BIOMEDICINE
General Information

The journal
Biomedicine (Print ISSN: 0970 2067), official publication of Indian Association of Biomedical Scientists (IABMS), published quarterly in March, June, September and December. It is an International Journal for Biomedical Sciences. The journal publishes research papers, reviews, special article, case report, book review and letter to the editor related to Anatomy, Physiology, Biochemistry, Microbiology, Toxicology, Endocrinology, Reproductive Biology, Pharmacology and Alternative Systems of Medicines like Siddha, Unani, Ayurveda, Homeopathy and Naturopathy.

Abstracting and indexing information
It is indexed in Excerpta Medica, Scopus, Elsevier Indian Citation Index and Ind.Med.

Information for authors
Minimal printing cost for various categories of accepted manuscripts and color images are charged by Biomedicine. For details see instruction to the authors.
All manuscripts must be submitted by email to biomedicinepreview@gmail.com

Subscription information
A subscription to Biomedicine comprises 4 issues. Prices include postage. Annual subscription for non-members

- Institutional
  - INR 4,500 for India [Vol. 35 (1-4) 2015 issues]
  - USD 250 for outside India [Vol. 35 (1-4) 2015 issues]
  - INR 5,000 for India [Vol. 36 (1-4) 2016 issues]
  - USD 280 for outside India [Vol. 36 (1-4) 2016 issues]

- Personal
  - INR 2,800 for India [Vol. 35 (1-4) 2015 issues]
  - USD 160 for outside India [Vol. 35 (1-4) 2015 issues]
  - INR 3,000 for India [Vol. 36 (1-4) 2016 issues]
  - USD 200 for outside India [Vol. 36 (1-4) 2016 issues]

- Mode of payment
  - Nationalized Bank DD drawn in favor of The Editor-in-chief, Biomedicine, payable at Chennai.

Claims for missing issues will be serviced at no charge if received within 60 days of the cover date for domestic subscribers and 90 days for subscribers outside India. Duplicate copies cannot be sent to replace issues not delivered because of failure to notify change of address to the General Secretary, IABMS or The Editor-in-chief, Biomedicine.
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Vol. 36 No. 3: (July - September) 2016

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EDITORIAL

BIOLOGICAL IMPLICATIONS OF SIRTUINS DURING CALORIC RESTRICTION AND LIFE SPAN EXTENSION

The sirtuin family of class III histone deacetylases has been extensively implicated in modulating a myriad of cellular processes, including energy metabolism, stress response, cell/tissue survival and malignancy. Silent information regulator proteins, or sirtuins, are protein deacetylases dependent on nicotine adenine dinucleotide (NAD) and are found in organisms ranging from bacteria to humans. In eukaryotes, sirtuins regulate transcriptional repression, recombination, the cell-division cycle, microtubule organization, and cellular responses to DNA-damaging agents. They modulate reproductive and chronological lifespan in yeast and bacteria. They appear to affect biological aspects of mammalian diseases of ageing. Sirtuins are also known to play an important role in an organism response to certain types of stress and toxicity. Their regulatory role is most prominent during caloric restriction adopted by cell during stress.

The sirtuin system is well influenced by caloric restriction (CR) (Fig 1). CR, a significant, sustained reduction of caloric intake from baseline levels, is the most thoroughly and successfully researched method for lifespan and health span extension in a broad range of animals and non-human primates. In many cases, the reduction of caloric intake by 30 to 40 percent in animal models has resulted in longevity increases by 40 percent or more. Although there is no direct human evidence of lifespan extensions in humans from CR, results of NIA-funded CALERIE study have shown significant reductions in risk factors for disease (cardio vascular disease, diabetes, some cancers), from moderate CR. In humans CR reduces fasting insulin levels and lowers resting body temperatures, which are two biomarkers for aging reversal.

During CR multiple gene response is observed and they are believed to be involved in life extending benefits. CR compared to high calorie diet changes the expression of over 3000 genes in mice. Since multiple gene respond to CR, Sirtuins appear to be one of the genetic pathways involved in regulating the longevity process. Thus existing evidence indicates that the mammalian sirtuins system is an incredibly complicated biological response system.

![Figure 1: TARGET OF SIRTUINS DURING CALORIC RESTRICTION](image)

Fig 1 represents the biological importance of sirtuin targets in different tissues with relevance to CR. Legend shows the color coding of sirtuins.
Sirtuins are capable of modulating the key metabolic pathways that regulate cellular and systemic adaptive responses to stress by altering respective protein activity (Fig 2). Sirt1 is the most prominent and extensively studied member of sirtuins, heavily implicated in health span and longevity. Even though sirtuins are regulator proteins they are regulated by other proteins that influence their expressions. One classical example is DBC-1 (Deleted in breast cancer-1) which alters SIRT1 activity in multiple cell lines and tissues. Increased DBC-1 decreases SIRT1. The impact of DBC1 on regulating SIRT1 appears to be a critical component dictating the biological response to changes in diet. A high fat diet in mice promotes DBC1 expression and fatty liver disease, a process associated with reduced expression of SIRT1 in liver due to enhanced DBC1. But in genetic DBC1 knockout mice up regulations of SIRT1 protected the obese mice from fatty liver disease despite high fat diet.

**Figure 2: ROLE OF SIRT1 IN VARIOUS METABOLIC PATHWAYS**

![Figure 2: ROLE OF SIRT1 IN VARIOUS METABOLIC PATHWAYS](image)

Fig 2 represents the biological role of SIRT1 in various metabolic pathways

Recent studies have emphasized the importance of SIRT1 not only, in the regulation of metabolism, cellular survival, and organismal lifespan but also in autophagy. Autophagocytosis is a housekeeping mechanism cleaning cells from aberrant and dysfunctional molecules and organelles. The extension of lifespan has been linked to the efficient maintenance of autphagic degradation, a process which declines during aging. Interestingly, experimental evidence have demonstrated that SIRT1 regulates the formation of autophagic vacuoles, either directly or indirectly through a downstream signaling network. The signaling pathways linking SIRT1 to the regulation of autophagic degradation via the interactions of SIRT1 with the FoxO and p53 signaling has been demonstrated. These regulations can also control both the autophagic degradation and lifespan extension emphasizing the key role of autophagy in the regulation of lifespan.

**Dr.E.Padmini**  
Editor-in-Chief, Biomedicine
Knowledge and awareness of application of stem cells in clinical practice among dental professionals-A survey

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(Received: Jun 2016       Revised: Sep 2016     Accepted: Sep 2016)

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ABSTRACT

Introduction and Aim: The objective of the study was to investigate the knowledge, awareness, and attitude of the use of stem cells in dentistry among dental professionals in Chennai.

Materials and Methods: This cross-sectional study was conducted among 100 dentists selected from a private hospital in Chennai. A questionnaire with 20 questions was provided to them, to assess their knowledge, awareness, and attitude of the use of stem cells among their clinical practice.

Results: The majority of the participants were ≤40 years of age, possessed a postgraduate qualification, had practiced for ≤5 years and were specialists or specializing. In this study, the majority of the participants reported awareness about the use of stem cells in dentistry which was significantly associated with qualification and type of practice.

Conclusion: Data from this study revealed a high level of awareness, positive attitude and poor knowledge of the use of stem cells in dentistry among a cross section of Dental practitioners in Chennai.

Key words: Stem cell, Questionaire, Cross-sectional, Survey, Dentist, Awareness
Study of Lipid profile in patients with newly diagnosed Subclinical Hypothyroidism.

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ABSTRACT

Introduction and Aim: Hypothyroidism is relatively common and is associated with an unfavorable effect on lipids. Though the association of Overt Hypothyroidism with dyslipidemia is evident, the effect of subclinical hypothyroidism (SCH) on lipid parameters is controversial. Hence this study was proposed to evaluate the effect of normal thyroid hormones but raised TSH levels on various lipid parameters.

Materials and Methods: The study was performed on ninety-nine subclinical hypothyroid patients with the mean age of 49 yrs. Age matched euthyroid subjects were chosen as controls. Patients were screened for thyroid disorder by measuring their fT₃, fT₄, TSH by the direct chemiluminescent assay. Serum was collected in patients of SCH. The serum was later tested for serum Cholesterol by Cholesterol oxidase method, Serum Triglycerides was measured using GPO method and the normal level is up to 150mg/dl. HDL was measured using Polymer detergent method while LDL was calculated using Friedwald’s Equation but for those samples whose serum triglycerides are higher than 400 mg/dl serum LDL was calculated using Polymer detergent method. VLDL was calculated directly from serum triglycerides.

Results: The SCH patients showed marked elevated levels of Serum cholesterol (***P <0.01), TG (***P <0.001) , LDL-C (**P <0.01) and VLDL (***P <0.001) but HDL-C did not show any significant difference compared to the control group.

Conclusion: Thyroid hormones can have important effects on lipid profile. Our findings throw light on the lipid abnormalities in Subclinical hypothyroid patients and possible risk of cardiovascular diseases in such patients which necessitate the importance of treatment of patients with SCH.

Keywords: Subclinical hypothyroidism, Dyslipidemia, Cardiovascular diseases, Lipid profile.
Lectin staining studies on Hodgkin’s and Non-Hodgkin’s lymphoma

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(Received: Aug 2016 Revised: Sep 2016 Accepted: Sep 2016)

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ABSTRACT

Introduction and Aim: Lymphoma is a hematological malignancy that originates in the lymphatic tissues. There are two main types of cancer of the lymphatic system. One is called Hodgkin’s disease, while the other is called non-Hodgkin’s lymphoma. Non-Hodgkin’s lymphomas are a diverse group of neoplasms subjected to an ever-changing classification. Lectin histochemistry offers major advantages over conventional immunohistochemistry because of the feasibility of retrospective studies. So in the present study three lectins such as Jack Fruit Lectin (JFL), Canavalia gladiata lectin (CGL) and Momordica charantia lectin (MCL) were used to differentiate different lymphomas.

Materials and Methods: Horseradish peroxidase conjugated lectins were used for binding studies in lymphoma. Conjugation of lectin was carried in two steps, activation of Horseradish Peroxidase (HRP) and then conjugation. The sections were stained with conjugated lectins and counter stained with Harris haematoxylin and the staining intensity and the percentage of cells with different grades of staining were assessed in each of the sections.

Results: A peculiar uniform perinuclear staining pattern of Reed-Sternberg cells was observed for Hodgkin’s lymphoma; histiocytes showed almost intense staining with all the three lectins studied. Tumour cells of non-Hodgkin’s lymphoma showed varying intensities of staining with the lectins with different sugar specificity. JFL and MCL showed more or less similar reactivity to all the tissues studied whereas CGL showed a difference from JFL and MCL and that might be due to the difference in sugar specificity.

Conclusion: Screening with a panel of lectins may be relatively cheap and simple way of understanding tumor biology as it relates to clinical oncology. So these lectins should be a useful marker because of the increased reactivity with RS cells.

Key Words: Lectins: Hodgkin’s Lymphoma: Non Hodgkin’s Lymphoma: Reed Sternberg Cells
Cord blood PH as a predictor of perinatal neurological outcome

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(Received: Jul 2016       Revised: Sep 2016     Accepted: Sep 2016)

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ABSTRACT

Introduction and Aim: Perinatal hypoxia is a major cause of perinatal mortality and morbidity. To evaluate the efficacy of umbilical venous blood pH as a predictor of perinatal neurological outcome.

Materials and Methods: 220 term babies were studied. Antenatal risk factors like preeclampsia, prolonged second stage, meconium stained amniotic fluid were recorded. Umbilical venous blood pH measured. Apgar scoring was done. Babies with HIE were followed up. Efficacy of the parameters was assessed by arriving at sensitivity, specificity, PPV, NPV.

Results: Among 220 term babies, the observations were, males 118 (54%) females 102 (46%) preeclampsia in 30 (13.6%), prolonged second stage in 33 (15%) and meconium-stained amniotic fluid in 24 (11%) umbilical venous blood acidemia in 50 (22.7%), low Apgar at 5 minutes in 15 (6.8%) combination of two risk factors in 12 (5.5%) babies. 12 (5.5%) developed HIE. Umbilical venous acidemia showed sensitivity (100%), specificity (81.7%), PPV (24%) and NPV (100%) low Apgar showed sensitivity 75%, specificity 97%. On combining the two risk factors, the specificity is 98.5%. 4 (33%) with HIE had positive ultrasound findings.

Conclusion: Umbilical venous blood pH can be used as a predictor of perinatal neurological outcome. Its specificity increases on correlating with Apgar.

Key words: Hypoxic ischemic encephalopathy, Birth asphyxia.
Clinical, Biochemical and Histopathological correlation of Oral Leukoplakia- A Novel approach

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ABSTRACT

Introduction and Aim: Oral cancer is the third most common cancers in India and hence early diagnosis of malignant changes of the potentially malignant disorders like leukoplakia is important. The utilisation of non-invasive procedure like sialodagnosis of reliable marker is essential in patients who do not agree for an invasive diagnostic procedure like biopsy for the early detection of malignant changes. One such reliable and feasible marker is salivary LDH, as it is an indicator of cell necrosis. Hence the current study aims to find the correlation between the clinical and histopathological changes of oral leukoplakia with the level of salivary LDH.

Materials and Methods: A prospective study done in the department of Oral Medicine and Radiology containing a total of 20 samples of oral leukoplakia divided into two groups; group1 had 10 cases of homogenous leukoplakia and group2 had 10 cases of non-homogenous leukoplakia.

Results: Mean salivary LDH in homogenous and non-homogenous leukoplakia were found to be 91.2220 IU/L and 179.2330 IU/L respectively. A highly significant correlation with a p-value of 0.000 was found between salivary LDH and the degree of dysplasia. The correlation between clinical types and LDH level was also significant with a p-value of 0.020.

Conclusion: This study emphasizes the significance of sialodagnosis of LDH level in the early detection of malignant transformation of premalignant lesion like leukoplakia and there by emphasizing its careful attention and followup.

Keywords: Oral leukoplakia, dysplasia, salivary lactate dehydrogenase, sialodagnosis
Absolute VO$_2$max is better correlated than relative VO$_2$max with time to exhaustion in treadmill exercise

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ABSTRACT

Introduction and Aim: Earlier studies have found that time to exhaustion in incremental exercise is either poorly correlated or not correlated with oxygen uptake. However, O$_2$ uptake was measured as relative VO$_2$max viz VO$_2$max/kg body weight/min (BW). It is theorized here that since relative VO$_2$max is the about the same for all BW, a correlation may not be found or is poor and since absolute VO$_2$max viz O$_2$ml/min varies directly with BW, the aim was to see if a better correlation may be found instead between absolute VO$_2$max and time to exhaustion.

Methods: Subjects exercised to exhaustion on a treadmill while speed and incline were increased every 2min 30 sec according to Bruce protocol. Data were analyzed by Oxyconpro analyzer connected to a computer. Absolute VO$_2$max, Relative VO$_2$max and Time to exhaustion and load were computed from the data.

Results: The present study finds that absolute VO$_2$max is better correlated ($r=0.76, p=0.003$) with time to exhaustion than relative VO$_2$max ($r=0.63, p=0.02$) is in incremental exercise. The study also finds that load and not body weight is correlated with time to exhaustion.

Conclusion: It is erroneous to try to find the correlation between a parameter correlated with body weight and relative VO$_2$max which is expressed as per kg body weight. Thus time to exhaustion, in a similar manner to body fat, influences absolute VO$_2$max although it is poorly correlated with relative VO$_2$max.

Key words: Absolute VO$_2$max, Relative VO$_2$max, Time to exhaustion, Load, work rate
Prevalence of type 2 diabetes and pre-diabetes in a rural community of north Karnataka

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ABSTRACT

Introduction and Aim: The prevalence of type 2 diabetes is exponentially increasing all over the world including in rural communities. India and other developing countries are facing such health-related consequences due to urbanization. Life style transition has resulted in the higher prevalence of diabetes in these communities. This study aimed at finding out the prevalence of type 2 diabetes in a rural community of North-Karnataka in South India.

Materials and Methods: A sample of 318 adults of age 18 years and older from a small village in North Karnataka participated in the study. After an overnight fast, participants underwent oral glucose tolerance test to determine fasting and 2-hour glucose levels to detect diabetes and pre-diabetes.

Results: The prevalence of T2DM was 5% (5.88% among men and 4.39% among women). The prevalence was highest in the age group of 70 years and more. Fifty percent of T2DM participants did not known about the disease. The prevalence of pre-diabetes was 23.27% (19.11% among men and 26.37% among women).

Conclusion: Results from this study suggest that T2DM has reached epidemic proportion even in rural communities. The key concern is the rising prevalence of pre-diabetes.

Key words: Diabetes, Prediabetes, Prevalence, Rural community
A Comparative Study of Conventional and Rapid Prototyping Technique for the Fabrication of Porous Scaffold for Tissue Engineering Applications

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ABSTRACT

Introduction and Aim: A bio-scaffold may also be largely termed as a structure used to alternate an organ either partially or completely to restore its performance. The scaffold constitution needs interconnecting pores to permit the 3D drift of medium or blood for a continuous supply of vitamins and minerals and exchange of metabolites which is of exceptional value for the survival of the cells cultured on the scaffold. Pore dimension is another important aspect which is to be managed for the proper functioning of scaffold to offer good mechanical strength and support cellular attachment. This research objective is to compare and analyze the characteristics, and mechanical properties of the biomaterial scaffolds developed using slip casting and Selective Laser Sintering methods.

Materials and Methods: Based on the biocompatibility and mechanical properties required to develop a bone scaffold, Hydroxyapatite, Tri-Calcium Phosphate, and Polyamide were chosen for the fabrication and analysis. The scaffolds were fabricated both by conventional slip casting method and advanced rapid prototyping methods.

Results: Maximum compression strength of TCP/HA (90:10) and TCP/HA (80:20) scaffold test specimens fabricated using slip casting method was found to be 5.05MPa and 5.55MPa respectively. While the PA/HA (90:10) and PA/HA (80:20) scaffold test specimens fabricated using rapid prototyping method was found to possess a relatively greater compression strength of 14.5 MPa and 20.1 MPa respectively.

Conclusion: The Selective Laser Sintering method, furnish the usefulness of producing the scaffold specimens with accurate shape with 100% interconnected pores compare with conventional fabrication methods. The above research on porous scaffold fabrication is very helpful in bone tissue engineering field to identify the better scaffold design and fabrication technique to develop a bone scaffold.

Keywords: Tri-Calcium Phosphate (TCP), Polyamide (PA), Hydroxyapatite (HA), Selective Laser Sintering (SLS), polyvinyl alcohol (PVA), Slip-casting.
Development of a system to acquire Radial Artery Pulse for Objective Pain Measurement

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ABSTRACT

Introduction and Aim: Objective measurement of pain intensity suggests better pain management procedure. Traditional Indian Medical system has been using Nadi Parikshan as a tool for measuring pain objectively since long back. Nadi Parikshan involves sensing three Radial Artery Pulses namely Vata, Pita and Kapha. Vata Nadi (pulse) provides ample information about pain. In this paper, we intend to develop a system to acquire Vata Nadi by engineering the existing traditional procedure.

Materials and Methods: The pressure exerted by Radial Artery is sensed, by the rightly placed strain gauge based differential mode pressure sensor on the wrist of subjects, and processed.

Conclusion: The acquired and processed pulse signal from 05 male and 15 female subjects is analyzed on the basis of the amplitude of percussion and dicrotic waves appeared in the signal and confirmed that the acquired pulse is Vata pulse.

Keywords: Nadi Parikshan, Objective Pain Measurement, Radial Artery Pulses, Vata Nadi.
Comparative analysis of common edible eggs of Punjab region: a diet cum nutritional source in terms of health issues

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(Received: Aug 2016       Revised: Sep 2016     Accepted: Sep 2016)

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ABSTRACT

Introduction and Aim: It has been documented that besides geography, there are some other factors that determine the nutritional values of egg are size or weight of an egg. It has also been documented, with increase in age of hen; there is increase in size of eggs. Furthermore, there is greater quantity of yolk in eggs that are smaller in size. The nutritional values of egg can be calculated by ensuring the weight of an egg. With increase in age of hens, there is subsequent decrease in the egg shape index. With interaction of breed with age, the traits of egg shell may be affected.

Materials and Methods: Different edible avian eggs unfertile, eggs with two yolk, country (Desi) eggs of Punjab and brown organic eggs were obtained from local poultry farm from district Jalandar of Punjab. In vitro digestion was done and freeze dried at -70°C till use. Protein estimation: By Hatree - Lowry method (1951), Cholesterol test: By Libermann-Burchard method, Determination of sodium and potassium by flame photometer, Free radical scavenging activity was determined by DPPH based on the method given by Brand-Williams 1995 and ABTS by Re et.al., 1999. Zinc (Zn) Iron (Fe) and Calcium (Ca) determine by Atomic Absorption Spectroscopy (AAS).

Results: After physical examination, double yolked egg was found to have highest weight of average 68.86 ± 4.20g followed by Country egg (desi) which was 54.50 ± 3.2g. Unfertilized and Organic eggs were found to have total weight of 51.20 ± 2.04g and 55.58 ± 1.6g respectively. Double yolked egg has highest protein content of 12.5 mg/ml. Country egg (desi) was found to have least amount of cholesterol 4.2 ± 0.005 mg/ml. Unfertilized egg was found to have highest zinc(0.20 mg/l), Calcium (3.15mg/l) content and iqual iron followed by double yolk, country egg (desi) and Organic egg. The scavenging ability of Country egg (desi) is highest suggesting that it has strong antioxidant activity than other avian eggs.

Conclusion: It is thus concluded that eggs are rich in nutrients. The information present in this study provides with an understanding to solve the problems related to different health issues and thus could be useful to food industry in different aspects as well.

Key words: Double yolked, Unfertilized egg, Country Egg, Organic Egg.
Seroprevalence of Bovine Coxiellosis in Puducherry and Tamil Nadu – with a note on its relevance to human Q fever

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(Received: Aug 2016       Revised: Sep 2016     Accepted: Sep 2016)

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ABSTRACT

Introduction and Aim: During past four decades, Indian reports on coxiellosis are few and far between. This investigation was carried out to study the current seroprevalence of Coxiellosis in bovines in Southern India, employing a specific and sensitive ELISA test.

Materials and Methods: Blood was collected from 206 cattle and 188 buffaloes at the time of slaughtering at private and government abattoirs, Municipal slaughter houses and private butcheries located in Puducherry and Tamil Nadu state. Sera were separated, aliquoted and stored at -20°C till the time of testing. Samples were analyzed for C. burnetii antibodies by indirect ELISA test (IDEXX).

Results: A low seropositivity of 0.97% and 1.06% was observed in cattle and buffaloes respectively.

Conclusion: Despite this finding, continued surveillance of this zoonosis is recommended, since cases of human Q fever with manifestations like abortions, endocarditis, atypical pneumonia and neonatal septicemia are recently reported from India.

Key Words: Bovine Coxiellosis, Coxiella burnetii, Zoonosis
Association of glycemic control and central obesity with silent myocardial ischemia in subjects with type 2 diabetes mellitus

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(Received: Jul 2016       Revised: Sep 2016     Accepted: Sep 2016)

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ABSTRACT

Introduction and Aim: Type 2 diabetes mellitus is an on-going global epidemic which can lead to many life-threatening co-morbidities like coronary artery diseases. But what actually predisposes the diabetics to such fatal complications is still debated. In this study, we explored the association of glycemic control and central obesity with asymptomatic myocardial ischemia in a group of type 2 diabetics.

Materials and Methods: Total 78 diabetic patients were included who were undergone treadmill testing (TMT) and on the basis of exercise-induced cardiovascular changes, divided into TMT positive and TMT negative groups. Abdominal circumference, waist–hip ratio, glycosylated haemoglobin were measured in groups and compared with unpaired students t-test. Association of silent myocardial ischemia and the said parameters were checked by odds ratio (OR).

Results: Significant association were found between myocardial ischemia and abdominal circumference ≥90cm (OR=4.0, p=0.018), waist –hip ratio≥1 (OR=3.025, p=0.031) and glycosylated haemoglobin ≥7gm/dL (OR=5.543, p=0.023). TMT positive group showed significantly higher levels of abdominal circumference, waist-hip ratio and glycosylated haemoglobin (p<0.05 in each case).

Conclusion: Study concludes that central obesity and uncontrolled hyperglycemia may predispose diabetics to silent myocardial ischemia which may get revealed on treadmill testing. Optimum control of these two parameters, therefore, may minimize the risk of ischemic myocardial episodes and its fatal consequences in future.

Key words: Treadmill test, Myocardial ischemia, Glycosylated haemoglobin.
Effect of Body Mass Index on walking among Rural and Urban School Children’s

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(Received: Sep 2016       Revised: Sep 2016     Accepted: Sep 2016)

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ABSTRACT

Introduction and Aim: Childhood obesity is one of the common illness faced by younger age group. Due to lack of physical activity and change in lifestyle is the cause of obesity. Walking is the part of physical activity among adults and children’s which prevents obesity.

Materials and Methods: It is the pilot study was conducted in 2 schools (rural and urban area) using questioners. The questionnaires include name, age, sex, residential area, distance to school, physical activity, and food habits. Body Mass Index (BMI) was calculated using height and weight of the subject. Consent was obtained from each individual. Subjects were recruited based on inclusion and exclusion criteria. Data were analyzed using SPSS software.

Result: On analyzing the data the level of physical activity and walking to school shows a significant difference between urban and rural school children’s (P<0.01).

Conclusion: The BMI shows the positive correlation between rural and urban area.

Key Words: BMI, Obesity, Rural, Urban, Walking
A study to evaluate the effect of abdominal obesity in Autonomic function test
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(Received: Sep 2016       Revised: Sep 2016     Accepted: Sep 2016)

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ABSTRACT

Introduction and Aim: Obesity is a major public health challenge of the 21st century, it is a disorder in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced life expectancy and increased health problems abdominal obesity carries greater risk of developing diabetes and future cardiovascular events than peripheral or gluteofemoral obesity. Present study aimed to evaluate the effect of abdominal obesity in Autonomic function test.

Materials and Methods: Seventy obese male subjects and seventy normal male subjects were selected based on BMI and waist-hip ratio, subjects were divided into three groups based on BMI and Waist-hip ratio. Group I – Control, Group II – Abdominal obesity and Group III – Peripheral obesity. Autonomic function test was assessed by (i) Hand grip test and (ii) Cold pressor test for Sympathetic activity assessment and (i) Resting heart rate, (ii) 30:15 ratio and (iii) Standing to lying ratio for Parasympathetic activity assessment.

Results: Blood pressure difference before and during handgrip test and cold presser test was highly significant (p <0.05) decrease in the abdominal obese group than control and peripheral obese group. Among all the parasympathetic parameters, standing lying ratio showed a highly significant (P<0.05) variation when compared to heart rate and 30:15 ratio.

Conclusion: The largest waist circumference was related to the smallest parasympathetic modulation and consequently, a greater cardiac autonomic dysfunction.

Key Words: Abdominal obesity, Autonomic function tests, Hand grip test, 30:15 ratio, Standing to lying ratio.
Effect of Menstrual Cycle on Nasal Mucociliary Clearance
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(Received: Sep 2016       Revised: Sep 2016     Accepted: Sep 2016)

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ABSTRACT

Introduction and Aim: Recently the role of sex hormones have been implicated in the modulation of certain disease pathologies and the ovarian hormones have been found to influence the pathogenesis of respiratory disorders in women, rendering womankind a vulnerable population to contribute more to the global burden of respiratory morbidities. Therefore, this study has been designed to evaluate the influence of various phases of menstrual cycle on the nasal mucociliary clearance (NMC), an aspect of respiratory health.

Materials and methods: 30 healthy volunteers between the age of 17 and 22 years with normal BMI, regular menstrual cycles and with no respiratory pathology that could impair the nasal mucociliary function were recruited, and NMC was assessed by the saccharin transit method of Anderson et al., during menstrual, late follicular and luteal phases.

Results: The inferences of our study reveal a significance in the difference of saccharin transit time (STT) between the various phases of the menstrual cycle with p-value 0.017, and the significance is pronounced in late follicular phase with reduced transit time when compared with menstrual and luteal phases with p values 0.0254 and 0.0056.

Conclusion: From our study it could be inferred that the nasal mucociliary clearance is enhanced during late follicular phase of menstrual cycle which is due to the effect of estrogen and the decrease in the nasal mucociliary clearance in the other phases is attributed to the inhibitory effect of progesterone in luteal and the lack of hormonal influence in menstrual phase. Thus nasal mucociliary clearance is influenced by the menstrual cycle.

Keywords: Nasal Mucociliary Clearance, Menstrual Cycle, Saccharin transit time
Evaluation of Sayan’s Paan Infusion (SPA) medium for Dalmau technique for identification of medically important yeasts

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(Received: Sep 2016 Revised: Sep 2016 Accepted: Sep 2016)

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ABSTRACT

Introduction and Aim: Identification of medically important yeasts like Candida albicans and Trichosporon spp. requires Dalmau technique performed in conventional media like Corn meal agar and Rice extract agar, which are either costly or very prone to aerial contamination. Paan (Betel) leaves have since antiquity, been used as mouth freshener and carminative in South east Asia.

Materials and methods: We evaluated, in this study, the microscopic morphology of medically important yeasts in Paan infusion agar by Dalmau technique.

Results: It was found that it produced identical microscopic morphology of the yeasts as compared to rice extract agar, and was free from aerial contamination by bacteria and fungi. It also had a sweet aroma.

Conclusion: Thus it is a suitable medium for performing Dalmau technique for yeast identification.

Keywords: Dalmau, Paan, infusion, yeast identification.
Impact of microalbuminuria on certain antioxidant enzymes in diabetic patients

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(Received: Sep 2016       Revised: Sep 2016     Accepted: Sep 2016)

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ABSTRACT

Introduction and Aim: In India, 31.7 million people were suffering from diabetes in the year 2000. The metabolic dysregulation associated with diabetes causes secondary pathological changes in multiple organ systems that impose a heavy burden of morbidity and mortality from macrovascular and microvascular complications. Among these complications, diabetic nephropathy affects 40% of type-1 and 10% of type-2 diabetic patients. The first clinical sign of renal dysfunction in patients with diabetes is microalbuminuria that develops in 2 to 5% of patients per year. In India, the prevalence of microalbuminuria is more than 26 percent. The present study was designed to evaluate the oxidative stress in type-2 diabetic patients with and without microalbuminuria by measuring malondialdehyde and certain antioxidant enzymes along with complete lipid profile.

Materials and Methods: The study was carried out on 100 type-2 diabetic mellitus patients with and without microalbuminuria and 50 normal healthy subjects as a control group in the age group ranging between 30 to 60 years of both sexes. The fasting glucose, complete lipid profile, HbA1C, urea, urinary creatinine, urinary albumin along with oxidative stress markers like malondialdehyde, superoxide dismutase, reduced glutathione, and its metabolizing enzymes such as glutathione peroxidase & glutathione reductase were analyzed.

Results: A significant increase was observed in total cholesterol, LDL-cholesterol, VLDL-cholesterol, & malondialdehyde levels while a significant decrease was recorded in HDL-cholesterol, superoxide dismutase, reduced glutathione, glutathione peroxidase and glutathione reductase in type-2 diabetic mellitus patients with and without microalbuminuria in comparison to normal healthy subjects. A similar trend was found in the levels of all investigated biochemical assays in type-2 diabetic patients with microalbuminuria w.r.t. type-2 diabetic mellitus patients without microalbuminuria.

Conclusion: Aforementioned observations suggested that dyslipidemia, hyperglycemia and hence oxidative stress induced in the type-2 diabetic mellitus patient’s and microalbuminuria further triggers the oxidative stress in diabetic mellitus patients. Therefore, type-2 diabetes with microalbuminuria might be responsible for the initiation of various vascular diseases.

Key Words: Type-2 Diabetic Mellitus (Type-2DM), Microalbuminuria, Malondialdehyde (MDA), superoxide Dismutase (SOD), Glutathione (GSH), Albumin creatinine ratio (ACR).
Screening Of CYP1A1 Gene Polymorphism in Polycystic Ovary Syndrome
Women among the Rural South Indian Population

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(Received: Sep 2016       Revised: Sep 2016     Accepted: Sep 2016)

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ABSTRACT

Introduction and Aim: Polycystic ovary syndrome (PCOS) has been characterized as an endocrine disorder by the presence of polycystic ovary along with excessive androgen secretion and ovary dysfunction. To evaluate the association of CYP1A1 gene polymorphisms with Polycystic Ovary Syndrome Women among the Rural South Indian Population.

Materials and Methods: The study included 150 subjects from South India (75 controls and 75 cases). All subjects were genotyped for CYP1A1 gene by polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) followed by Automated sequencing.

Results: In South Indian population, individuals with TC and CC genotypes of CYP1A1 polymorphism have significantly higher risk of PCOS. Significant differences were observed in the genotype and allele distributions of above mentioned polymorphisms groups. The result is significant at < 0.05 p-value.

Conclusion: The present study supports an association between SNPs of CYP1A1 genes and susceptibility to PCOS or related traits in Women among the Rural South Indian Population.

Keywords: PCR-RFLP, Sequencing, Cytochrome 450 enzyme.
Case Report

**Classic type Eagle’s Syndrome – A Case Report following CARE guidelines.**

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(Received: Sep 2016       Revised: Sep 2016     Accepted: Sep 2016)

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**ABSTRACT**

The rationale for reporting the present case according to the CARE guidelines is to enable a proper and detailed reporting of the condition according to the recent advancements in diagnostic and therapeutic approach. This enables the researchers to further understand the diagnostic criteria. In the present case, we report the condition of the Classic Type of Eagle’s Syndrome wherein the patient presented with a complaint of atypical pain in the throat region and dysphagia which aggravated since two weeks. Based on the clinical history and examination, a CT scan with 3D reconstruction was obtained. Surgical intervention was done, and the patient was followed up. A favorable post operative outcome was obtained. This case report would focus more on the clinical history of the patient and differential diagnosis of the condition. Eagle’s syndrome (ES) occurs when an elongated styloid process or the calcification of the stylohyoid ligament shows clinical symptoms such as pain and discomfort in the posterior of the tongue, recurrent throat pain, dysphagia, foreign body sensation and referred pain to the ear on the affected side. This case report documents the case of a 42-year-old male who presented with the complaints of atypical pain in the posterior part of the tongue and inability to swallow since one week. A clinical and radiographic examination confirmed the diagnosis of Eagle’s syndrome.

**Key words:** Eagle’s syndrome, Stylohyoid syndrome, Styloid process elongation.
An incidence of unilateral linguofacial trunk on adult female cadaver

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(Received: Sep 2016       Revised: Sep 2016     Accepted: Sep 2016)

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ABSTRACT

The external carotid artery is the major source of arterial supply of head and neck. Our study, report a unique variation in the branching pattern of external carotid artery. This anatomic variation will give a clear idea to surgeons in different surgeries in the face and neck. Normally the lingual and facial artery arise as a separate branch of external carotid artery but in this case of female cadaver the lingual and facial artery arises from a single trunk which is noted as a linguofacial trunk. This is roughly seen in 7.14% of the population. It is essential to know the variation in the branches of an external carotid artery, is especially important for the surgeons, this neurovascular variation is the key landmark for adequate exposure and proper cross clamp during surgeries. Therefore a sound knowledge of anatomical variation of the linguofacial trunk is important during maxillofacial surgery, neck surgeries, post-operative tonsillectomy and radiographic imaging.

Keywords: External carotid artery, Linguofacial trunk, Variation, Neck surgeries
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