

# BIOMEDICINE

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## Contents

Topics and Authors	Page(s)
<b>I. Editorial.....</b>	<b>432 - 433</b>
<b>II. Former Presidents of IABMS.....</b>	<b>434</b>
<b>III. Review / Special articles</b>	
<b>1. Herbs for Hepatoprotection.....</b>	<b>435 - 440</b>
<i>P. Sumitha and T. Thirunalasundari</i>	
<b>IV. Research Papers</b>	
<b>2. The prognostic value of high sensitive C-reactive protein in Coronary Artery Diseases.....</b>	<b>441 - 445</b>
<i>K. Sowmya and C.M. Prabu kumar</i>	
<b>3. Cardioprotective effect of taurine against isoproterenol induced myocardial infarction in rats.....</b>	<b>446 - 450</b>
<i>M. Sudha, D. Rajkumar, K. Santha and S. Sethupathy</i>	
<b>4. Effect of Yoga-asana &amp; Pranayama on Visual Evoked Potential (VEP) in Type 2 Diabetes Mellitus.....</b>	<b>451 - 455</b>
<i>T. Kyizom, S. Singh, K.P. Singh, O.P. Tandon</i>	
<b>5. Circadian rhythmicity of double product in healthy subjects.....</b>	<b>456 - 461</b>
<i>Sunita Bisht Nene, Aduri Raja Sumandatta</i>	
<b>6. Study of Serum Apolipoprotein-A1 in Coronary Heart Disease.....</b>	<b>462 - 466</b>
<i>Vinod Wali, Jagadish Ingin, Basangouda Patil</i>	
<b>7. Cytoprotective effect of Solanum trilobatum against Benzo(a) Pyrene induced experimental lung carcinogenesis.....</b>	<b>467 - 473</b>
<i>P. N. Venkatesan, R. Muthuvel and D. Sakthisekaran</i>	
<b>8. Influence of Glycemic status on Circulating Thyroid Hormones among Diabetic patients.....</b>	<b>474 - 478</b>
<i>K. Satyanarayana, Y. Dhanunjaya, Pragna B. Dolia, B.J. Pradeep Kumar and R. Aruna Kumari</i>	
<b>9. Evaluation of anticonvulsant effects of Nifedipine, Verapamil and Diltiazem in maximal electroshock seizures (MES) and Pentylene tetrazole (PTZ) induced seizure models in rats.....</b>	<b>479 - 481</b>
<i>Meena Anand and Chetan Karoo</i>	
<b>10. A study on the anti-viral properties of Azadirachta indica (A.Juss, Neem) against HBV, HIV, HSV-I, Vaccinia and Varicella zoster viruses and Coscinium fenestratum (Gaertn.) Colebr, Tree turmeric) against HBV and HIV.....</b>	<b>482 - 486</b>
<i>S. Anushka, P. Rajendran, V. Vedha, G. Ashok, M. Kannan and M. Karthikeyan</i>	
<b>11. Influence of yogic practice in modulating inflammatory response to strenuous exercise.....</b>	<b>487 - 491</b>
<i>V. Ambarish., D. Venkatesh, M. Kalyani, G. Jaisri, H. Saraswathi</i>	
<b>12. Triple Negative Breast Cancer and Metabolic X Syndrome: A novel cross-sectional explorative study.....</b>	<b>492 - 500</b>
<i>Chandrani Mallick, Krisnangshu Bhanja Chowdhury, Siddhartha Das, Shyam Sharma, Sumana Maity, Debansu Bhanja Chowdhury, Devashish Sen, Mausumi Sikdar and Subrata Ghosh</i>	
<b>13. Evaluation of Age of onset of hair recession in central Indian adolescents.....</b>	<b>501 - 505</b>
<i>N.A. John. and J.N. John</i>	
<b>14. Effect of stress on Teeth.....</b>	<b>506 - 512</b>
<i>Little Mahendra and Jaideep Mahendra</i>	
<b>15. Changes in lipid peroxidation during different trimesters of Pregnancy.....</b>	<b>513 - 516</b>
<i>Jessy John, D.C. Mathangi, K. Dilara A. S. Subhashini, Jaya Vijayraghavan</i>	

<b>16. Serum enzymes and liver function tests in thyroid disorders.....</b>	<b>517 - 522</b>
<i>A.Y. Mane and V.R. Bhagwat</i>	
<b>17. Virulence factors and susceptibility pattern of Uropathogenic Escherichia coli.....</b>	<b>523 - 526</b>
<i>R. Alice Peace, M. Jeya, S. Rama</i>	
<b>18. Role of Blood Ammonia in the diagnosis and grading the severity of Hepatic Encephalopathy.....</b>	<b>527 - 529</b>
<i>Santhi Silambanan, Jothimalar, K. Sowmya</i>	
<b>19. Assessment of Risk factors for development of type-2 Diabetes Mellitus among working women in Bhubaneswar, Orissa.....</b>	<b>530 - 533</b>
<i>Archana Patnaik and Eli Mohapatra</i>	
<b>20. Adiponectin / leptin ratio as early predictor of renal insufficiency in Type 1 Diabetes Mellitus.....</b>	<b>534 - 540</b>
<i>K. Malleshappa, N.S. Harsha and Y. Dhanunjaya</i>	
<b>21. In vitro antioxidant activity of combined ethanolic extract of Melia azedarach and Piper longum.....</b>	<b>541 - 549</b>
<i>H. Rajeswari, R. Vasuki, P. Samudram, A. Geetha</i>	
<b>22. Variation in QTc interval with menstrual cycle in young healthy individuals.....</b>	<b>550 - 554</b>
<i>Deepti Hoskatti and Sachin Hoskatti</i>	
<b>23. Protein carbonyl content and thiols in patients with Rheumatoid arthritis.....</b>	<b>555 - 557</b>
<i>Sreekantha, R. Kowsalya, S.S.Avinash, Vinod Chandran, Remya and M. Amareshwar</i>	

## **v. Case Reports**

<b>24. Hematometocolpos with Bicornuate Uterus.....</b>	<b>558 - 560</b>
<i>M.A. Chiniwar and Sharada B. Menasinkai</i>	
<b>25. Adult epididymal lymphangioma: An extremely unusual case.....</b>	<b>561 - 562</b>
<i>Sachin B. Ingle, Yogesh G. Patle, S. N. Jatal, Chitra Hinge(Ingle) and Anoop Kediya</i>	
<b>26. Variant large inter parietal bone at occipital region in a south Indian adult skull.....</b>	<b>563 - 564</b>
<i>Sugavasi. Raju and G.Kanchana Latha</i>	
<b>27. Unusual variation of brachial artery branching pattern.....</b>	<b>565 - 568</b>
<i>Chandrika Teli and Usha Kothandaraman.</i>	
<b>28. Accessory head of flexor pollicis longus and its morphological and clinical significance.....</b>	<b>569 - 570</b>
<i>M.Sujatha, V.Subhadra Devi, Sugavasi. Raju</i>	
<b>29. Fibrous dysplasia of maxilla: modality of treatment.....</b>	<b>571 - 573</b>
<i>Ashfak R. Kakeri, Anees H Patel, S. M. Rashinkar, M.V. Watwe, and B.N. Walikar.</i>	

## **VI Letters to the editor**

<b>30. An incidentally diagnosed case of melanosis coli, in a case of laxative abuse.....</b>	<b>574</b>
<i>Sachin B Ingle, Patle G Yogesh and Chitra Hinge (Ingle)</i>	
<b>32. LASER New diagnostic tool for tissue diagnosis.....</b>	<b>576</b>
<i>Monika Gupta, K. Prabhu, Jamila Rose and B.O. Parijatham</i>	

**Herbs for Hepatoprotection****P. Sumitha and T. Thirunalasundari**

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**Abstract**

The liver is a highly specialized organ that regulates a wide variety of biochemical reactions. Because of its strategic location and multidimensional functions, the liver is prone to many diseases and thereby the hepatocytes i.e the liver cells are damaged. Liver diseases are due to infection and exposure of the liver to toxic substances. To protect the hepatocytes from damage and / or also to recover the damaged hepatocytes, many drugs are used. But unfortunately they also exert further damage to hepatocytes or other side effects. At this stage plants offer protective measures. Huge number of plants and its products play a major role in the treatment of liver diseases and they act as hepatoprotectors. Hence researchers, physicians and patients prefer herbal remedies. The main reasons are low cost & less side effects. Phytoconstituents in the plants possess various biological activities and some of these phytochemicals help in regeneration of damaged liver cells. Based on the above facts the present review is aimed to throw light on medicinal plants that possess hepatoprotective activity.

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**Research Papers****The prognostic value of high sensitive C-reactive protein in Coronary Artery Diseases****K. Sowmya and C.M. Prabu kumar**

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**Abstract**

**Background:** Coronary artery disease (CAD) remains the leading cause of morbidity and mortality in the industrialized world. Since inflammation is believed to have a role in the pathogenesis of cardiovascular events, measurement of markers of inflammation may improve the risk prediction of these events. In this regard, the present study was taken up to evaluate the prognostic value of high sensitive C-reactive protein (hs-CRP), a sensitive indicator of inflammation, in normal and CAD patients.

**Materials and Methods:** We measured hs-CRP in 300 subjects of which, 100 were apparently healthy

persons with no history of diabetes, hypertension and smoking in the age group of 30 – 60 years who were taken as controls, and age matched 200 angiographically proven cardiac cases attending the cardiac care center of Sri Ramachandra Medical College and Research Institute, Chennai were taken as cases. Information on nonlipid risk factors was obtained through questionnaire. Both sexes were included. The parameters were estimated by standard biochemical methods in autoanalyzers using standard kits.

**Results:** Concentrations of hs-CRP was significantly higher in CAD cases than the control group. 22% of normal individuals and 42% of cases had hs-CRP above 3mg/dl. Significant difference was also observed in the mean values of plasma glucose, lipid parameters and their ratios between the case and control group.

**Interpretation & Conclusion:** In the present study we found higher levels of hs-CRP in CAD cases, proving it to be a strong independent marker of CAD. Thus measurement of hs-CRP in addition to the other risk factors improves the identification of individuals at higher risk of cardiovascular disease.

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*Biomedicine: 2011; 31(4): 446 - 450*

## **Cardioprotective effect of taurine against isoproterenol induced myocardial infarction in rats**

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### **Abstract**

**Background & objectives:** Though there are many studies to show protective effect of taurine in diabetes mellitus and hypertension, the present study was designed to investigate the cardio protective effect of taurine against isoproterenol induced myocardial infarction in rats by studying serum cardiac markers, antioxidant defense system, and electrocardiographic changes.

**Methods:** Wistar male rats were randomly divided into four groups, namely control, taurine, isoproterenol and taurine + isoproterenol treated group. Taurine treatment group received taurine (100mg/kg/day, orally for 30 days. Myocardial infarction in rats was induced by isoproterenol administration (100mg/kg, s.c.at an interval of 24hrs on 31<sup>st</sup> and 32<sup>nd</sup> day. Hematological parameters, cardiac marker enzymes, ECG, lipid per oxidation and antioxidant enzymes were assessed 24 hours after the last dose of isoproterenol.

**Results:** Isoproterenol administration showed changes in ECG pattern, including ST-segment elevation (diagnostic of myocardial infarction) increase in the serum levels of cardiac injury markers (creatinine kinase-MB, lactate dehydrogenase, aspartate transaminase and alanine transaminase), increased lipid per oxidation and decreased antioxidant defense system in the heart. Taurine pretreatment preserved almost all the parameters to near normal levels in isoproterenol induced myocardial infarction in rats. In the baseline group (taurine alone treated group) no significant change was observed.

**Conclusion:** The present study revealed that taurine ameliorates cardiac damage in ISO-induced myocardial infarction due to its free radical scavenging, antioxidant and membrane stabilizing effects.

**Key words:** cardio protective effect of taurine-myocardial infarction-rats

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*Biomedicine: 2011; 31(4): 451 - 455*

## **Effect of Yoga-asana & Pranayama on Visual Evoked Potential (VEP) in Type 2 Diabetes Mellitus**

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### Abstract

**Background and Objectives:** Visual Evoked Potential (VEP) as an electrophysiological tool is used for assessing the integrity of optic nerve, visual pathways and visual cortices. Many studies have shown the deranged VEP in Diabetes Mellitus. An attempt was made to study the same and to observe if yoga brings about any change in the parameters of VEP since yoga is fast becoming popular as a holistic approach in adjunctive treatment in many diseases.

**Materials and Methods:** The study was done on 60 patients of type 2 diabetes recruited from diabetic clinic They were divided into two groups-yoga group and control group of 30 patients each, matched for age and sex with control group on only conventional medicines and yoga group on conventional medicines along with yoga . Basal recording of blood glucose and VEP parameters were taken at the time of recruitment and second recording after 45 days of interventions.

**Results:** It was observed that there was statistically significant improvement in the latency and amplitude of P100 of VEP, in the yoga group as compared to the control group.

**Conclusion:** Yoga has a beneficial effect in the improvement in the visual processing in diabetes.

**Keywords:** Type 2 Diabetes Mellitus Visual Evoked Potential Yoga

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## Circadian rhythmicity of double product in healthy subjects

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### Abstract

**Background & Objectives:** Cardiovascular diseases are one of the most significant causes of sudden death due to changes in life style, food habits and lack of exercise. Among other cardiovascular parameters, myocardial oxygen demand is studied extensively to know the diurnal variations in oxygen consumption by the heart muscle. Cardiac events are known to strike at specific hours of day making it necessary to establish the circadian rhythm of myocardial oxygen demand and consumption. Double product is regarded as a surrogate measure of myocardial oxygen demand. Hence the project was designed to study the circadian rhythmic pattern of double product (DP) in healthy individuals and its correlation with parameters of obesity and gender variability.

**Material & methods:** Blood pressure was monitored at 4 hourly intervals for 24 hours in 30 male and 30 female healthy subjects between 18 to 25 years of age without any acute or chronic illness. For correlation data regression analysis was done. Independent sample't' test were performed for descriptive analysis.

**Results:** DP values were seen to be minimum at 12 midnight in males ( $5689 \pm 679$ ) and at 4 am in females ( $6451 \pm 1011$ ) and maximum at 8 pm in both genders [ males =  $7590 \pm 1095$  and females =  $10139 \pm 1892$ ]. WHR, WC and BMI when correlated with DP showed a significant positive correlation in females and in males too; although insignificant.

**Conclusion:** The circadian rhythm of double product, its gender differences and its correlation with obesity must be considered while assessing cardiac work load, risk of left ventricular hypertrophy, and antihypertensive chronotherapy.

**Key words:** circadian rhythm, double product, obesity

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## Study of Serum Apolipoprotein-A1 in Coronary Heart Disease

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### Abstract

**Background & objective:** Incidence of coronary heart disease has shown an upward trend in Indians in the last decade. Atherosclerosis is the major cause of coronary heart disease. Initially the estimation of serum lipids like cholesterol and triglycerides were used to assess the risk of coronary heart disease. However, the inconsistency in the correlation between serum lipid profile and coronary heart disease, led to the development of better indicators (1). Among them the estimation of serum apolipoproteins as a risk factor in coronary heart disease and also as a marker has shown great promise. Earlier LDL was thought to be a marker for risk of the disease and was later replaced by HDL. Now attention has been directed towards identifying components of HDL because there was inconsistency in correlation between HDL and risk of coronary heart disease (2). In this light Alaupovic came with the estimation of one of the component of HDL-apolipoprotein-AI, as a better marker for coronary heart disease (3). The purpose of this study was to assess the ability of Apolipoprotein-A1 to predict the risk of coronary heart disease.

**Materials and Methods:** Blood samples were collected for apo A1 estimation at baseline from 75 patients with acute myocardial infarction and 75 patients with UA/NSTEMI and age and sex matched 50 controls.

**Results:** The plasma levels of apo A1 in 75 acute MI patients ( $102.00 \pm 19$  mg/dl) ( $p < 0.01$ ) and 75 UA/NSTEMI ( $112.00 \pm 15$  mg/dl) ( $p < 0.01$ ) was significantly lower than age and sex matched controls ( $141.0 \pm 21$  mg/dl) ( $p < 0.01$ ). The level of HDL cholesterol in acute myocardial infarction, UA/UNSTEMI and controls was statistically not significant ( $p > 0.05$ ).

**Interpretation:** The statistical analysis indicated the superiority of apolipoprotein A1 over HDL cholesterol in detecting CAD. Furthermore, the statistical analysis suggested that HDL cholesterol did not provide any predictive value. In contrast, the levels of apo A1 were less in UA/NSTEMI group, more so in AMI group. Hence, apo A1 levels added predictive value to the information obtained by increasing HDL cholesterol alone.

**Conclusion:** This study underscores the importance of HDL-cholesterol in predicting the risk of coronary events and demonstrates protective effect of apolipoprotein-A1.

**Keywords:** Apolipoprotein A1; Coronary artery disease; HDL; UA/ NSTEMI.

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Biomedicine: 2011; 31(4): 467 - 473

## Cytoprotective effect of *Solanum trilobatum* against Benzo(a) Pyrene induced experimental lung carcinogenesis.

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### Abstract

**Background:** Solanum trilobatum Linn., has been used in different parts of India for various ailments. The bitter roots are used for consumption in the form of decoction or powder. S. trilobatum is widely used for treating the respiratory diseases. The berries and flowers are administered for the treatment of cough. The decoction of various parts of this plant is used for chronic bronchitis.

**Objectives:** The purpose of this study is to evaluate the combined effect of S. trilobatum and cisplatin with reference to membrane bound ATPases in experimental lung cancer.

**Methods:** Swiss Albino mice strains were selected for the investigation. Lung carcinoma was induced with Benzo (a) Pyrene 50 mg/kg body weight, and the treatment was started by the oral administration of Solanum trilobatum (200 mg/kg body weight) along with cisplatin (6 mg/kg body weight) intraperitoneally.

**Results:** The activities of membrane bound ATPases such as Na<sup>+</sup>/K<sup>+</sup> ATPase, Mg<sup>2+</sup>ATPase and Ca<sup>2+</sup>ATPase were assayed. Membrane damage is a basic feature of the malignant cells. The membrane bound ATPase activities were decreased indicating the severity of disease. Upon treatment with Solanum trilobatum and cisplatin in combination therapy the above changes were reverted to near normal.

**Conclusions:** Based on the above study it could be referred that Solanum trilobatum has definite pharmacological role against B (a) P induced carcinogenesis mediated by its antioxidant and anticancer properties.

**Key words:** Solanum trilobatum, Cisplatin, Benzo (a) Pyrene and lung cancer

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*Biomedicine: 2011; 31(4): 474 - 478*

## Influence of Glycemic status on Circulating Thyroid Hormones among Diabetic patients

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### Abstract

**Background & Objectives:** Both diabetes and thyroid disease involve dysfunction of the endocrine system. Almost one third of people with Type I Diabetes (Type I DM) have been found to have thyroid disease. Any alteration in thyroid hormones like "low T3 syndrome" may lead to complications such as Coronary Artery Disease (CAD). In the present evaluated study, we determined the behaviour of circulating thyroid hormones in relation to glycemic status among diabetic population.

**Materials & Methods:** In the present study, we included 16 Type 1 DM patients, 30 Type 2 DM patients and 48 age & sex matched healthy controls.

**Results:** Serum T3 levels were significantly low in both Type I & II diabetes patients ( $p < 0.001$ , 0.53 & 0.63 ng/mL respectively) when compared with healthy subjects (1.18 ng/mL). Besides, the decline in T3 levels parallel with their poor glycemic status (HbA1C  $\geq 7.65\%$  as in type 2 DM & Blood Glucose  $\geq 341$  mg/dL as in type 1 DM). Among the diabetic population, women had low serum T3 levels than men.

**Conclusion:** Many diabetics showed a low T3 levels, suggesting that there may be impairment in the

extrathyroidal conversion of T4 to T3 (5' deiodinization) and this in turn was enhanced by poor glycemic control. The study reveals that frequent check-up for thyroid function in these patients to prevent further diabetic complications.

**Key Words:** Glycemic status, Diabetes mellitus, Thyroid dysfunction, 5' deiodinization, Low T3 syndrome, CAD.

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*Biomedicine: 2011; 31(4): 479 - 481*

## **Evaluation of anticonvulsant effects of Nifedipine, Verapamil and Diltiazem in maximal electroshock seizures (MES) and Pentylene tetrazole (PTZ) induced seizure models in rats**

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### **Abstract**

**Background & Objectives:** Epilepsy is one of the world's oldest recognized conditions. Fear, misunderstanding, discrimination and social stigma have surrounded epilepsy for centuries. Treatments are available but with therapeutic dose limitations & unavoidable cumbersome side effects. Taking into account the vital role of calcium in the epileptogenesis, Calcium channel blockers could offer a new hope by potentiating the effects of classical antiepileptic drugs.

**Methods:** The study was conducted in Sprague-Dawley albino rats of either sex weighing between 100-150 gms. The doses used were: Nifedipine 2 and 5, Diltiazem 1.5 and 3 and Verapamil 5 and 10mg/kg. Reduction in the duration of tonic hind limb extensor phase (THLEP) was taken as positive criterion in MES model. In PTZ model, increased latency in onset of seizure was marker of anticonvulsant activity. Data was statistically analyzed using the student t-test.

**Results:** Nifedipine decreased the duration of THLEP in MES model. In PTZ model also, it delayed the onset of seizure. When compared with control groups, Nifedipine showed statistically significant difference with 2mg/kg ( $p < 0.05$ ) and 5mg/kg ( $p < 0.01$ ) in MES model. In PTZ model, statistically significant difference ( $p < 0.01$ ) was observed with Nifedipine 2mg/kg and 5mg/kg doses. Diltiazem and Verapamil were not able to decrease the duration of THLEP in MES model and also no delay in onset of seizure was noted in PTZ model. Both drugs show no statistically significant difference in both MES and PTZ models.

**Interpretation & Conclusion:** Nifedipine possesses some anticonvulsant property and is more effective in PTZ seizure model in comparison to MES model. Diltiazem and Verapamil offer no protection in both MES and PTZ seizure models

**Key words:** Seizures, Anticonvulsants,

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*Biomedicine: 2011; 31(4): 482 - 486*

## **A study on the anti-viral properties of *Azadirachta indica* (A.Juss, Neem) against HBV, HIV, HSV-I, Vaccinia and Varicella zoster viruses and *Coscinium fenestratum* (Gaertn.) Colebr, Tree turmeric) against HBV and HIV**

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### Abstract

**Background and Objectives:** Extracts of parts of three plants - Azadirachta indica (A.Juss) and Coscinium fenestratum (Gaertn.) Colebr. were prepared using various solvents namely hexane, petroleum ether, chloroform, methanol, and ethanol to identify their antiviral properties.

**Methods:** These crude extracts were subjected to physico-chemical and anti-viral properties. Anti-HBs Ag, anti-HBV DNA polymerase and RT inhibition assays were performed for the plant extracts and methanolic extracts of C.fenestratum and A.indica were subjected to GC-MS.

while docking studies were performed for HBV and HIV receptors for both the plants and docking studies were performed against receptors of HSV-Type I, Varicella Zoster and Vaccinia viruses for A.indica alone.

**Results:** The ethanolic and methanolic extracts of A.indica inhibited HBsAg but the hit compound didn't bind to both HBV and HIV receptors. However GC MS hit compound of methanolic extract of A.indica docked with receptors of HSV-I, Vaccinia and Varicella zoster receptors. On the other hand methanolic and ethanolic extracts of C.fenestratum inhibited only HIV -RT but not HBsAg. However GCMS extracts of C.fenestratum methanolic extract docked with receptors of both HIV and HBV.

**Conclusion:** The present findings revealed the potential anti-viral properties of A.indica against HSV-I, Vaccinia and Varicella zoster Viruses and C.fenestratum against HIV and HBV.

**Key words:** A.indica, C.fenestratum, anti-HIV & anti-HBV.

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*Biomedicine: 2011; 31(4): 487 - 491*

### Influence of yogic practice in modulating inflammatory response to strenuous exercise.

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### Abstract

**Background and Objectives:** To evaluate the effect of yogic practice, strenuous exercise and gender on Tumour Necrosis Factor alfa (TNF-a) levels.

**Methods:** Fifteen males and seventeen females in the age group of 20 to 35 years practising yoga for a minimum period of 3 years, performed strenuous exercise as per Standardized Shuttle Walk test. Anthropometrically matched 5 males and 7 females not practising yoga performed a similar exercise. TNF-a was analysed before and after the exercise by Sandwich ELISA (Enzyme Linked Immunosorbent assay).

**Results:** Resting plasma TNF-a concentration was significantly higher in non-yoga group when compared to yoga group ( $p < 0.05$ ). There was an increase in TNF-a levels in both the groups in response to strenuous exercise. There was a significant difference in TNF-a levels in females in yoga and non-yoga groups before and after exercise. There was a statistically significant difference in the TNF-a levels between yoga and non-yoga groups in males after strenuous exercise. There was no gender difference in TNF-a levels before and after exercise in yoga and non-yoga groups.

**Interpretation and conclusions:** Regular practice of yoga lowers basal TNF- $\alpha$  levels. It also reduces the extent of increase of TNF- $\alpha$  to a physical challenge of strenuous exercise. There is no significant gender difference in the basal TNF- $\alpha$  levels. Regular practice of yoga can protect the individual against the inflammatory diseases by favourably altering pro-inflammatory cytokine levels.

**Key Words:** Pro-inflammatory cytokine, Shuttle walk test, Strenuous exercise, TNF- $\alpha$ , yoga

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## Triple Negative Breast Cancer and Metabolic X Syndrome: A novel cross-sectional explorative study

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### Abstract

**Background & Objectives:** Triple-negative breast cancer (TNBC) are more likely to arise among younger women with a younger age at menarche, higher parity, younger age at full-term pregnancy, higher body mass index and waist-to-hip ratio, hyperlipidemia, and diabetes. The exact association of TNBC with Metabolic X syndrome (MetS) has not been extensively studied. Our objective was to determine the association of MetS syndrome with TNBC.

**Material and Methods:** During 2008 to 2011, 356 women subjects with histo-pathologically proven invasive breast cancer were selected for the study. Their receptor status was confirmed. The body mass index (BMI) was measured according to the WHO criteria. All the patients were tested for fasting and postprandial blood sugar, HDL and LDL-cholesterol, triglycerides, HbA1c after 12 hours of fasting. Waist to Hip ratio was measured as per standardized anthropometric methodology. Histopathology slides for TNBC and non-TNBC tissues were stained with H/E and image analysis was performed in Fluorescence microscopy.

**Results:** Univariate analysis showed that BMI > 30 ( $p < 0.029$ ) and increased Waist to Hip ratio ( $p < 0.000$ ) were significantly associated with TNBC. Hyperlipidaemia with elevated LDL-cholesterol and triglycerides were significantly associated with TNBC ( $p < 0.000$ ). Moreover diabetes, and hypertension both were significantly related to TNBC ( $p < 0.000$ ) and ( $p < 0.014$ ) respectively. Multivariate analysis of factors clearly demonstrated statistically significant association of BMI, LDL cholesterol, triglycerides, diabetes and hypertension with TNBC and MetS. Differential pattern recognition and typical cancer cell distributions are noted amongst the lymphocyte array.

**Interpretation & Conclusion:** Multivariate analysis using Pillai's Trace test for comparison of factors between TNBC and MetS clearly demonstrated statistical significance between association of BMI, LDL cholesterol, triglycerides, diabetes, hypertension and components of MetS syndrome of TNBC along with typical cellular pattern recognition, indicating development of newer biomarkers of TNBC.

**Key words:** TNBC, Metabolic X syndrome, Biomarkers

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## **Evaluation of Age of onset of hair recession in central Indian adolescents**

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### **Abstract**

**Background and Objectives:** Hair line recession commences in pubertal age and is influenced by genetic, environmental and nutritional factors. The present study was carried out to determine the age of onset of hair recession in central Indian urban male population. **Materials and Methods:** Two hundred and seventy subjects were evaluated. They included 30 subjects each in the age group of 11 to 19 years. The morphological analysis of hair recession pattern with graphical representation were designed from the observed mean values of hair line measured in all angles (0 - 180°) from centre of the Frankfurt horizontal plane with the help of specially designed instrument.

**Results:** The result of the study showed that the age of onset of hair recession is 16 years in central Indian male population. Hair line recession commences in puberty and further progress in hair line recession is influenced by genetic, environmental and nutritional factors.

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## **Effect of stress on Teeth**

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### **Abstract**

**Background and Objective:** This case control study was done to evaluate the association between chronic periodontitis, stress, serum cortisol levels in the police personnel .

**Study design:** The study comprised of two test groups and one control group based on the probing pocket depth. The various groups were the control group (PPD ≤ 3 mm, n = 30), the test group 1 (at least four sites with PPD > 4mm and ≤6 mm, n = 40) and the test group 2 (at least four sites with PPD > 6 mm, n = 40).

**Methodology:** The clinical parameters such as the Silness Løe plaque index (PI), the sulcus bleeding index (SBI) and the clinical attachment levels were recorded. Stress was measured by using the occupational stress index (OSI). Blood samples were collected and the serum cortisol levels were determined.

**Results:** The mean plaque score was found to be significantly higher in the test groups as compared to

those in the control group ( $< 0.001$ ). The mean clinical attachment level, the occupational stress index score and the serum cortisol levels were found to be significantly higher in the test groups as compared to those in the control group ( $< 0.001$ ). Pearson's Correlation showed a positive correlation between the clinical attachment level, the occupational stress index score and the serum cortisol levels only in the test groups.

**Conclusion:** Based on the obtained results, individuals with high levels of occupational stress index score appeared to be more prone to periodontal disease.

**Key Words:** Chronic periodontitis, Hypothalamo-Pituitary Axis, Occupational stress and periodontal diseases, Serum cortisol,

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## **Changes in lipid peroxidation during different trimesters of Pregnancy**

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### **Abstract**

**Background and Objectives:** Pregnancy is a physiological state accompanied by a high energy demand and an increased oxygen requirement. Augmented levels of oxidative stress would be expected because of the increased intake and utilization of oxygen. The present study was undertaken to elucidate the degree of oxidative stress in various trimesters of pregnancy.

**Methods:** Twenty healthy pregnant women and age matched, 20 healthy non pregnant women were selected as subjects for this longitudinal study. Plasma MDA concentration was estimated as thiobarbituric acid reacting substances (TBARS).

**Results:** A significant increase ( $p < 0.05$ ) in plasma MDA concentration in pregnant women was seen when compared with non-pregnant women. Plasma malondialdehyde concentration was noted to increase with the trimester and maternal age.

**Interpretation and Conclusion:** Pregnancy results in oxidative stress and it is increased with the trimester and maternal age.

**Key words:** Lipid Peroxidation, Free Radicals, Oxidative Stress, Pregnancy.

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## **Serum enzymes and liver function tests in thyroid disorders**

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## Abstract

**Background and objectives:** Thyroid disorders often accompany abnormal serum enzyme levels and disturbances in liver functions. This study was done to assess relationship between serum enzymes and liver functions in thyroid disorders.

**Methods:** Serum levels of aspartate transaminase (AST), alanine transaminase (ALT), alkaline phosphatase (ALP) and creatine phosphokinase (CPK) were determined by uv-kinetic methods in 94 thyroid patients and 71 euthyroid controls. Serum total bilirubin, total protein and albumin were also assayed by colorimetric methods.

**Results:** Serum AST and ALT levels were significantly higher while ALP was significantly low in hypothyroidism. Transaminases levels in hypothyroid patients were more than the upper limits of normal range. The serum ALP activity was found to be highest in hyperthyroid patients compared to hypothyroids and the controls. There is an inverse relation of serum triiodothyronine and CPK levels in hypothyroid disease. In hypothyroid patients mean CPK level was significantly higher by 4.2 times that of the controls.

**Conclusion:** The results indicate that liver functions in both hypo and hyperthyroid patients are normal. Marginally elevated AST and ALT levels point to muscle dysfunction while high ALP level in hyperthyroids suggests disturbance in bone homeostasis. Serum CPK assay together with thyroid profile increases diagnostic sensitivity in subclinical hypothyroidism.

**Keywords:** Alanine transaminase, Alkaline phosphatase, Aspartate transaminase, Creatine phosphokinase Hyperthyroidism, Hypothyroidism.

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## Virulence factors and susceptibility pattern of Uropathogenic Escherichia coli

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## Abstract

**Background:** Uropathogenic E.coli (UPEC) is the most common cause of urinary tract infection. The objective of our study is to determine the various virulence properties of UPEC responsible to establish infection.

**Materials and methods:** A total of 50 UPEC strains, isolated from patients presented with significant or probably significant bacteriuria were subjected for the determination of various virulence factors like hemolysin production, presence of capsule, presence of P fimbriae and serum resistance. Susceptibility pattern of the strains to various antibiotics were also noted.

**Results:** Of the 50 UPEC isolates, 8(16%) showed hemolysis on sheep blood agar, 17 (34%) exhibited mannose resistant hemagglutination indicating the presence of P fimbriae, 8(16%) were capsulated and 25(64%) were resistant to the inhibitory action of serum. The isolates were found to be highly susceptible to Imipenem (90%), Meropenem (85%), Amikacin (80%), Nitrofurantoin (74%) and highly resistant to Norfloxacin (98%), Ampicillin (92%), Cefuroxime (85%), Cephalexin (82%), Cotrimoxazole (76%), and Gentamicin (74%).

**Conclusion:** Isolates with multiple virulence factors play a major role in complicated UTI. Therefore better understanding of virulence factors and periodic study of antibiotic susceptibility pattern are needed to control the drug resistance.

**Keywords** : Uropathogenic E.coli, Virulence factors.

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## **Role of Blood Ammonia in the diagnosis and grading the severity of Hepatic Encephalopathy.**

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### **Abstract**

**Background & Objectives:** To assess the role of blood ammonia in the diagnosis and also in grading the severity of hepatic encephalopathy.

**Methodology:** The study group included 30 apparently normal individuals and 15 patients with clinically diagnosed hepatic encephalopathy. Blood ammonia was estimated in peripheral venous samples by Berthelot-Indophenol method; SGPT by the method by IFCC, serum total protein by Biuret reaction and serum albumin by Bromocresol green reaction method. Student 't' test and one way ANOVA were used to find out statistical significance.

**Results:** The blood ammonia was found to be  $98.27 \pm 12.76 \mu\text{g/dL}$  in the control subjects whereas in patients with hepatic encephalopathy the level was found to be  $329.73 \pm 158.66 \mu\text{g/dL}$  and it was found to be statistically significant. When blood ammonia values were compared between the grades of hepatic encephalopathy, the values showed statistical significance.

**Interpretation & conclusion:** The study shows that the blood ammonia was found to be significantly increased in patients with clinically diagnosed hepatic encephalopathy. The blood ammonia in grade I is significantly elevated compared to controls indicating that blood ammonia starts increasing with the onset of hepatic encephalopathy. Aggressive treatment at this stage can cure the disease. Hence estimation of blood ammonia is very useful in treating this fatal disease. Between the grades also blood ammonia showed significant increase.

**Key Words:** ammonia toxicity, astrocytosis, blood ammonia, grading hepatic encephalopathy, pathogenesis of hepatic encephalopathy.

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*Biomedicine: 2011; 31(4): 530 - 533*

## **Assessment of Risk factors for development of type-2 Diabetes Mellitus among working women in Bhubaneswar, Orissa.**

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### **Abstract**

**Background and Objectives:** The prevalence of diabetes are increasing in Indian population now a days. So this study was done with the objectives to, 1) Assess general health condition and anthropologi-

cal parameters of the working women.2)Identify prevalence of Type-II Diabetes among them.3)Assess risk factors associated with development of diabetes.4)Awareness about Life Style Modifications. A cross sectional study was carried out in five educational institutes.

**Materials and Methods:** A total of 200 working women were selected as study population. During the study, Fasting Blood Sugar (FBS) was estimated to identify the diabetics and the Impaired Glucose Tolerance (IGT).Information from the study population was collected through pre-tested questionnaire using several anthropometric measurements.

**Results:** Out of 200 women,48 were having FBS compatible with IGT or diabetes. The incidence was highest in 46 to 55 yr age group.75% of women with diabetes or IGT were in higher income group. Body Mass Index was more than 25 Kg/m<sup>2</sup> in maximum women having diabetes or IGT.Moreover,orientation towards healthy life style modification to control diabetes and its prevention was poor among the study population.Prevalence of diabetes and IGT was higher among urban working women and is increasing with increase in age. Obesity plays a major role in development of Type 2 diabetes.

**Conclusions:** Several long and short term steps should be taken for promotion of healthy life style modifications to prevent diabetes and emergence of its complications.

**Keywords:** Body Mass Index,diabetes, impaired glucose tolerance, life style modification.

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## **Adiponectin / leptin ratio as early predictor of renal insufficiency in Type 1 Diabetes Mellitus**

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### **Abstract**

**Background & Objectives:** To study the role of adiponectin & Leptin & their ratio as early predictors of micro vascular complications in type I Diabetes mellitus patients.

**Materials & Methods:** The study was conducted on 80 type I diabetes mellitus patients (40 normoalbuminuric & 40 microalbuminuric) . Clinical, demographic characteristics and kidney function tests were monitored. Plasma levels of adiponectin, leptin, Interleukin-6 (IL-6) and the high sensitive C-Reactive Protein (CRP) were measured.

**Results:** Microalbuminuric subjects showed a significant elevation in adiponectin levels and a significant decrease in leptin levels as compared to normoalbuminuric subjects( $p < 0.05$ ). Adiponectin showed a significant positive correlation with microalbuminuria concentrations( $r = 0.243, p = 0.04$ ) while leptin showed a significant negative correlation with both fasting blood glucose( $r = -0.276, p = 0.01$ ) & glycated hemoglobin A1C( $r = -0.262, p = 0.04$ ).Adiponectin to leptin ratio showed a strong significant positive correlation with fasting plasma glucose( $r = 0.345, p = 0.008$ ) & glycated hemoglobin A1C( $r = 0.286, p = 0.02$ ) & with microalbuminuria( $r = 0.277, p = 0.01$ ), & a negative correlation with urine creatinine( $r = -0.249, p = 0.04$ ).

**Conclusion:** Adiponectin & leptin are better predictors of micro vascular complications than low grade inflammatory markers, moreover adiponectin/leptin ratio can be used as an early, reliable and sensitive predictor for the micro vascular complications monitored by micro albuminuria concentration and glycaemic control indices.

**Key words** – Adiponectin, Adiponectin / Leptin ratio, Leptin, type I diabetes mellitus

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## In vitro antioxidant activity of combined ethanolic extract of *Melia azedarach* and *Piper longum*

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### Abstract

**Background:** The in-vitro free radical scavenging efficacy of the combined ethanolic Biherbal extract (BHE) from the leaves of *Melia azedarach* and seeds of *Piper longum* was investigated. This was compared with its individual preparation of ethanolic extract of *Melia azedarach* (MAE) and ethanolic extract of *Piper longum* (PLE).

**Methods:** The Biherbal ethanolic extract (BHE) was prepared from equal quantities of leaves of *Melia azedarach* and seeds of *Piper longum*. The MAE and PLE were also prepared separately. The 1,1, diphenyl-2-picrylhydrazyl (DPPH), super oxide, nitric oxide, hydroxyl radical scavenging activity and reducing power from BHE, MAE, and PLE were investigated employing various established in vitro systems. Total phenolic and flavonoid content were also determined.

**Results:** The results revealed that BHE has notable activity in quenching of DPPH, super oxide, nitric oxide, and hydroxyl radicals when compared to its individual preparation of MAE and PLE. The BHE at 1000µg/ml showed maximum scavenging of DPPH (87.30±3.11%) super oxide (82.52±2.37%) nitric oxide (84.35±2.20%) and hydroxyl (79.82±1.50%) against the scavenging of MAE and PLE which showed DPPH (82.58±1.84, 83.54±3.24%) super oxide (79.74±1.50%, 80.88±1.44%) nitric oxide (78.84±1.86%, 77.2±1.18%) and hydroxyl (76.84±1.85%, 78.64±1.6%) radicals respectively at the same concentration. A linear correlation between BHE and reducing power was also observed. The quantitative estimation of the extract revealed the considerable amount of phenols and flavonoids.

**Conclusion:** The results of this study strongly indicate that the BHE has more potent antioxidant potential action than its individual preparation MAE or PLE

**Keywords:** BHE, *Melia azedarach*, Free radical scavenging activity, *Piper longum*,

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## Variation in QTc interval with menstrual cycle in young healthy individuals

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## Abstract

**Background and Objectives:** Ventricular arrhythmias are more common in women and exhibit a cyclic variation in their occurrence with menstrual cycle suggesting a strong influence of gonadal hormones on the cardio-vascular system. However, the literature regarding the phase of menstrual cycle during which women are most vulnerable to arrhythmias is scanty and controversial. In view of the scant data available and the important relevance that it has in the current clinical scenario this study has been undertaken to evaluate the cyclical variation of the QTc interval during different phases of menstrual cycle.

**Methods:** Forty healthy female subjects in the age group 17-19 years from I MBBS, MMC& RI, Mysore were included in the study to assess the cardiac repolarisation during different phases of menstrual cycle. Various electrocardiographic parameters like QT-interval, RR-interval and QTc-interval were recorded during the three phases of menstrual cycle. All data were statistically analyzed using one way ANOVA and pair wise comparison by Tukeys multiple post hoc procedure.

**Results:** It was found that there was significant rise in QTc-interval during menstrual phase than the other two phases.

**Conclusion:** The findings of the study suggest that women are at risk of developing ventricular arrhythmias during menstrual phase as compared to follicular and luteal phase. Hence greater caution has to be exercised while taking certain medication that have the potential to further prolong the QTc-interval.

**Key words:** gonadal hormones, rate corrected QT-interval (QTc), ventricular arrhythmias.

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*Biomedicine: 2011; 31(4): 555 - 557*

## Protein carbonyl content and thiols in patients with Rheumatoid arthritis.

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## Abstract

**Objectives:** Proteins modified under oxidative stress seem to play a pivotal role in pathogenesis of several diseases. The present study was undertaken to know the relation between protein carbonylation and antioxidants in the form of glutathione and albumin in rheumatoid arthritis patients. **Methods:** Protein carbonylation & glutathione levels were measured in plasma in all the 30 patients and 25 controls using spectrophotometric methods along with total protein and albumin.

**Results:** There was significant increase in protein carbonylation content ( $P < 0.001$ ) associated with a significant decrease in glutathione and albumin levels ( $P < 0.001$ ) in patients compared to healthy controls. A significant negative correlation of protein carbonylation with glutathione and albumin was also noted.

**Conclusion:** Thus our study suggests a possible role for oxidatively modified proteins in form of protein carbonyls in mediation of inflammation in rheumatoid arthritis leading to increased consumption of available antioxidants in the body.

**Key words:** albumin, glutathione, protein carbonylation, rheumatoid arthritis.

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## **Hematometrocolpos with Bicornuate Uterus**

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### **Abstract**

Women with congenital malformations of the Mullarian duct present as primary amenorrhea or infertility. Women with Hematometrocolpos due to imperforate hymen or vaginal septum usually present around the age of menarche or later. Unmarried woman aged 33 years presenting with swelling and h/o on and of pain around suprapubic region was admitted to Cheluvamba Hospital attached to Mysore Medical College Mysore. After ultrasonography and contrast CT she was diagnosed as Hematometrocolpos with bicornuate uterus and absence of left kidney. She was treated surgically at two sittings. First vaginal septum was resected and allowed for natural drainage followed by regular dilation of vaginal stricture. After follow up for 5 months due recurrence of swelling abdominal hysterectomy was done and she was discharged on 8 th post operative day.

**Key words:** Hematometrocolpos, Mullarian Duct, Bicornuate uterus, contrast CT, Ultrasonography

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*Biomedicine: 2011; 31(4): 561 - 562*

## **Adult epididymal lymphangioma: An extremely unusual case**

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### **Abstract**

Lymphangioma of epididymis is a rare entity and also a rare cause of scrotal swelling. Its occurrence in an adult patient is even rarer. Thompson reported the first case of lymphangioma of the epididymis in 1936 and till 2006 only five cases were reported as documented in one the literature <sup>[01]</sup>. Our case is interesting for reasons like, epididymal lymphangioma, although very rare, is usually seen in infants and children and although primary excision is the treatment of choice in the younger individual, the same might not be true for the rare adult with this disease.

**Key words:** Lymphangioma, Epididymis, Adult

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## **Variant large inter parietal bone at occipital region in a South Indian adult skull**

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### **Abstract**

Various studies were carried out by regarding presentation, incidence, frequency and variations of supernumerary wormian (sutural) bones or inter parietal bones in the all parts of the world to the reveal the geographical, genetical, regional linkage of human race. In south Indian study of the skulls we found a large size triangular inter parietal bone below the lambda of the occipital bone. It is very curious to study, no authors earlier discuss regarding this large size inter parietal variant. The present study may give the certain embryological and morphological evidence to this case.

**Key words:** Inca bones, Inter parietal bone, lambda, sutural bones, and sutures.

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## **Unusual variation of brachial artery branching pattern**

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### **Abstract**

In a 40 year female cadaver unusual variation of left brachial artery branching was observed. The posterior circumflex humeral artery, profunda brachii artery and one muscular branch to biceps brachii all arose from one common trunk in proximal part of brachial artery before its termination. Brachial artery also showed high division in to radial and ulnar artery in upper third of arm. In this report we endeavor to discuss the relevance of embryogenesis and clinical importance.

**Key words:** Brachial artery, Posterior circumflex humeral artery, Profunda brachii artery, high division of brachial artery.

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## **Accessory head of flexor pollicis longus and its morphological and clinical significance**

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### **Abstract**

During routine cadaveric dissection of the anterior compartment of right forearm of the south Indian adult male of 40 years we come across an accessory head of flexor pollicis longus muscle. It was seen unilaterally arising from coronoid process of ulna and terminated by inserting into the principal belly of flexor pollicis longus. Its morphology and clinical significance are discussed in detail.

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## **Fibrous dysplasia of maxilla: modality of treatment**

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### **Abstract**

The exact cause of fibrous dysplasia is unknown . No consistent familial or hereditary factors have been identified. However a genetic mutation of the Gs alpha gene has been identified in patients with McCune-Albright syndrome. Approximately one third of the patients with fibrous dysplasia have involvement of facial and cranial bones. Deformity ,diploia , proptosis, sinus infection , deafness and loss of vision are some of the clinical features that may require early surgical management. The removal , remodeling , and replacement of the dysplastic bone is advanced as a promising new method for the management of these complex problems. Successful use of these techniques in 12 patients is reported. This study was devised to manage or follow patients with fibrous dysplasia of maxilla avoiding facial scars or disfigurement.

**Key words:** mono ostotic fibrous dysplasia maxilla , sublabial approach.

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**An incidentally diagnosed case of melanosis coli, in a case of laxative abuse**

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**LASER - New diagnostic tool for tissue diagnosis**

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