p = 0.001) levels were significantly higher in leukemia group while ALP levels although higher (p > 0.05), but not significant when compared to control group.

CONCLUSION

We concluded that altered levels of these parameters in leukemic patients as compared with controls are because of associated various oral complications, such as gingival enlargement, paleness of oral mucosa/local abnormal color of the gum, gingival petechiae, ecchymosis, hemorrhages, and ulcerative necrotic lesions reported in our study, which indicate resultant decrease in oral health status in these patients as a result of systemic disease.

A Case Report of Monoclonal Gammopathy of Renal Significance

[1]Noorjahan, [2]Priscilla Chandran, [3]Rajesh, [4]Megha Uppin, [5]B Yadagiri, [6]Sree Bhushan Raju, [7]Sadasivudu

[1,2,5]Department of Biochemistry, Nizam's Institute of Medical Sciences, Hyderabad, Telangana, India
[3,6]Department of Nephrology, Nizam's Institute of Medical Sciences, Hyderabad, Telangana, India
[4]Department of Pathology, Nizam's Institute of Medical Sciences, Hyderabad, Telangana, India
[7]Department of Medical Oncology, Nizam's Institute of Medical Sciences, Hyderabad, Telangana, India

INTRODUCTION

Monoclonal gammopathy of undetermined significance (MGUS) is an early stage of multiple myeloma that remains benign in most people diagnosed with it. The MGUS is characterized by a serum M-protein concentration of <3 gm/dL, <10% plasma

cells in the bone marrow, no or only small amounts of M-protein (Bence–Jones protein) in the urine, the absence of lytic lesion, hypercalcemia, anemia, and renal insufficiency. So, the disease remains untreated and, in most people with MGUS, the disease will continue to be benign for the rest of their lives. Recently, the term monoclonal gammopathy of renal significance (MGRS) was introduced to distinguish monoclonal gammopathies that result in the development of kidney disease from those that are benign. By definition, patients with MGRS have B-cell clones that do not meet the definition of multiple myeloma or lymphoma. Despite low-tumor burden, these clones produce monoclonal proteins that are capable of injuring the kidney resulting in permanent damage. Hence, the treatment of MGRS is often indicated to preserve kidney function and prevent recurrence.

AIMS AND OBJECTIVES

The intention was to make a clear distinction between MGUS, a benign asymptomatic condition, and MGRS, which may be associated with significant morbidity and mortality.

CASE REPORT

A 46-year-old male, nondiabetic, farmer, with a high creatinine (3.6 mg/dL) was included. He was a hypertensive, with h/o coronary artery disease. A coronary angiography with percutaneous transluminal coronary angioplasty was done earlier. Eight months before this admission, there was h/o acute coronary syndrome – anterior wall myocardial infarction, for which he was thrombolyzed. There was no family h/o renal disease, nonsteroidal anti-inflammatory drugs abuse, native medications, or tuberculosis. His investigations revealed Hb – 12.9 gm%, calcium – 9.8 mg/dL, and no lytic lesions. Serum protein electrophoresis showed M protein of 0.5 gm/dL, serum Immunofixation electrophoresis showed IgG with lambda light chains, urine for Bence–Jones also showed lambda light chains, and bone marrow showed 9% plasma cells. In the absence of myeloma and based on renal biopsy, he was labeled as MGRS.

CONCLUSION

This case highlights the importance of diagnosing MGRS and related kidney diseases so that the paraprotein secreting clone can be optimally treated.

A Study on Serum Vitamin D Level among Adult Nonalcoholic Fatty Liver Disease Patients

[1]Manas Talukdar, [2]Subhashree Ray, [3]Viyatprajna Acharya, [4]Bratati Singh, [5]Manoj K Sahu

[1-4]Department of Biochemistry, Institute of Medical Sciences and SUM Hospital, Bhubaneswar, Odisha, India
[5]Department of Gastroenterology, Institute of Medical Sciences and SUM Hospital, Bhubaneswar, Odisha, India

INTRODUCTION

Nonalcoholic fatty liver disease (NAFLD) is rapidly becoming the most common liver disease worldwide. The prevalence of NAFLD in the general population of Western countries is 20 to 30% and around 9 to 32% among Indian population.

A study on these parameters is essential to clinically establish the correlation.

AIM

The aim of our study is to test the hypothesis of a strong association between serum 25(OH) vitamin D level in presence of NAFLD subjects and calculate various degrees of insulin resistance.

OBJECTIVE

- To study liver function test and lipid parameters.
- To study insulin level and insulin resistance.
- To study the level of serum vitamin D in NAFLD patients.
- To study the correlation between vitamin D and insulin resistance in patients with NAFLD.

Place of study: Department of Biochemistry and Department of Gastroenterology, Institute of Medical Sciences and SUM Hospital, Bhubaneswar, Odisha, India

Study period: 2 years

Study design: Cross-sectional study

Sample size: Around 50 cases

INCLUSION CRITERIA

- Known patients of NAFLD diagnosed by abdominal ultrasonography with no obvious complications.
- Patient's age >18 years and <70 years.

EXCLUSION CRITERIA

- Known patients of NAFLD with obvious complications. No abdominal ultrasonogram data.
- Pregnant women.
- Positive serological marker for hepatitis B or C virus.
- Alcohol abuse or intake ≥20 gm/day.
- Presence of medical illness that could affect liver function, such as hepatitis, malignancy, and diabetes mellitus.
- Advanced renal disease patients on dialysis.
- Patients who are taking any medications known to affect vitamin D_3 metabolism including vitamin or minerals supplementation.
- Any missing data on the laboratory parameters and questionnaire.

CONCLUSION

The study will be conducted by taking approximately 50 cases and age- and gender-matched controls after getting informed consent from the cases. Ethical clearance has already been done.

A Study of Serum Lactate Dehydrogenase Level in Breastand Gynecological Malignancies

[1]K Manjusha, [2]P Lohitha, [3]K Ashalata

[1-3]Department of Biochemistry, Andhra Medical College, Visakhapatnam, Andhra Pradesh, India

INTRODUCTION

Lactate dehydrogenase (LDH) catalyzes the interconversion of pyruvate and lactate with concomitant interconversion of nicotinamide adenine dinucleotide (NADH) and NAD^+. Cancer cells rely on increased glycolysis resulting in increased lactate production instead of aerobic respiration in the mitochondria, even under oxygen-sufficient conditions (Warburg effect). This state of fermentative glycolysis is catalyzed by the A form of LDH. This mechanism allows tumor cells to convert the majority of their glucose stores into lactate regardless of oxygen availability, shifting use of glucose metabolites from simple energy production to the promotion of accelerated cell growth and replication.

AIMS AND OBJECTIVES

To study the level of serum LDH level in breast cancer and gynecological malignancies, which include cervical carcinoma and endometrial carcinoma patients.

To evaluate the role of LDH as prognostic marker in the above patients under anticancer treatment (radiotherapy).

MATERIALS AND METHODS

The study was conducted among 77 patients, with diagnosis of breast cancer (stages II, III, and IV) (n=38), carcinoma cervix (n=27), and endometrial adenocarcinoma (n=12) attending the Nuclear Medicine Department of King George Hospital for postoperative/adjuvant radiotherapy for a period of 4 months. About 30 normal individuals of same age and sex are taken as controls.

The serum LDH level was estimated on Agappe–Mispa nano autoanalyzer of the kinetic ultraviolet method.

RESULTS

The serum LDH levels are significantly high in all, i.e., 369±98 IU/L in breast cancer patients, 378±100 IU/L in cervical cancer, and 389±94 IU/L in endometrial carcinoma patients when compared with normal individuals (228±56 IU/L).

CONCLUSION

The serum LDH levels are high in breast and gynecological malignancies and can be useful as a prognostic marker in radiotherapy/adjuvant therapy.

Correlation of Triglycerides with Various Androgen Levels in Newly Diagnosed Cases of Polycystic Ovarian Syndrome

[1]Meenakshi, [2]Manju Bala, [3]K Menaka, [4]Anjali Gupta

[1-3]Department of Biochemistry, Pt. Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India
[4]Department of Obstetrics and Gynecology, Pt. Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India

OBJECTIVE

To correlate serum triglycerides (TGs) with androgens levels [total testosterone (T.Testo), free testosterone (FT), and dehydroepiandrosterone sulfate (DHEAS)] in newly diagnosed cases of polycystic ovarian syndrome (PCOS).

MATERIALS AND METHODS

The present study was done in the Department of Biochemistry in collaboration with Department of Obstetrics and Gynecology in which 30 PCOS cases and 30 age-matched healthy controls were involved. Fasting venous blood samples were collected from cases and controls for routine biochemical and hormone analysis after obtaining written consent and complete history.

RESULTS

We found that FT of cases (10.3 ± 17.1 pg/dL) showed significantly higher values than controls (1.84 ± 1.4 pg/dL) with $p = 0.011$, and T.Testo of cases (47.85 ± 4.3 ng/mL) also showed significantly higher values than controls (22.5 ± 2.18 ng/mL) with $p = 0.000$. There was no significant difference in DHEAS between cases and controls. The TG of cases (134.53 ± 10.62 mg/dL) showed significantly higher than controls (106.8 ± 6.63 mg/dL) with $p = 0.031$. The TG had positive correlation with FT and T.Testo, but DHEAS showed negative correlation with TG.

CONCLUSION

In conclusion, the increased levels of ovarian androgens (FT, T.Testo) lead to increase in TG level, but an increased level of adrenal androgen (DHEAS) is not associated with increased TG level.

Glucose Challenge Test with Hemoglobin A1c Level during Pregnancy could enhance the Clinical Application of the Two-step Approach for Gestational Diabetes Mellitus in Employees' State Insurance Corporation, Bengaluru

[1]N Shakeel, [2]K Pratibha

[1,2]Department of Biochemistry, ESI-Post Graduate Institute of Medical Science & Research, Rajajinagar, Bengaluru, Karnataka, India

INTRODUCTION

Supplementation with hemoglobin A1c (HbA1c) in a two-step approach for gestational diabetes mellitus (GDM) seems appropriate, as HbA1c alone for GDM screening and diagnosing was inconsistent in a previous study.

AIMS AND OBJECTIVES

To investigate the validity of two-step approach, i.e., HbA1c and 50 gm glucose challenge test (GCT) for screening and diagnosing GDM in order to reduce the necessity for subsequent 100 gm glucose tolerance test (GTT).

MATERIALS AND METHODS

The prospective study enrolled 100 pregnant women undergoing GCT.

The HbA1c was analyzed using standard method. Previously proposed algorithm using HbA1c for the predictability of GDM has been used. Maternal age, glucose level for the GCT, and HbA1c level were selected and used as per the algorithm.

RESULTS

The data have been analyzed statistically; the previous study suggests that HbA1c has lower sensitivity; about 4% of mothers were prevented from undergoing GTT.

Nitric Oxide and Malondialdehyde Levels before and after Acute Exercise in Trained Athletes

[1]Monica Verma, [2]Kiran Dahiya, [3]Asha Kumari, [4]Rajesh Kumar, [5]Veena S Ghalaut

[1-5]Department of Biochemistry, Pt. Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India

INTRODUCTION

Exercise is a stress-like condition resulting in increase of reactive oxygen species. However, if done regularly, it strengthens the antioxidant system. Nitric oxide is continually produced from endothelium by endothelial nitric oxide synthase. The increase in nitric oxide (NO) bestows to vasodilatation occurring during exercise and may prove beneficial for patients with vascular diseases. On the contrary, it is a marker of oxidative stress also. Malondialdehyde (MDA) is a marker of lipid peroxidation.

AIMS AND OBJECTIVES

This study was conducted to see the effect of acute exercise on systemic NO and MDA levels in trained athletes.

MATERIALS AND METHODS

Study was conducted on 50 athletes, who do regular sports activities and are healthy. Blood was collected before and immediately after acute exercise for estimation of NO and MDA by Griess reaction and thiobarbituric acid-reactive species method respectively. Data were analyzed by Student's paired t-test.

RESULTS

The concentrations of NO and MDA were found to be increased after moderate exercise, and results were statistically significant ($p < 0.05$).

CONCLUSION

Acute exercise, even for short duration, induces the synthesis of NO and MDA.

A Study on Liver Enzymes and its Prognostic Value in Seropositive Dengue Patients

Mousumi Goswami

Gauhati Medical College and Hospital, Guwahati, Assam, India

INTRODUCTION

Dengue is an acute febrile disease of viral etiology, the evolution of which is benign in its classic form, and serious when presenting as dengue hemorrhagic fever/dengue shock syndrome. Atypical manifestation of dengue infection with liver involvement has frequently been reported ranging from mild elevations of aminotransference levels to fulminant hepatitis.

AIMS AND OBJECTIVES

To evaluate the impact of dengue virus infection on liver function by measuring aminotransferases from dengue-positive cases.

MATERIALS AND METHODS

An analyses of the data of 40 serologically confirmed cases of dengue infection at our tertiary care hospital were made. Patients with normal aminotransference levels were categorized into grade I, those with at least one of the enzymes raised to less than two times as grade II, those with at least one of the enzymes elevated more than two times but less than four times as grade III, and those with elevations more than four times as grade IV.

RESULTS

About 85% cases had alterations in the aminotransference levels with 37% categorized into grade II, 20% into grade III, and those with elevations more than four times as grade IV or acute hepatitis ($p < 0.001$). Aspartate aminotransference (AST) levels were higher compared with the levels of alanine aminotransference (ALT).

CONCLUSION

Dengue is normally associated with a moderate increase in aminotransferases. In all cases, dengue was found to be self-limiting, and there were no cases of liver failure. DENV, therefore, is seen to provoke a varying degree of damage to the hepatic parenchyma, ranging from mild increases in aminotransferases to increases of up to 30 times the reference values. Therefore, the

use of liver function tests to evaluate the degree of liver damage is of great value, and markers, such as AST and ALT may be used as parameters to evaluate severity.

Status of Vitamin D Levels in Hypothyroid Patients and its Associations with Thyroid-stimulating Hormone, T3, and T4 in North Indian Population of Meerut: A Cross-sectional Study

[1]Nirensingh Koch, [2]Jaskiran Kaur, [3]Akash Gupta, [4]Inder P Kaur, [5]Shikha Agarwal

[1-5]Department of Biochemistry, Subharti Medical College, Meerut, Uttar Pradesh, India

INTRODUCTION

Vitamin D deficiency has been identified as a risk factor for several autoimmune diseases, cancers, atherosclerosis, etc. Its deficiency has also been shown to be associated with hypothyroidism with inconclusive results. The present study aims to explore the association of vitamin D deficiency with hypothyroidism.

MATERIALS AND METHODS

This is a cross-sectional study conducted in the Department of Biochemistry, Subharti Medical College, Meerut, Uttar Pradesh, India. A total of 152 clinically suspected hypothyroid subjects in the age group of 20 to 60 years, from both sexes attending medicine outpatient department were included in the study.

All the patients were subjected to complete general physical and systemic examination and findings noted. The vitamin D, T3, T4, and thyroid-stimulating hormone (TSH) were measured in all by enzyme linked fluorescence assay (ELFA) in a Vidas PC autoanalyzer from bioMérieux. The patients were then categorized into euthyroid (TSH = 0.25–5 µIU/mL), subclinical hypothyroid (TSH > 5–7 µIU/mL), and overt hypothyroid (TSH > 7 µIU/mL) based on serum TSH cutoff values. The patients were also defined as vitamin D sufficient (>30 ng/mL), insufficient (20–30 ng/mL), and deficient (<20 ng/mL) based upon the recent consensus on vitamin D classification.

RESULTS

The mean values of vitamin D in subclinical hypothyroid (16.73 ± 12.46 ng/mL) and overt hypothyroid (13.23 ± 10.08 ng/mL) were significantly lower than the euthyroid (29.07 ± 19.01 ng/mL) with p-value < 0.05. Pearson's correlation analyses between vitamin D and TSH (r = –0.314, p < 0.01) have shown a significant negative correlation.

CONCLUSION

Vitamin D deficiency negatively correlates with TSH. Thus, we suggest vitamin D supplementation to all hypothyroid patients.

Evaluation of Low T3 Syndrome and its Clinical Significance in a Tertiary Care Hospital: A Retrospective Observational Study

[1]Parveen Doddamani, [2]NK Swetha, [3]MN Suma, [4]M Naga Mrudula, [5]Chaitra

[1]Department of Clinical Biochemistry, JSS Hospital, Mysuru, Karnataka, India
[2-5]Department of Biochemistry, JSS Medical College and Hospital, Jagadguru Sri Shivarathreeswara University, Mysuru, Karnataka, India

INTRODUCTION

A most common scenario seen in acute and chronic systemic illnesses is low T3 syndrome or euthyroid sick syndrome or nonthyroidal illness. This syndrome mainly constitutes the following changes: Low free or total T3 or a high level of reverse T3 (rT3) along with normal or low levels of thyroxine (T4) and thyroid-stimulating hormone (TSH). Low T3 has been assessed in critically ill patients across the age groups from pediatric to geriatric proving to be a simple, yet useful biochemical marker to assess the mortality rate; but no significant literature is available in relation to acute and chronic systemic illnesses.

AIMS AND OBJECTIVES

To assess the prevalence of low T3 syndrome in patients across various medical, surgical, and pediatric wards and Intensive Care Unit (ICU), the end point of the study being mortality or discharge.

MATERIALS AND METHODS

A retrospective study, wherein, all the cases admitted in the tertiary care hospital from March to August 2016 across various medical, surgical, pediatric wards, and ICU with low T3 syndrome were selected for the study. A total of 131 cases of low T3

syndrome based on the standard definition were then further assessed for age/sex, clinical diagnosis, and discharge/mortality. The study group was then statistically analyzed using Statistical Package for the Social Sciences 16 software and a p-value of <0.05 considered as significant.

RESULTS

In our study, out of a total 131 cases with low T3 syndrome, 63 were males and 68 were females, and the number of cases were highest (56) in the age group of >60 years. Out of 131 patients, 119 patients were stable at the time of discharge and no significant correlation was found between low T3 syndrome and mortality rate (p > 0.05).

CONCLUSION

Though low T3 syndrome is found in various acute and chronic conditions, no undue importance is required to stress on treating thyroid hormone levels particularly, and more emphasis is to be laid on treating the underlying pathology.

Importance of Gastric Silver Nitrate Filter Paper Test in Aluminum Phosphide Poisoning: A Case Study

[1]Pooja SK Rai, [2]Pramod W Ingale, [3]Ravi Yadav

[1-3]Department of Biochemistry, Lokmanya Tilak Municipal General Hospital and Lokmanya Tilak Municipal Medical College, Sion, Mumbai

INTRODUCTION

Aluminum phosphide (ALP) is a major cause of suicidal poisoning in many countries. Mortality with ALP poisoning is very high, ranging from 37 to 100%. The ALP is a solid fumigant, which has been extensively used since the 1940s. The ALP is a solid pesticide that rapidly became one of the most commonly used grain fumigants because of its properties that are considered to be near ideal; it is toxic to all stages of insects, highly potent, does not affect seed viability, is free from toxic residues, and leaves little residue on food grains. Toxicity by ALP is caused by the liberation of phosphine gas, which causes cell hypoxia due to inhibition of oxidative phosphorylation leading to circulatory failure. Treatment of ALP toxicity is mainly supportive as there is no specific antidote.

CASE HISTORY

A 17-year-old male patient had history of consumption of two tablets of unknown poison, which was suspected to be ALP poisoning. Baseline liver function tests and renal function tests were deranged. On the 2nd day, there was persistent bradycardia, which was not responding to atropine.

TEST PERFORMED

Gastric lavage sample was analyzed for the presence of ALP by silver nitrate filter paper test, which was positive for ALP.

CONCLUSION

As ALP poisoning has very high mortality rate and is often confused with organophosphorus poisoning, simple $AgNO_3$ filter paper test on gastric sample can confirm ALP poisoning and save a precious life. It is suggested to carry out this test in all suspected cases.

Determination of Phenolic Acid Compounds in Ethanolic Extracts of *Momordica charantia* and *Piper nigrum* using High-performance Liquid Chromatography Technique

[1]Prashant Vishwanath, [2]Akila Prashant, [3]MN Suma, [4]Parveen Doddamani, [5]NK Swetha

[1-5]Department of Biochemistry, Centre of Excellence in Molecular Biology and Regenerative Medicine
JSS Medical College, Mysuru, Karnataka, India

INTRODUCTION

Momordica charantia and *Piper nigrum* are the most famous and highly appraised species loaded with a number of beneficial aspects in terms of health and disease. They are capable of exhibiting several therapeutic activities that have been utilized since ancient times for medication and treating health-related problems. Phytochemicals obtained from both *M. charantia* and *P. nigrum* are potent bioactive ingredients.

AIMS AND OBJECTIVES

To determine the phenolic acid constituents present in *M. charantia* and *P. nigrum* extracts by using high-performance liquid chromatography (HPLC).

MATERIALS AND METHODS

Momordica charantia fruit was washed with distilled water, weighed, and ground using a regular household mixer without adding any additional water. The paste was lyophilized using freeze dryer (Alpha 2-4 LD Plus from Christ, GmbH) and the powder obtained was stored at –80°C in an airtight plastic container. A 50% ethanolic extract was obtained using 50 gm of this lyophilized powder. *Piper nigrum* seeds obtained from a single plant were powered. A 50% ethanolic extract was obtained using 20 gm of the powder. The obtained diluted solutions were then concentrated using Rotovapor R-215 (Buchi, Switzerland), which were then filtered and stored in brown bottles at 4°C. This was then used for HPLC and liquid chromatography–mass spectrometric analysis.

RESULTS

Fifty percent of the ethanolic extracts of *M. charantia* and *P. nigrum* showed presence of different functional compounds, such as cucurbitane, kuguacin E, karavilagenin-A, karavilagenin-D, karaviloside-IV, and ferulic acid from *M. charantia* and piperine, sarmentosine, N-trans-feruloyl-tyramine, brachyamide B, trichostachine, and dihydropipericide from *P. nigrum*. The compound whose molecular mass did not match with other compounds when compared with other literature and on Pubchem structure was considered as a novel compound.

CONCLUSION

Among the compounds identified from *M. charantia* and *P. nigrum*, many phenolic compounds have been identified, which will be subjected for structural analysis and their anticancer properties.

Evaluation of Association between Serum Magnesium and Microalbumin in Urine in Type II Diabetes Mellitus

[1]Premjeet Kaur, [2]Shailja Gupta, [3]Kamaljeet Kaur, [4]Sumeet Kaur, [5]Jyoti Pahwa, [6]Saidu Ikkurthi

[1,3-6]Government Medical College & Hospital, Chandigarh, India
[2]Sri Guru Ram Das Institute of Medical Sciences & Research, Amritsar, Punjab, India

INTRODUCTION

Microalbuminuria (MAU) is an established marker of diabetic nephropathy. It begins insidiously and precedes the diagnosis. The appearance of albumin in urine is thought to be the consequence of generalized endothelial damage along the vascular tree including the glomerulus. There is accumulating evidence that the changes that occur in the metabolism of some micronutrients in diabetes mellitus might have a role in the pathogenesis and complications of this disease. Low magnesium level has been linked to reduced insulin sensitivity and increased risk of type II diabetes mellitus. Hypomagnesemia has been implicated in adversely affecting the diabetic complications. Because serum magnesium and MAU reflect closely related components of the same disease process, a strong relationship between these variables may be anticipated.

MATERIALS AND METHODS

A prospective observational study was performed in the Department of Biochemistry of Sri Guru Ram Das Institute of Medical Sciences & Research, Amritsar, Punjab, India, by selecting patients of type II diabetes mellitus (n = 50) and normal healthy individuals (n = 50) to evaluate the association between serum magnesium and MAU in type II diabetes mellitus. Serum magnesium was estimated by Calmagite method as described by Grindler et al and microalbumin in urine by NycoCard Reader.

RESULTS

The difference of mean between serum magnesium levels in diabetics (1.09 ± 0.29 mEq/L) and controls (2.09 ± 0.29 mEq/L) was found to be statistically significant ($p < 0.001$) by Student's *t*-test. The difference between the urinary albumin excretion in patients (35.36 ± 15.36 mg/L) and controls (18.28 ± 1.47 mg/L) was also statistically significant ($p < 0.001$). A significant negative correlation ($r = -0.57$; $p < 0.001$) was found between magnesium and MAU by Spearman's correlation.

CONCLUSION

Magnesium might be linked to various micro- and macrovascular complications. A better understanding of magnesium metabolism and efforts to minimize hypomagnesemia in routine management of diabetes are warranted.

Increased Hepatic Enzymes exhibit Positive Correlation with Body Mass Index, Lipid Profile irrespective of Glycemic Control in newly Diagnosed Type II Diabetes Mellitus

Purnendu Panda

INTRODUCTION

Type II diabetes mellitus (DM), insulin resistance, obesity, and nonalcoholic fatty liver disease are closely associated.

Nonalcoholic fatty liver disease is a clinicohistopathological diagnosis characterized by hepatocellular steatosis, which is usually macrovesicular in the absence of other risk factors for chronic liver disease, particularly, alcohol, drug, or chronic viral hepatitis.

AIMS AND OBJECTIVES

We examined the incidence of increased aspartate transaminase (AST)/alanine transaminase (ALT) ratio (De Ritis ratio) >1 and ultrasound finding of fatty changes of liver as surrogate markers for nonalcoholic fatty liver disease in 100 patients of newly diagnosed type II DM and attempted to correlate body mass index (BMI), lipid profile, glycemic control to the AST/ALT ratio.

MATERIALS AND METHODS

A total of 100 patients of newly diagnosed type II DM [fasting blood sugar (FBS) > 140 mg%, post prandial blood sugar (PPBS) > 200 mg%, hemoglobin (Hb)A1c > 6.5] were divided into two groups on the basis of those having AST/ALT > 1 and ultrasonography finding of fatty liver (n = 42) and those have AST/ALT < 1 and normal ultrasonography of liver (n = 58).

Lipid profile, liver function tests (LFTs), FBS, PPBS, and HbA1c are measured using commercial kit adapted to autoanalyzer.

OBSERVATION

We observed that increased hepatic enzyme correlated positively with higher BMI and hypertriglyceridemia and does not show significant correlation to glycemic control as assessed by HbA1c level.

CONCLUSION

We suggest that it may possible to identify people with type II DM who are at increased risk to nonalcoholic fatty liver disease and thus, chronic liver disease.

In those individuals, attention could be focused on weight loss, treatment of dyslipidemia rather than just tighter control of glycemia, so that mortality and morbidity can be reduced significantly.

An Audit to Review the Preanalytical Errors in Oral Glucose Tolerance Test

[1]**Rachita Nanda**, [2]**Sibasish Sahoo**, [3]**Suprava Patel**, [4]**Eli Mohapatra**

[1-4]Department of Biochemistry, All India Institute of Medical Sciences, Raipur, Chhattisgarh, India

INTRODUCTION

The preanalytical phase starts at the point of entry for laboratory tests by clinicians. It represents an important stage in laboratory medicine and remains the most error prone part of the laboratory. Proper patient preparation and patient's knowledge about a particular procedure affect its accuracy and reliability. Therefore, attention must be paid to these extra laboratory factors, to quantify the quality of laboratory tests. One of the most commonly performed procedures is the oral glucose tolerance test (OGTT) where proper preparation of the patient and correct procedure affect the test results.

AIMS AND OBJECTIVES

To identify the different preanalytical errors in our laboratory using a questionnaire and quality indicators (QIs).

MATERIALS AND METHODS

All patients attending the laboratory for OGTT over a period of 3 months were recruited for the study. A questionnaire, which pertained to examine their level of knowledge about the OGTT, was given to the participants, who filled it up prior to the procedure. All samples collected during the procedure were checked for preanalytical errors with the help of QIs. All patients were females as they had come from the department of obstetrics and gynecology. Patients were divided into pregnant and nonpregnant, and data analysis was performed using Statistical Package for the Social Sciences software.

RESULTS

The level of knowledge differed among participants who were previously pregnant than those who were not. The most common QI that was out of line was appropriateness of test result and data entry of request.

CONCLUSION

Knowledge about this procedure from previous pregnancy indicates proper information dissemination by lab personnel. The error in the QIs, though not mandatory, but are important for reporting.

Correlation of Lipid Profile and Serum Uric Acid Level in Postmenopausal Women

[1]R Tiwari, [2]VS Ghalaut, [3]S Singhal

[1-3]Department of Biochemistry, Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India

OBJECTIVE

Correlation of lipid profile and serum uric acid level in postmenopausal women.

INTRODUCTION

Menopause, also known as the climacteric, and although not a disease is associated with annoying physiological changes and varied symptoms, such as hot flushes, night sweat, urinary and genital changes, dyspareunia, insomnia, and many psychological dysfunctions, such as anxiety, depression, lack of concentration, and decreased self-esteem. Menopause in women is a physiologic process that occurs around 45 to 55 years. Elevations in uric acid and deranged lipid profile are associated with increased stroke risk.

MATERIALS AND METHODS

About 50 healthy postmenopausal women were included in the study. A 5 mL of venous blood was taken in a red vacutainer and serum was separated. Lipid profile and uric acid were estimated by enzymatic method in an autoanalyzer. Exclusion criteria were history of cardiovascular diseases, rheumatoid arthritis, radiotherapy, liver and renal disease, and endocrinal disease, those on antioxidant and vitamin supplements, and postmenopausal women on hormone replacement therapy.

RESULTS

It was found that uric acid has positive correlations with triglycerides (TGs), very low-density lipoprotein (VLDL), and total cholesterol, while having a negative correlation with high-density lipoprotein (HDL).

CONCLUSION

Decreased HDL level and other increased lipid profile parameters, e.g., TGs, cholesterol, VLDL, and LDL along with increased serum uric acid level were seen in postmenopausal women than premenopausal women. Postmenopausal women are more prone to gout and cardiovascular disease.

A Study of the Hematological Parameters and Hematopoietic Vitamins in the Patients of Acute Lymphoblastic Leukemia

[1]Rakhee Yadav, [2]Veena S Ghalaut, [3]Eram H Pasha, [4]Sanjiv K Bansal, [5]Busi Karunanand

[1,3-5]Department of Biochemistry, Faculty of Medicine and Health Sciences, Shree Guru Gobind Singh Tricentenary University, Gurugram, Haryana, India
[2]Department of Biochemistry, Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India

INTRODUCTION

Acute lymphoblastic leukemia dominates as one of the acute hematological malignancies in children, and it may be imperative to say that hematopoietic vitamins have a potential relevance in such a condition.

AIMS AND OBJECTIVES

We conducted the present study in order to evaluate the changes in the hematological parameters and their correlation with the serum levels of the hematopoietic vitamins (vitamin B_{12} and folic acid) in patients of acute lymphoblastic leukemia before and after the induction chemotherapy.

MATERIALS AND METHODS

The study was done on 30 diagnosed patients of acute lymphoblastic leukemia and 30 age- and sex-matched healthy controls. Clinical assessment was followed by diagnostic evaluation with blood counts and bone marrow examination done before the start of induction chemotherapy and 1 month after completion of it. On both these occasions, blood samples were also collected in plain vacutainers for the estimation of vitamin B_{12} and folic acid using chemiluminescence technology. The hematological parameters [hemoglobin (Hb), total leukocyte count (TLC), differential leukocyte count, platelet count, and blast percentage] as well as the levels of vitamins were compared pre- and postchemotherapy and also with the controls using student's t-test. Further, Pearson's correlation coefficient was used to find the possible correlations between these parameters.

RESULTS

Before the commencement of induction chemotherapy, Hb and platelet count were significantly low (p-value <0.05), whereas TLC was significantly high (p-value <0.001) as compared to controls. At this time, majority of the population of cells were blasts ($81.7 \pm 10.14\%$). After 1 month of induction chemotherapy, there was significant improvement in the blood counts, especially, blast percentage ($2.5 \pm 6.8\%$). The TLC correlated negatively with serum folate and vitamin B_{12} levels pre- and postchemotherapy.

CONCLUSION

From our study, it becomes imperative to say that estimation of hematopoietic vitamins can become an important adjunct to the blood counts and bone marrow examination in the diagnosis as well as monitoring of the response to treatment in acute hematological malignancies.

A Case–control Study of Gamma-glutamyl Transferase as a Novel Biomarker of Cardiovascular Risk

[1]Ravi K Sharma, [2]S Paneri, [3]R Lohokare, [4]Anil K Jain, [5]Amita Gupta, [6]Teena Agrawal

[1-6]Mahatma Gandhi Memorial Medical College and Maharaja Yeshwantrao Hospital, Indore, Madhya Pradesh, India

INTRODUCTION

Gamma-glutamyl transferase (GGT) is a serum transferase synthesized by liver. It is initially used as a sensitive indicator of alcohol ingestion, hepatic inflammation, fatty liver disease, and hepatitis. Increased GGT oxidizes low-density lipoprotein (LDL) to form oxidized LDL, which is cleared slowly from circulation. It has been proposed that GGT is a potent biochemical marker for preclinical development of atherosclerosis.

AIMS AND OBJECTIVES

To compare and correlate GGT with lipid profiles in healthy volunteers and myocardial infarction patients.

MATERIALS AND METHODS

Enrolled in this study were 80 subjects, divided into two equal groups – cases and controls. The cases group included myocardial infarction patients, and healthy volunteers were included in control group. The patients between 30 and 80 years of age, both sexes, and myocardial infarctions were included for the study. Patients with history of any systemic illness, recent surgery or trauma, endocrinal and nutritional disorders, pregnant women, drugs affecting lipid metabolism, and alcoholism were excluded. About 5 mL overnight fasting blood sample was collected and subjected to biochemical estimation of GGT and lipid profile in a fully automated analyzer. The statistical analysis was performed by using Statistical Package for the Social Sciences software. A p<0.05 was considered statistically significant.

RESULTS

In cases and controls, the mean value of GGT (48 ± 13.07 and 14 ± 3.0, p<0.001), total cholesterol (186 ± 26 and 156 ± 16, p<0.05), triglycerides (725 ± 52.13 and 97 ± 8.61, p<0.005), LDL cholesterol (112 ± 28.0 and 86 ± 18.05, p<0.05), and high-density lipoprotein (HDL) (38 ± 7.0 and 46 ± 8.21, p<0.05) were obtained.

Statistically significant differences were seen for serum GGT, cholesterol, triglycerides, LDL, and HDL levels in cases as compared with controls. The enzyme activity showed statistically significant correlation with the atherogenic lipids.

CONCLUSION

The GGT may be used as a potent biochemical marker for preclinical development of atherosclerosis.

Homeostasis Model Assessment-Insulin Resistance: An Independent Predictor of Metabolic Syndrome

[1]Ravi P Singh, [2]Arun Nagtilak, [3]Gautam Sarkar

[1-3]Subharti Medical College, Meerut, Uttar Pradesh, India

INTRODUCTION

The presence of metabolic syndrome (MetS) indicates that the individual is two times more vulnerable to cardiovascular disease (CVD) and five times to diabetes mellitus. As India rapidly progresses toward being the diabetes capital of the world, it becomes more important to identify as many other predicators of MetS as possible. The homeostasis model assessment-insulin resistance (HOMA-IR) is one of the important contenders for the same.

AIMS AND OBJECTIVES

Accumulating evidence suggests an association between IR and MetS and, hence, CVD. The aim of this study was to examine the relationship between IR, carotid intima–media thickness (CIMT), body mass index (BMI), waist circumference (WC), and low-density lipoprotein cholesterol (LDL-C) as early indicators of vascular damage in MetS.

MATERIALS AND METHODS

In a cross sectional population-based study in a tertiary care hospital, Meerut, Uttar Pradesh, 72 individuals (36 men and 36 women) subjects, mean age 39 ± 10 were included. After an overnight fast, serum fasting glucose, lipid profile, and insulin level test were performed. The prevalence of IR was established by the HOMA-IR. The CIMT was measured by B-mode ultrasonography. Risk factors for atherosclerosis (BMI, WC, and blood pressure) were also investigated.

RESULTS

Age- and sex-adjusted CIMT among subjects with the IR (50%) and controls was 0.68 ± 0.17 mm and 0.46 ± 0.09 mm ($p < 0.001$) respectively. The HOMA-IR among subjects and controls was 7.45 ± 0.95 and 1.77 ± 0.93 respectively. The IR index was correlated with CIMT more strongly than the control patients and metabolic healthy obese. The IR indices correlated significantly ($p < 0.0001$) with all cardiovascular risk factors examined.

CONCLUSION

In cases of MetS, HOMA-IR is directly related to CIMT, WC, BMI, and LDL-C, but is inversely related to HDL-C. Hence, HOMA-IR can be used as independent predictor for MetS.

Is Neonatal Vitamin D Deficiency associated with Early-onset Neonatal Sepsis?

[1]Renu Garg, [2]Himanshu Madaan, [3]Piyush Bansal, [4]Prerna Panjeta, [5]Aniljeet Trehan

[1-5]Department of Biochemistry, BPS Government Medical College for Women, Khanpur Kalan, Sonepat, Haryana, India

INTRODUCTION

Vitamin D has been linked with immunity, and might have an immunomodulatory role in the optimal functioning of the innate immune system by inducing antimicrobial peptides in epithelial cells, neutrophils, and macrophages. Early-onset neonatal sepsis [(EONS), within 72 hours of birth)] is generally associated with the acquisition of microorganisms from the mother and usually presents with respiratory distress and pneumonia. Cizmeci et al and Cetinkaya et al compared cord blood vitamin D status in neonates with EONS against healthy controls and observed that a low level of cord blood vitamin D was found to be associated with an increased risk of EONS, suggesting need for further studies.

AIMS AND OBJECTIVES

To evaluate the vitamin D status in term neonates with early onset sepsis and compare with levels in healthy age- and sex-matched neonates.

MATERIALS AND METHODS

The study was conducted in the Department of Biochemistry, BPS Government Medical College for Women, Khanpur Kalan, Sonepat, Haryana, India in collaboration with the Department of Pediatrics and Obstetrics and Gynecology. About 50 term neonates satisfying the criteria for "highly probable sepsis" (as per Gitto et al) were included in the study group. About 50 term neonates satisfying the criteria for "no sepsis" were taken in the control group. For control group neonates, cord

blood samples were taken from babies delivered in the hospital, and 50 healthy babies satisfying the exclusion criteria and with no sepsis up to 72 hours were included. Exclusion criteria included hyperbilirubinemia/hypoglycemia/neonatal seizure, maternal clinical/histological chorioamnionitis, premature rupture of membranes, major congenital abnormality, and probable/possible sepsis. Vitamin D levels along with other routine investigations were performed in the samples of cases and controls.

RESULTS

Will be discussed in presentation.

Restoration Pattern of Liver Function Tests after Various Modalities of Decompression in Malignant Cases of Surgical Obstructive Jaundice

[1]Sarika Arora, [2]Udybir Singh, [3]Sumit Chakravarty, [4]PK Patnaik

[1-4]Deparment of Biochemistry and Department of Surgery, ESI-PGIMSR & ESI Hospital, Basaidarapur, New Delhi, India

INTRODUCTION

Surgical obstructive jaundice (SOJ) is caused by obstruction of the bile duct resulting in liver cell dysfunction due to increased exposure of hepatocytes to endotoxins. Early decompression of biliary obstruction can recover the liver functions.

AIMS AND OBJECTIVES

In the present study, the liver biochemical parameters were evaluated and compared in patients with benign and malignant disorders before and after biliary decompression (endoscopic or surgical).

MATERIALS AND METHODS

A total of 79 consecutive patients presenting with SOJ were enrolled for the study. Out of these, 50 patients (33 benign and 17 malignant cases) completed the follow-up. The liver biochemical and coagulation profiles were assessed and compared among these groups at presentation (prior to procedure) and subsequently on post-procedure day 3, 7, 14, and 4 and 12 weeks. The significance of observed changes in parameters was assessed by analysis of variance. A p-value < 0.05 was considered significant and < 0.01 was highly significant.

RESULTS

A highly significant decrease was observed after decompression in serum bilirubin (total and direct), serum glutamic oxaloacetic transaminase, serum glutamic pyruvic transaminase, alkaline phosphatase, gamma-glutamyl transferase, and prothrombin time ($p < 0.001$) in patients with benign disease, whereas in patients with malignant disease, a highly significant decrease was seen only in serum bilirubin (total and direct) and prothrombin time. The changes in liver enzymes were not found significant in patients with malignant disease. In contrast, serum total proteins showed significant increase in malignant patients as compared with patients with benign disease.

CONCLUSION

The degree and duration of biliary obstruction has a linear relationship with patients' clinical conditions. The recovery of liver function depends on the decompression achieved and presence of other comorbid conditions in patients.

Comparison of Total Cholesterol in Anemic and Non-anemic Patients

[1]Shradha Mishra, [2]Mafooza Rashid, [3]Gautam Sarkar

Subharti Medical College, Meerut, Uttar Pradesh, India

INTRODUCTION

Anemia is one of the commonest medical conditions affecting individuals throughout the world. The major section of the affected includes individuals from the poorer section of society, particularly, women in the reproductive age group. Anemia compromises with the delivery of oxygen to the peripheral tissues and thus has the potential of affecting the optimal functions of all physiological activities. While the paraphernalia of the body functions have been associated with a fall in blood hemoglobin concentrations, in the present study, we decided to explore the association of hemoglobin levels with total cholesterol.

AIMS AND OBJECTIVES

To compare the total cholesterol level in anemic patients as compared with normal controls.

MATERIALS AND METHODS

A total of 30 consecutive anemic patients attending the Medicine outpatient department were subjected to total cholesterol estimation. A total of 14 individuals with normal hemoglobin concentration were also subjected to total cholesterol estimation. Data obtained were displayed in a scattered plot.

RESULTS

Total cholesterol was directly correlated with the hemoglobin concentration.

CONCLUSION

Total cholesterol is the raw material for the formation of several hormones, including stress hormones. Normal cholesterol level is important for equipping the body with appropriate homeostasis. A low total cholesterol level indicates lack of body preparedness to face adverse eventuality. Hence, the present study adds hemoglobin as one of the dimensions that actively needs to be considered for prophylactic and therapeutic medicine.

Challenges in Arterial Blood Gas Measurements in a Tertiary Care Public Hospital

[1]Shubhangi Wankhade, [2]Pramod Ingale

[1,2]Lokmanya Tilak Municipal General Hospital and Lokmanya Tilak Municipal Medical College, Sion, Mumbai, Maharashtra, India

INTRODUCTION

Arterial blood gas (ABG) analysis is a commonly ordered test in critically ill patients. The test is also repeated several times in the same patient, which helps in effective patient management. Since there are a high number of critically ill patients requiring frequent ABG monitoring, there are various challenges associated with this investigation, especially in the tertiary care public hospital. If these challenges are not addressed, it could lead to erroneous results. With this knowledge, the present study was planned to find out potential errors of ABG estimation and recommend proper corrective actions.

MATERIALS AND METHODS

Pre- and posttraining survey forms were prepared, which included all the processes right from test ordering until receipt and interpretation of test results for ABG. It was categorized into preanalytical, analytical, and postanalytical challenges. Based on pretraining survey form, all concerned staff, such as resident doctors, consultants, nursing staff, and laboratory staff were interviewed. Major areas of errors were identified and appropriate training and corrective actions were implemented, after which the same staff were interviewed with posttraining form. In all, 58 concerned staff members were interviewed.

RESULTS

Areas of major concern were inappropriate quantity of heparin, quantity of sample collected, delay in sample transport, failure to maintain adequate temperature during sample transport, and technician-to-technician variation in sample assessment. All these are major concerns as they directly affect the quality of report. Posttraining survey revealed better understanding of the entire process and drastic reduction in majority of the errors.

CONCLUSION

It is concluded that, inappropriate quantity of heparin, quantity of sample collected, delay in sample transport, failure to maintain adequate temperature during transport of sample and technician to technician variation in sample assessment are major areas of concern in ABG estimation which can be effectively managed by simple corrective actions and staff training.

Estimation of Glycated Hemoglobin in Sodium Fluoride Vial as a Better Alternative to Ethylenediaminetetraacetic Acid

[1]Snehankar Kalita, [2]Rumi Deori, [3]Pratim Gupta, [4]Risha Goswami

[1-3]Department of Biochemistry, Assam Medical College, Dibrugarh, Assam, India
[4]Department of Physiology, Assam Medical College, Dibrugarh, Assam, India

INTRODUCTION

Glycated hemoglobin (HbA1c) has been used primarily as a marker to identify the average amount of plasma glucose concentration over a prolonged period of time. As the average amount of plasma glucose increases, the fraction of HbA1c increases in a

predictable way. The HbA1c is, nowadays, used as a prognostic and diagnostic marker for glycemia control in diabetes mellitus patients. Most of the commercial kits for HbA1c estimation require whole blood to be collected in ethylenediaminetetraacetic acid (EDTA) anticoagulant, which needs collection of additional blood sample from the patients. If blood sample collected in a sodium fluoride vial could be used to estimate blood glucose as well as HbA1c, collection of additional blood sample from the patient could be avoided.

AIMS AND OBJECTIVES

The present study was designed to determine the effect of common blood additives like sodium fluoride and EDTA on HbA1c level and also see the variation in values of HbA1c for 1 week.

MATERIALS AND METHODS

Blood samples were collected in both EDTA and sodium fluoride vial from randomly selected patients of either sex and were estimated using high-performance liquid chromatography method.

RESULTS

No significant changes in the HbA1c values were observed between the samples collected in EDTA and fluoride vials. Moreover, HbA1c values do not alter significantly within 7 days of collection when stored at 2 to 8°C in both the vials.

CONCLUSION

The HbA1c can be estimated along with plasma glucose in samples collected in sodium fluoride vial without having to collect additional blood sample from the patients, as is done when using EDTA vial.

Evaluation of Interleukin 16 Level in Circulation and Its Association with Metabolic Syndrome

[1]Soumyadip Sarma, [2]Ibahunluang Ryntathiang, [3]Rupak Das, [4]Suman Debnath, [5]Laljem Haokip, [6]L Shaini

[1-6]Department of Medicine, Regional Institute of Medical Sciences, Imphal, Manipur, India

INTRODUCTION

Metabolic syndrome is a combination of medical disorders that increases the risk of developing cardiovascular disease and diabetes. Interleukin 18 is a potent inflammatory cytokine, which enhances T cell and natural killer cell maturation, as well as the production of cytokines, chemokines, and cell adhesion molecules. It has been shown to be elevated in subjects with the metabolic syndrome and increase in parallel with an increasing number of components of the syndrome.

AIMS AND OBJECTIVES

To assess the levels of circulating interleukin 18 in metabolic and healthy individuals, and find out the association between interleukin 18 and metabolic syndrome.

MATERIALS AND METHODS

A case control study was conducted among 50 patients above 18 years of age, and 50 controls in the Department of Biochemistry in collaboration with the Department of Medicine, Regional Institute of Medical Sciences, Imphal, Manipur, India from September 2015 to August 2016, and estimation of interleukin 18 was done by enzyme-linked immunosorbent assay method using HUMAN IL-18 Elisa Kit procured from MBL International Corporation.

RESULTS

In this study, metabolic syndrome patients have a higher mean $\pm$ SD serum IL-18 level (255.21 ± 36.32 pg/dL in males and 255.05 ± 40.13 pg/dL in females) than the control group (150.32 ± 7.29 pg/dL in males and 153.13 ± 9.47 pg/dL in females), which is statistically significant ($p < 0.05$). The mean serum IL-18 level was highest in metabolic syndrome cases (271.60 ± 24.32), who are obese, when compared with cases without obesity (212.71 ± 35.20). Significant positive correlation was observed with abdominal circumference, triglyceride, fasting blood glucose, diastolic blood pressure, and body mass index, whereas significant negative correlation was observed with high-density lipoprotein.

CONCLUSION

The present study shows IL-18 was elevated in subjects with the metabolic syndrome and positive correlation was seen between IL-18 and different components of the metabolic syndrome, especially, with abdominal circumference, triglyceride and BMI. Hence, IL-18 may play a role in the pathogenesis and early diagnosis of metabolic syndrome.

Thyroid Status among Human Immunodeficiency Virus-infected Cases Attending Antiretroviral Therapy Center, Jawaharlal Nehru Institute of Medical Sciences

[1]Ch Suchitra, [2]Ch Narmada, [3]Lokeshwor Singh

[1-3]Department of Biochemistry, Jawaharlal Nehru Institute of Medical Sciences, Imphal, Manipur, India

INTRODUCTION

There is some evidence to suggest that an increasing number of patients taking antiretroviral drugs are presenting with thyroid disorder. The present study was taken up to study thyroid status among human immunodeficiency virus (HIV)-positive patients attending antiretroviral therapy (ART) center, Jawaharlal Nehru Institute of Medical Sciences (JNIMS).

MATERIALS AND METHODS

A cross-sectional study was conducted on a cohort of 220 HIV-positive patients attending ART center at JNIMS, after taking due informed consent and ethical clearance, and who were selected randomly between March 2015 and August 2015. Free T3, free T4, and ultrasensitive thyroid-stimulating hormone (US TSH) were estimated by quantitative enzyme-linked immunosorbent assay (ELISA) method; cluster of differentiation 4 (CD4) was done by flow cytometry.

RESULTS

The data were analyzed using Statistical Package for the Social Sciences version 16.0. The majority of the cases were in the age group (31–40) years with a mean age of (39.5±9.7 years) and predominately females 134 (60.9%). Most of the cases 68 (30.9%) fall in the CD4 range (401–500)/cumm. There were 9 (4.1%) overt hyperthyroid and 6 (2.7%) hypothyroid cases. There were 6 (2.8%) subclinical hypo and hyperthyroid cases. Overt hypo and hyperthyroid cases commonly occurred in CD4 range of 500 and below. Subclinical hypo and hyperthyroidism were more in the CD4 range of 401 and above. A negative poor correlation was found between TSH and CD4 (rs=0.042) and T3 and CD4 (rs=0.022). A positive poor correlation was observed between T4 and CD4 (rs=0.099), which is statistically insignificant. Overt hyper and hypothyroidism occurred in respectively, 9 cases and 6 cases, who were on ART for (5–10) years.

CONCLUSION

Thyroid dysfunction among ART patients has a poor correlation with their CD4 status. With the increase in duration on ART up to 10 years, there is increase in overt thyroid dysfunction, which is the same as subclinical thyroid dysfunction.

Serum Creatinine and Estimated Glomerular Filtration Rate are affected in Female Hypothyroid Patients with Poor Thyroid Control

[1]Sukanya Gangopadhyay, [2]Mafooza Rashid, [3]Shradha Mishra, [4]Gautam Sarkar

[1-4]Subharti Medical College, Meerut, Uttar Pradesh, India

INTRODUCTION

Hypothyroidism is a rising concern in India, especially, among women of all ages. Every year, new cases are being diagnosed either independently or in combination with other medical and gynecological problems. With the further advent of our knowledge on hypothyroidism, it has been noticed that the renal function could be affected in such patients.

AIMS AND OBJECTIVES

The present study was done with the aim to understand the effect of renal function in untreated and poorly treated hypothyroid subjects with the objective to compare serum creatinine levels and estimated glomerular filtration rate (eGFR) in hypothyroid females with healthy age-matched controls (cases 36.2 years±5.45; controls 33.4 years±6; p-value=0.3).

MATERIALS AND METHODS

Serum samples of 30 patients received in our immunology lab with thyroid-stimulating hormone (TSH) more than 5 mIU/L were analyzed for creatinine level and the GFR was calculated with respect to their age by using the modification of diet in renal disease formula online. The same was repeated in 30 healthy controls.

RESULTS

The TSH value was significantly more in the cases (cases 8.15±2.5; controls 3.11±0.88; p-value=<0.0001) as purposefully high TSH samples were selected. Serum creatinine was significantly raised in the cases (0.9±0.13 mg/dL *vs* 0.67±0.07;

p-value < 0.0001). The calculated GFR was 108.32 ± 13.41 mL/min/1.73 m² in controls, whereas in cases, it was significantly low (p-value < 0.0001) at 77.19 ± 13.36 mL/min/1.73 m².

CONCLUSION

The serum creatinine is on the higher side of normal range and the calculated GFR is low in untreated or poorly treated hypothyroid females in Meerut, Uttar Pradesh. Hypothyroid women should regularly undergo renal assessment as a precautionary measure.

Serum Sodium Levels in Hypothyroid Patients

Sumit Dokwal

Department of Biochemistery, Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India

OBJECTIVE

To evaluate the levels of serum sodium in hypothyroid patients.

MATERIALS AND METHODS

About 40 patients were selected from the endocrine outpatient department of Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India. Their thyroid-stimulating hormone (TSH) levels were evaluated by two-site sandwich immunoassay using chemiluminometric technology, and their serum sodium levels were evaluated by electrolyte analyzer using ion selective electrode method. These 40 patients were divided into two groups according to TSH values.

RESULTS

The mean TSH level was 9.45 μIU/mL and their mean sodium level was 126 mmol/dL in 26 patients. Their results were tested by a t-test, which showed no significance at $p = 0.34$. The rest 14 patients had a mean TSH of 134.67 μIU/mL, and their mean serum sodium level was 113 mmol/dL, and these results showed a significance of $p < 0.1$.

CONCLUSION

In severe hypothyroidism, there is hyponatremia in comparison with mild or moderate hypothyroidism pertaining to further studies.

A Comparative Study of Free Prostate-specific antigen and Total Prostate-specific Antigen with Carcinoembryonic Antigen and Alpha-fetoprotein in Patients with Breast Carcinoma, Benign Breast Disease with Healthy Individuals in a North Bengal Medical College

[1]Swati Bhattacharyya, [2]Suparna Datta, [3]AK Banerjee, [4]MK Barman

[1-4]North Bengal Medical College, Thiknikata, West Bengal, India

INTRODUCTION

Breast carcinoma has emerged as one of the most common malignancies in the female population of India. Early diagnosis and treatment can improve life expectancy. Constant research is underway to identify potential biomarkers with acceptable sensitivity and specificity at low cost at North Bengal Medical College.

OBJECTIVE

The aim of the present study is to compare serum levels of carcinoembryonic antigen (CEA) and alpha-fetoprotein (AFP) and total prostate-specific antigen (TPSA) and free prostate-specific antigen (FPSA) in diagnosing breast tumors, both benign and malignant.

MATERIALS AND METHODS

It is a hospital-based cross-sectional study of a total of 75 females, of which 25 individuals are each in groups of carcinoma, benign breast disease (BBD), and normal. Diagnoses of both the diseases were made by fine needle aspiration cytology (FNAC). Serum CEA, AFP, and TPSA and FPSA were measured by enzyme linked immunosorbent assay (ELISA). Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) 21.

RESULTS

Student's t-test was done by SPSS that shows that BBD has higher FPSA level as compared with normal (p < 0.001). Carcinoma showed a higher CEA and TPSA as compared with both normal and BBD groups. The FPSA showed a rise both in benign and malignant groups when compared with control. Moreover, there is no significant difference in concentrations of FPSA between the diseases. The result shows that predictive value of CEA and TPSA is better than FPSA in breast malignancy as the later rises both in BBD and carcinoma.

CONCLUSION

Finding of the present study suggests that serum TPSA and CEA may be considered as a diagnostic support to differentiate BBD from malignant breast tumor.

Study of Metabolic Syndrome in Patients of Polycystic Ovarian Syndrome

[1]Supriya Khillare, [2]Manohar Muddeshwar

[1,2]Department of Biochemistry, Government Medical College and Hospital, Nagpur, Maharashtra, India

OBJECTIVE

To study metabolic syndrome in patients of polycystic ovarian syndrome (PCOS).

MATERIALS AND METHODS

The study of metabolic syndrome in women with PCOS attending the obstetrics and gynecology outpatient department and inpatient department in the Government Medical College and Hospital, Nagpur. Fasting blood samples were collected from 50 healthy controls and 50 provisionally diagnosed female PCOS patients aged 15 to 40 years. Metabolic syndrome was defined according to the modified American Heart Association/National Heart Lung Blood Institute (AHA/NHLBI) (ATP III 2005) definition. It was diagnosed if at least three of the following five features were present:
1. Waist circumference of ≥80 cm or more;
2. blood pressure of ≥130/85 mm Hg;
3. fasting blood sugar of ≥ 100 mg/dL;
4. triglycerides of ≥150 mg/dL; and
5. HDL of ≤50 mg/dL.

RESULTS

There was a significant increase in prevalence of metabolic syndrome in PCOS patients as compared with controls.

CONCLUSION

The study suggests that PCOS patients may have features suggestive of metabolic syndrome much earlier than the development of diabetes mellitus and cardiovascular disease. Identification of metabolic syndrome in patients with PCOS early in their disease process may help in bringing the awareness and timely initiation of measures of involved lifestyle changes.

Risk of Cardiovascular Disease in Patients of Gestational Diabetes Mellitus: A Pilot Study in North Indian Population

[1]S Yadav, [2]M Arora, [3]A Yadav, [4]A Jain

[1-3]Department of Biochemistry, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi, India
[4]Department of Biochemistry, Lady Hardinge Medical College, New Delhi, India

INTRODUCTION

Gestational diabetes mellitus (GDM) is a major public health problem because of its prevalence and complications during pregnancy. The association between GDM and future risk of diabetes mellitus (DM) is well established, but not much literature is available on high cardiovascular disease (CVD) risk in GDM patients.

AIMS AND OBJECTIVES

To estimate serum high-sensitivity C-reactive protein (hs-CRP), interleukin (IL)-6, and plasminogen activator inhibitor-1 (PAI-1) to evaluate CVD risk in patients of GDM.

MATERIALS AND METHODS

A case–control study was conducted in 100 pregnant females of gestational age 24 to 28 weeks in the Department of Biochemistry, Lady Hardinge Medical College, New Delhi. Females were divided into two groups:
1. Cases – 50 pregnant females with GDM
2. Controls – 50 age-matched pregnant females without GDM.
   Serum hs-CRP, IL-6, and PAI-1 were measured using enzyme-linked immunosorbent assay kit.

RESULTS

Serum hs-CRP and IL-6 were very significantly raised in cases as compared with controls (p-value < 0.001), and serum PAI-1 levels were significantly raised in cases as compared to controls (p-value < 0.005).

CONCLUSION

Our study concludes that females with GDM are at high risk of CVD because of chronic subclinical inflammation, low-grade activation of acute-phase response elements, and deregulation of adipokines. Hence, these females should be monitored regularly to assess the risk of CVD, but long-term prospective studies are required to establish this fact.

Association of Vitamin D with Pathogenesis and Cardiovascular Risk in Polycystic Ovarian Syndrome

[1]Surankita Sukul, [2]Jyotirmayee Bahinipati, [3]Narahari Agasti, [4]Ashok K Das

[1,2,4]Department of Biochemistry, Kalinga Institute of Medical Sciences, Bhubaneswar, Odisha, India
[3]Department of Obstetrics and Gynecology, Kalinga Institute of Medical Sciences, Bhubaneswar, Odisha, India

INTRODUCTION

Polycystic ovarian syndrome (PCOS) is a common cause of ovarian dysfunction in women with anovulation. The phenotypic manifestation of this disorder is associated with various degrees of gonadotrophic and metabolic abnormalities. Low 25(OH) D levels may exacerbate the symptoms of PCOS because of its possible role in ovarian and follicular function and also with the metabolic disturbances seen in PCOS.

AIMS AND OBJECTIVES

To find out 25(OH) D levels in PCOS patients and find out its association with the biochemical markers related to etiopathogenesis and cardiovascular risk factors in PCOS.

MATERIALS AND METHODS

About 50 women with PCOS diagnosed by Rotterdam criteria and 50 healthy age-matched controls were evaluated for 25(OH) D and were then correlated with etiopathogenetic and cardiovascular risk factors like body mass index (BMI), fasting blood sugar (FBS), serum insulin, homeostatic model assessment-insulin resistance, and dyslipidemia.

RESULTS

25(OH) D in PCOS was found to be significantly decreased [(9.04 ± 2.60) p < 0.001]. Hyperinsulinemia, insulin resistance, and hyperandrogenism were also found in PCOS subjects. Significant correlation was found between vitamin D and BMI (r = −0.63), insulin resistance (r = −0.62), and cholesterol (r = −0.54).

CONCLUSION

Low 25(OH) D was prevalent in PCOS. There was significant correlation with risk factors related to etiopathogenesis and cardiovascular disease. Further observational and interventional studies can be done to establish the role in treatment and management of PCOS.

Role of Vitamin D as an Anticancer Agent in Breast Cancer and Benign Prostatic Hyperplasia

[1]MN Suma, [2]NK Swetha, [3]R Akash, [4]Binay K Yadav

[1-4]Department of Biochemistry, Jagadguru Sri Shivarathreeshwara University, Mysuru, Karnataka, India

INTRODUCTION

Vitamin D has been implicated to play a very important role in different types of cancers due to its pleotropic effects, such as cell proliferation, cell differentiation, apoptosis, etc. Studies have revealed vitamin D supplementation reduces the risk of developing breast cancer and benign prostatic hyperplasia (BPH) by acting as an antiproliferative and anti-inflammatory agent.

AIMS AND OBJECTIVES

- To estimate 25-hydroxy (OH) vitamin D levels in patients with breast cancer and BPH.
- To assess whether low serum 25-OH vitamin-D levels correlate with the risk of breast cancer and BPH.

MATERIALS AND METHODS

The study group included 25 patients with breast cancer and 25 patients with BPH. Equal numbers of age- and sex-matched healthy persons were included in the control group. Serum 25-OH vitamin D was estimated by electro-chemiluminescence immunoassay.

RESULTS

Mean vitamin D levels were low in breast cancer and BPH patients when compared with controls (p-value < 0.05), which shows that low vitamin D levels are associated with increased risk of developing breast cancer and BPH.

CONCLUSION

Our study showed that low levels of vitamin D were associated with increased susceptibility of breast cancer and BPH when compared to the controls. Thus, vitamin D can be used in combination with other drugs for prevention and control of BPH and breast cancer.

Future studies on larger populations may further throw light on the role of serum Vitamin D levels as markers of breast cancer and BPH.

Role of Serum Amylase and Serum Lipase as Diagnostic Tests for Diagnosing Acute Pancreatitis in Patients of Acute Abdominal Pain

Trupti Lende

Mahatma Gandhi Institute of Medical Sciences, Wardha, Maharashtra, India

INTRODUCTION

Acute pancreatitis is one of the important causes of abdominal pain in patients presenting to the emergency units and requires both enzyme assays and contrast-enhanced computed tomography (CECT) for its diagnosis. However, CECT is not always available at the time of diagnosis. So, the diagnosis of acute pancreatitis is based on the serum enzyme level assays of pancreatic enzyme, i.e., serum amylase and lipase. Studies suggest that in radiologically diagnosed cases of acute pancreatitis, serum amylase levels have been found to be normal with simultaneously raised lipase assay levels. Hence, clinical value of the amylase and lipase assay for diagnosis of acute pancreatitis was tested in patients with acute abdominal pain so as to identify whether both these tests are required simultaneously for diagnosing acute pancreatitis.

OBJECTIVE

- To assess diagnostic value of serum amylase and serum lipase in patients with acute abdominal pain for diagnosing acute pancreatitis.
- To study whether single biochemical test is sufficient to diagnose acute pancreatitis in patients with acute abdominal pain.

MATERIALS AND METHODS

The study was conducted in a tertiary care setting. All the patients on whom serum amylase and serum lipase tests were performed during the period of 1 year (July 01, 2015 to June 30, 2016) were included in the study. We retrieved data from hospital information system system, which meticulously maintains complete record of each patient. Data entry and analysis were done using Statistical Package for the Social Sciences version 20.0.

RESULTS

Diagnostic value of biochemical tests – serum amylase and serum lipase – was evaluated in 378 patients presenting with acute abdominal pain. Out of total 378 patients, acute pancreatitis was detected in 105 patients. The criteria for diagnosis were based on combination of clinical evaluation, biochemical (serum amylase and serum lipase), and radiological examinations. The sensitivity and specificity of serum lipase was found to be 88.57 and 72.54% as compared with that of serum amylase 84.76 and 70.69% respectively. Also, positive predictive value of serum lipase was found to be higher at 51.38% in contrast with that of serum amylase 42.58%.

CONCLUSION

Single biochemical assay with serum lipase was found sufficient instead of serum amylase and serum lipase together in diagnosis of acute pancreatitis.

Patterns of Dyslipidemia and their Correlates in a South Indian Tertiary Care Hospital

[1]SM Vijaitha, [2]B Aparna Varma, [3]P Satyanarayana

[1-3] Mediciti Institute of Medical Sciences, Hyderabad, Telangana, India

INTRODUCTION

Asian Indians are more prone to cardiovascular diseases and metabolic syndrome due to their altered lipid metabolism, which may have its origins in early childhood. However, the pattern of dyslipidemia has been widely varying across the regions and studies in India.

AIMS AND OBJECTIVES

To assess the patterns of dyslipidemia and their correlates among patients referred to a tertiary care hospital.

MATERIALS AND METHODS

This retrospective study uses data collected on lipid parameters from 1,136 patients aged 20 years and above attending or admitted to various inpatient and outpatient departments at our central laboratory of biochemistry over the last 1 year. Serum lipids were collected after an overnight fasting, over 12 hours. Serum lipids were analyzed by enzymatic end point method for total cholesterol, direct high-density lipoprotein (HDL) method for HDL, and glycerol-3-phosphate oxidase – phenol-aminophenazone (GPO–PAP) method for triglycerides on Randox Imola instrument. Low density lipoprotein (LDL) was estimated from other lipid parameters.

RESULTS

The median (range) age of the patients was 55 (21–91) years, and 44% of them were women. Hypercholesterolemia ($\geq$200 mg/dL) was present in 28% [confidence interval (CI): 25.4–30.7] of them, while high triglycerides ($\geq$150 mg/dL) and high LDL ($\geq$100 mg/dL) were present in 37.9% (CI: 35.0–40.8) and 52.3% (CI: 49.3–55.3) respectively. All the above lipid parameters were more common in women. Low HDL (<40 mg/dL) was the commonest dyslipidemia affecting 70.1% (CI: 67.4–72.8) of patients and was more common in men and was similar in all age groups.

CONCLUSION

The commonest dyslipidemia in this study at a South Indian tertiary care center was low HDL and was much higher than other dyslipidemias. Our study confirms the high prevalence of low HDL in Asian Indians, which may have its origins in childhood.

Fluoride and Oxidative Stress in Apparently Healthy Postmenopausal Women

[1]Kumari Minakshi, [2]Sunil Sharma, [3]Manju Bala, [4]Parmila Dudi, [5]K Menaka

[1,2,4,5]Institute for Medical Sciences and Research Centre, Jaipur National University, Jaipur, Rajasthan, India
[3]Department of Biochemistry, Pt. Bhagwat Dayal Sharma Post Graduate Institute of Medical, Sciences, Rohtak, Haryana, India

INTRODUCTION

The aim of the present study was to study fluoride and oxidative stress in apparently healthy postmenopausal women.

MATERIALS AND METHODS

The study was conducted in the Department of Biochemistry, Pt. Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India. A total of 75 apparently healthy postmenopausal (45–55 years) women were selected for the study. All the subjects included in the study were residing in Rohtak city, the endemic fluorotic area of Haryana. Oxidative stress was estimated by total antioxidant capacity (TAC) using enzyme-linked immunosorbent assay. Serum fluoride levels were measured by ion selective electrode method. Student's t-test and Pearson's correlations were used for the statistical analysis. All the data obtained were presented as mean ± standard error of mean.

RESULTS

Serum fluoride levels were in a normal range of 0.025 ± 0.0055 ppm, and the TAC values were also in normal range, i.e., 128.023 ± 13.32 ng/mL. We also found a statistically nonsignificant negative correlation (p > 0.05) between fluoride and TAC levels.

CONCLUSION

Although study subjects are residing in the area of endemic fluorosis, they had normal levels of fluoride and TAC. This could be due to use of reverse osmosis water.