

**Original article:**

**Evaluating the cognitive impairment using Event related potential - p300 in young Schizophrenics and its association with obesity**

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**Abstract:**

Schizophrenia is a psychological disease which is associated with significant disability, cognitive impairment and affects the overall working capacity of the individual. The cognitive impairment in Schizophrenics ranges from mild to severe. Auditory event related potential is considered as a valid tool to be used as a biomarker in Schizophrenia. Hence the present study aimed to study and compare the cognitive function in Schizophrenia and normal individuals. Further the prevalence of Basal metabolic rate (BMI) among Schizophrenic patients and its association with the latency and amplitude of the p300 wave forms was also correlated. p300 event related potential was done for 60 individuals, out of which 30 were Schizophrenic patients and 30 were normal controls. The BMI and the cognition p300 were compared between the Schizophrenic group and the normal control group.  $p < 0.05$  was considered to be statistically significant. The latency of p300 was significantly ( $p < 0.01$ ) prolonged ( $316.48 \pm 16.48$  in Schizophrenia and  $305.44 \pm 19.21$  in controls) and the amplitude was significantly ( $p < 0.014$ ) shorter ( $3.01 \pm 0.59$  in Schizophrenics and  $3.54 \pm 1.15$  in controls) in Schizophrenic group as compared to normal control group. BMI was also found to be higher ( $25.32 \pm 2.97$  in Schizophrenia and  $23.92 \pm 3.19$  in controls) and was statistically significant ( $p < 0.041$ ). The BMI showed a positive correlation with the latency of p300 and a negative correlation with the amplitude of p300 in Schizophrenic patients and was statistically significant ( $p < 0.001$ ). Cognitive impairment can be detected much early during the prodromal period in Schizophrenics and appropriate treatment modalities can be planned. Keeping the BMI under normal range would also help to provide a healthy life for the Schizophrenic patients.

Key words: Schizophrenia, BMI, Auditory event related Potential, Latency, Amplitude, p300

**Introduction:**

According to the World health organization, almost 20 million people are affected by Schizophrenia. It occurs quite early among men and is found to be associated with significant disability and affects the overall educational and working capacity of the individual.[1] Its highly pertinent that India has to talk about mental disorders.[2] Almost one in every six Indians need some form of mental health help.[3] Schizophrenia is considered as one of the mental disorders wherein there is a genetic predisposition and they exhibit a disturbance in processing the environmental



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### Original Article

## How to reduce Domestic Violence against married women? a mixed methods study from rural Tamil Nadu

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### KEYWORDS

Domestic violence  
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### Abstract:

**Background:** Despite government legislations for protection of women, domestic violence (DV) continues to remain as a public health problem in India. Objectives: 1. To find out the prevalence of various types of self-reported DV among married women of 18-45 years of age and to identify its social determinants and their help-seeking behavior. 2. To understand the solutions from key informants' point of view.

**Methods:** It was a sequential explanatory mixed methods study design, which consisted of quantitative (Survey) followed by qualitative (Interviews) phase. A representative sample of 360 married women was chosen by two-stage cluster sampling from villages in Tamil Nadu, South India. The female investigator conducted the survey by house to house visit. Post-survey, six key informant interviews were conducted to explore the solutions and suggestions from experts' point of view. Bivariate and multivariate regression analysis was carried out to identify the significant predictors of DV. Manual content analysis of qualitative data was done.

**Results:** The overall prevalence of spousal DV was 49.5% [95% CI: 44.3-54.6] in the last one year. In multivariate analysis, two factors namely 'current alcoholism in husband' and 'controlling behavior of husband' were found to be the significant predictors of DV. In order to prevent alcoholism in husband, the key informants suggested deaddiction services and measures to limit access to alcohol. Furthermore, to prevent controlling behavior of husband, the key informants suggested women's empowerment, employment, helplines, responsible parenting, social change in dowry practice and gender equality.

**Conclusions:** The prevalence of spousal DV was found to be high. Current alcohol consumption and controlling behavior of the husband were the important determinants of domestic violence. Key informants suggested interprofessional approach consisting of deaddiction services, women empowerment and strengthening of family life to address the problem of DV.

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### Introduction

Domestic violence (DV) against women is a neglected, widespread public health problem. Women who are safe at their respective homes often experience violence by their trusted family members, most commonly by husband. Often, it is overlooked as a

family problem with its seriousness undermined and unreported. World Health Organization (WHO) reports indicate that at least 35% of women have experienced DV.<sup>1</sup> Studies across the world show that 10-69% of women report being physically assaulted by an intimate male partner at some point in their lives.<sup>2</sup> The socio-cultural construct in India allows men to have

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# Effect of Fucoidan on the Regulation of Antioxidant Enzymes in Hepatorenal Tissues of Streptozotocin-Induced Diabetic Rats

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Somanath *et al.*: Influence of Fucoidan on Antioxidant Enzymes in Diabetes

Accumulation of reactive oxygen species resulting from hyperglycemia and inadequate endogenous antioxidants are responsible for the complications of diabetes. Accumulation of reactive oxygen species in the cells stimulates apoptosis, which hampers the cell architecture and functions of vital organs. This study investigates the effect of fucoidan from *Sargassum wightii*, a potent antioxidant with a regulatory effect on blood glucose homeostasis, in the liver and kidney of diabetic rats. Diabetes was induced in rats by administering streptozotocin 50 mg/kg for 3 consecutive days through intraperitoneal injection. 30 male Wistar rats were divided into five groups consisting of six animals in each group and they were Group A: Control group, Group B: Diabetic group, Group C: Diabetic rats treated with metformin hydrochloride 250 mg/kg, Group D: Diabetic rats treated with fucoidan 50 mg/kg, and Group E: Diabetic rats treated with fucoidan 100 mg/kg. Fucoidan was administered orally for 4 w after the induction of diabetes. Superoxide dismutase activity was low in the liver of the diabetic group and it showed 58.5 % activity, compared with the control group. Fucoidan administration elevated superoxide dismutase and it was 66.5 % and 80.6 % respectively in fucoidan 50 mg/kg and fucoidan 100 mg/kg groups, compared with the control group while in the metformin group 93.4 % activity was seen. A similar variation in the superoxide dismutase was observed in the kidney; wherein, administration of fucoidan restored the superoxide dismutase activity and it was 62.9 % in the fucoidan 50 mg/kg group and 79.5 % in the fucoidan 100 mg/kg group, compared with the control group while in diabetic group 49.4 % and metformin group 94.2 % activity were observed. The other tested antioxidant enzymes such as catalase, glutathione peroxidase and glutathione S transferase also showed marked regain in a dose-dependent manner upon administration of fucoidan. This study inferred that the administration of fucoidan in streptozotocin-induced diabetic rats improved the antioxidant enzyme activity by moderating the accumulation of reactive oxygen species and reduced the pathophysiology.

**Key words:** Diabetes, fucoidan, antioxidant enzymes, free radicals, superoxide dismutase, catalase, glutathione peroxidase, glutathione S-transferase

Diabetes mellitus (DM) causes various complications and has become the major cause of mortality. DM is prone to hyperglycemic pathology due to defects in the vital organs and the associated antioxidant defense system, oxidative stress, damage of cell membranes and subcellular organelles, DNA damage and cell death<sup>[1-3]</sup>. Increased level of free radicals and initiation of oxidative stress leads to the onset of disorders of various organs and body systems. The organs with antioxidant protection are primarily exposed to oxidative damage<sup>[4]</sup>. Natural antioxidants from herbal plants, micro and macroalgae

protect these damages and may be an effective, safe and economical alternative therapy for the management of diabetes and organ protection<sup>[5]</sup>. Marine algae are rich in polysaccharides, which account for more than 50 % of the dry weight. Studies have demonstrated

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# Regional anaesthesia practices in India: A nationwide survey

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## ABSTRACT

**Background and Aims:** There are no surveys documenting the existing regional anaesthesia (RA) practices in our country. This nationwide survey aims to record the existing RA practices, identify any lacunae that might exist and project the future direction of evolution. **Methods:** This online survey consisting of 31 questions was sent to all members of the Indian Society of Anaesthesiologists and addressed participants' demographic features, central neuraxial block and peripheral nerve block practices, drug selection, RA training and safety measures. The data were analysed using Statistical Package for the Social Sciences version 24.0. All categorical variables were expressed as frequencies and percentages. **Results:** A total of 2141 responses were received, with participants distributed across the country. Forty-two per cent of the respondents reported that more than 60% of surgeries were performed under RA. Most of the participants use 'traditional' test dose for epidural space confirmation. Fifty participants (2.4%) use ultrasound for neuraxial space identification. Twenty per cent of the participants use a checklist for monitoring post-operative epidural analgesia. 6.7% have undergone specialised training in RA. Around 3.5% of the respondents have performed a wrong-side block. 31.4% of the respondents store intralipid in the operating room. **Conclusion:** The current survey highlights the prevailing practices, various deficiencies in monitoring and the need for RA training programmes. The data accrued can serve as a baseline for future comparison.

**Key words:** Anaesthetics, analgesia, epidural, surveys and questionnaires

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## INTRODUCTION

Regional anaesthesia (RA) techniques have been commonly used for surgical anaesthesia and post-operative analgesia. Epidural analgesia and peripheral nerve blocks can provide post-operative analgesia, enhance recovery after surgery and improve patient satisfaction.<sup>[1-4]</sup> With ultrasonography (USG) availability, these techniques are extensively being utilised to provide improved peri-operative care.<sup>[5]</sup> To the best of our knowledge, a nationwide survey about RA practices in India is lacking. A nationwide survey can provide data about practices at different

hospitals and aid to gain acquaintance with the prevailing clinical practices. The results will guide the training in RA and can improve the safety features required to prevent complications associated with RA

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## Case Report

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# A deep lobe parotid tumor tending the facial nerve and its branches

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### Abstract:

Benign tumors of major salivary glands commonly affect the parotid gland and it is rare when the tumor exclusively involves the deep lobe of the gland. The mainstay of treatment is surgical excision. Parotid surgeries carry a formidable risk of injury to the facial nerve. Hence, identification of extracranial part of facial nerve using many of its anatomical landmarks helps in preventing this daunting complication. There are instances where the facial nerve's morphometry is altered due to the location and extent of the tumor. A better knowledge of the anatomy and anticipation for these variations can result in a better outcome limiting the complications of the surgery.

### Keywords:

Benign tumor, deep lobe, facial nerve, parotid, pleomorphic adenoma, salivary gland

Primary tumors in the parotids are rare and they constitute only 1%–3% of head-and-neck tumors.<sup>[1]</sup> It most commonly involves the superficial lobe and is mostly benign. The incidence of parotid tumors affecting exclusively the deep lobe is 10%–12%.<sup>[2]</sup> The prime aim is complete removal of the disease with preservation of the facial nerve. The stretching of the main trunk of the facial nerve and its branches in this patient by the tumor made the surgery challenging, and a deep lobe parotidectomy was done in this case with preservation of the facial nerve.

## Case Report

A 35-year-old male presented to the department of Otorhinolaryngology of a tertiary care center with complaints of swelling in the right parotid region for the past 4 years that was insidious in onset, gradually progressive in size, not associated with pain. Complete ENT and head-and-neck examination were done

which revealed a well-defined mass of size approximately 4 cm × 3 cm right parotid region with smooth surface, nontender, and mobile. Bilateral facial nerve was intact. Oropharynx was normal with no bulge or medial displacement of tonsil and lateral pharyngeal wall.

Ultrasonography of the neck showed a well-defined lobulated hypoechoic, heterogenous lesion of size 3.8 cm × 1.9 cm suggestive of likely deep lobe pleomorphic adenoma. Fine-needle aspiration of the right parotid gland showed moderate cellularity with loosely cohesive clusters, sheets of ductal epithelium, and scattered myoepithelial cells, features suggestive of pleomorphic adenoma.

After obtaining written informed consent, right side deep lobe parotidectomy was performed under general anesthesia. Intraoperatively, the main trunk of the facial nerve was identified and preserved using tragal pointer (TP) and posterior belly digastric muscle as landmarks. The tumor was occupying the deep lobe exclusively. The superficial lobe was free

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RESEARCH

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# Can trans-cerebellar diameter supersede other fetal biometry in measuring gestational age? A prospective study

Rintu George, Umamageswari Amirthalingam, Mohamed Rafi Kathar Hussain\*, Vigneshwar Aditiya, A. M. Anand, Elamparidhi Padmanaban and N. Kulasekaran

## Abstract

**Background:** Estimation of gestational age plays a pivotal role in day to day clinical practice for appropriate management of newborn. The trans-cerebellar diameter can predict gestational age in cases of variations of fetal head shape such as dolichocephaly and brachycephaly or even when fetus is in posterior position. Trans-cerebellar diameter (TCD) may be useful in gestational age estimation.

**Aim and methodology:** To determine the accuracy of trans-cerebellar diameter in the estimation of gestational age of fetus and comparing the conventional parameters like head circumference, biparietal diameter, abdominal circumference and femur length in the measurement of gestational age. This is a prospective, cross-sectional analytical study done in the Radiology Department in those patients who were referred to the department for a routine antenatal ultra-sonogram checkup.

**Results:** Comparison of trans-cerebellar diameter with gestational age derived from last menstrual period indicates that there is a linear relationship throughout the gestational ages. There is a strong correlation of trans-cerebellar diameter with other conventional parameters namely biparietal diameter, femur length and abdominal circumference of which Femur length correlates well with the trans-cerebellar diameter. Correlation of transcerebellar diameter with gestational age shows a  $R^2$  of 0.995 ( $p$  value  $< 0.001$ ).

**Conclusion:** Trans-cerebellar diameter is best in estimation of gestational age when compared to biparietal diameter, femur length and abdominal circumference. The regression formula derived from trans-cerebellar diameter measurement can be applied to determine the gestational age of fetus.

**Keywords:** Trans-cerebellar diameter, Ultrasonography, Gestational age

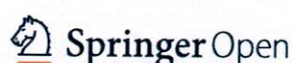
## Background

Estimation of gestational age plays a pivotal role in day to day clinical practice for appropriate neonatal management [1]. The various ways for estimation of the age of gestation and predicting the date of expected delivery are menstrual history, clinical examination and sonography [2]. Ultrasonography plays an important role in

differentiation of normal fetus from growth restriction [3]. Ultrasound assessment of fetal biometry has become the important and widely available method of reassuring fetal growth and estimation of the age of gestation [4].

The cerebellum is the important part of the hind brain in the posterior cranial fossa [5]. From the second trimester, it starts growing quickly. The Trans-cerebellar diameter can predict gestational age, even in cases of difficult fetal head position or abnormal fetal head shape like dolichocephaly and brachycephaly [6]. Estimation of Biparietal diameter (BPD) and Head circumference (HC)

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# Effect of Fucoïdan on the Regulation of Antioxidant Enzymes in Hepatorenal Tissues of Streptozotocin-Induced Diabetic Rats

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Accumulation of reactive oxygen species resulting from hyperglycemia and inadequate endogenous antioxidants are responsible for the complications of diabetes. Accumulation of reactive oxygen species in the cells stimulates apoptosis, which hampers the cell architecture and functions of vital organs. This study investigates the effect of fucoïdan from *Sargassum wightii*, a potent antioxidant with a regulatory effect on blood glucose homeostasis, in the liver and kidney of diabetic rats. Diabetes was induced in rats by administering streptozotocin 50 mg/kg for 3 consecutive days through intraperitoneal injection. 30 male Wistar rats were divided into five groups consisting of six animals in each group and they were Group A: Control group, Group B: Diabetic group, Group C: Diabetic rats treated with metformin hydrochloride 250 mg/kg, Group D: Diabetic rats treated with fucoïdan 50 mg/kg, and Group E: Diabetic rats treated with fucoïdan 100 mg/kg. Fucoïdan was administered orally for 4 w after the induction of diabetes. Superoxide dismutase activity was low in the liver of the diabetic group and it showed 58.5 % activity, compared with the control group. Fucoïdan administration elevated superoxide dismutase and it was 66.5 % and 80.6 % respectively in fucoïdan 50 mg/kg and fucoïdan 100 mg/kg groups, compared with the control group while in the metformin group 93.4 % activity was seen. A similar variation in the superoxide dismutase was observed in the kidney; wherein, administration of fucoïdan restored the superoxide dismutase activity and it was 62.9 % in the fucoïdan 50 mg/kg group and 79.5 % in the fucoïdan 100 mg/kg group, compared with the control group while in diabetic group 49.4 % and metformin group 94.2 % activity were observed. The other tested antioxidant enzymes such as catalase, glutathione peroxidase and glutathione S transferase also showed marked regain in a dose-dependent manner upon administration of fucoïdan. This study inferred that the administration of fucoïdan in streptozotocin-induced diabetic rats improved the antioxidant enzyme activity by moderating the accumulation of reactive oxygen species and reduced the pathophysiology.

**Key words:** Diabetes, fucoïdan, antioxidant enzymes, free radicals, superoxide dismutase, catalase, glutathione peroxidase, glutathione S-transferase

Diabetes mellitus (DM) causes various complications and has become the major cause of mortality. DM is prone to hyperglycemic pathology due to defects in the vital organs and the associated antioxidant defense system, oxidative stress, damage of cell membranes and subcellular organelles, DNA damage and cell death<sup>[1-3]</sup>. Increased level of free radicals and initiation of oxidative stress leads to the onset of disorders of various organs and body systems. The organs with antioxidant protection are primarily exposed to oxidative damage<sup>[4]</sup>. Natural antioxidants from herbal plants, micro and macroalgae

protect these damages and may be an effective, safe and economical alternative therapy for the management of diabetes and organ protection<sup>[5]</sup>. Marine algae are rich in polysaccharides, which account for more than 50 % of the dry weight. Studies have demonstrated

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## A Histological Evaluation on The Protective Effect of Ethanolic Extract of Moringa Leaves on 4G-Cell Phone-Irradiated Testes of Wistar Rats

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### ABSTRACT

#### Introduction

Infertility is the growing problem in modern world. Fifty percent of infertility cases are paid for by the malefactor. Scientific researches revolve around the use of cell phones and infertility. Few studies have explored the effects of 2G, 3G and 4G-cell phone radiation on spermatogenesis and some other studies offer conflicting views. The aim of this research was to study the impact of electromagnetic radiation (EMR) on the testis of Wistar rats over a span of two months from a 4G mobile phone and to assess the potential radio-ameliorative efficiency of leaves of *Moringa oleifera* (MOL).

#### Materials and Methods

The male Wistar rats were divided into five groups. Control group (n=3) without mobile phone; Sham group (n=3) with mobile phone in switched-off mode; MOL-2 group (n=6) obtained oral 200 mg of ethanol extract of MOL /kg body weight for two months; R2 group (n=6) subjected to 4G-EMR for two months for 96 minutes/day; R2+MOL-2 (n=6) group exposed to EMR and treated concurrently with MOL extract for two months. After the experimental period, rats were sacrificed and testes were removed to analyze the morphometry and histological alterations.

#### Results

4G mobile phone-EMR caused a significant reduction in the length and thickness of the testis in the R2 group as compared to control, sham and MOL-2 groups. The ethanolic extract of MOL could not retrieve the variables to normal in the R2+MOL-2 group. But the extract retained the histo-morphology of the testes from the effects of 4G- EMR.

#### Conclusion

4G-LTE-radiation can influence spermatogenesis to some degree by adversely affecting the the histological aspect of the testes. Oral administration of ethanol extract of MOL will preserve the properties of testes from cell phones via the antioxidant properties of its phytochemicals.

**Keywords:** 4G-EMR; *Moringa Leaves*; *Morphometry*; *Testis*; *Histology*; *Antioxidants*.

### Introduction

Male infertility has become a great concern nowadays. It is often connected with multiple environmental and occupational exposures.[1] Mobile phone technology reached a maximum peak of growth in the last decade. This technology is used by more than two-thirds of the global population for communication. The invention of the first-generation of the cell phone known as analog phone works at 450-900 MHz, the second-generation (digital phone) work at 850-1900 MHz [Global System for Mobile Communications, GSM], and the third-generation phone works at around 2000 MHz.[2] The prolonged use of a mobile phone affects the biological system of the body through radio frequency induced-electromagnetic radiation (RF-EMR) as non-ionizing radiation.[3,2] The production of RF-EMR depends on the frequency of the mobile phone handled. The greater the frequency, the higher the probability of more radiant energy being absorbed into the human body.[2] When using a hands-free tool such as Bluetooth, most men hold their mobile phones in a trouser pocket (or attached to the straps on their waist). This equipment exposes the testes to mobile phone radiation with a higher power density than a mobile phone in a trouser pocket in the 'Standby mode' Desai. Such RF-EMR can negatively influence the reproductive capacity of humans and animals. Various researchers documented the reproductive effects of RF-EMR as decreased primary spermatocyte and sperm count and abnormal sperm morphology. [3,2]

RF- EMR may disturb the bodily function by producing hyperthermia as thermal effects or through non-thermal effects like disrupting the plasma membrane of the cell; generating oxidative stress within the cell by increasing the output of reactive oxygen species (ROS) or by decreasing the antioxidant enzyme activity; causing DNA damage.[4]

Literature provided shreds of evidence that 2G and 3G mobile phone-radiations could cause detrimental effects on the male reproductive system.



# Phytochemical Constituents of Leaves of *Moringa oleifera* Grow in Cuddalore District, Tamil Nadu, India

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## ABSTRACT

**Aim:** The plant products are used to treat various diseases instead of synthetic drugs owing to their least side effects. One of the important plants is *Moringa oleifera*. The micronutrients of *Moringa oleifera* leaves (MOL) have anti-inflammatory, antidiabetic, antihypertensive, antiepileptic, and antitumor properties. Literature explored the contents of MOL from various countries and thus, the present study aims to evaluate the existence of phytochemicals present in the MOL grow in the Cuddalore District, Tamil Nadu, India.

**Materials and methods:** The maceration technique was employed to extract the active contents of the powdered leaves with 70% ethanol. The acquired crude extract was subjected to detailed phytochemical analysis. We have tested MOL for the presence of alkaloids (Mayer's test), proteins and amino acids (xanthoproteic test and ninhydrin test), flavonoids (alkaline reagent test), glycosides (Legal's test), saponins (foam test), and tannin (gelatin test). The presence of reducing sugars, carbohydrates, phytosterols, and triterpenoids was tested by Fehling's test, Molisch's test, Liebermann-Burchard's test, and Salkowski's test, respectively. Standard chemical tests were used for testing steroids, anthraquinones, and fats and fixed oils.

**Results:** Stronger presence of some chemical compounds like proteins and amino acids, flavonoids, alkaloids, steroids, and saponins as well as other ingredients were detected. The extract showed weak positivity for phytosterols, reducing sugars, and fats and fixed oils. But carbohydrates, anthraquinones, tannin, and triterpenoids were not identified in the extract of MOL.

**Conclusion:** The presence of alkaloids, flavonoids, and saponins can exhibit stronger antioxidant activity against the free radicals, which are of great medicinal value. The active components extracted from MOL may be useful as a drug in various diseases induced by the reactive oxygen species.

**Keywords:** Drumstick leaves, Maceration, Phytochemical, Saponins.

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## INTRODUCTION

The plant products are used to treat various diseases instead of synthetic drugs owing to their least side effects. Hence, the field of ancient medicine reached peak growth in the last few years. In India, the drugs derived from plants form the major component of traditional medicine like Ayurveda and Siddha. The investigation of herbal substances was conducted due to their efficient medicinal value, which laid the platform for the discovery of newer medicines to cure various ailments.<sup>1</sup> One of the important plants with its great medicinal value is *Moringa oleifera* leaves (MOL), which belongs to the monogeric genus *Moringaceae* family.

The *Moringaceae* family contains 13 species among which one of them is *Moringa oleifera*. It is widely cultivated in countries like India, Pakistan, Afghanistan, Bangladesh, Sri Lanka, other parts of Asia, the Arabian Peninsula, Africa, southern Florida, West Indies, Paraguay, Peru Mexico, and Brazil.<sup>2</sup> It is a small, fast-growing deciduous tree with soft white wood and gummy bark that usually grows up to 9-m height. The feathery foliage of tripinnate leaves originates from the main axis which may have a length of 30–75 cm.<sup>1,2</sup> In India, the leaves and pulp form an integral part of the food for many centuries. All the parts of *M. oleifera* like leaves, pods, and pulps of drumstick, bark and root are traditionally used for various diseases, but leaves are most commonly used and thus, a Tamil proverb mention the great value of the tree as "*Murungaiyai nattavan verungaiyodu povan*" which means a man who cultivates and eats all parts of the tree will become strong physically and never uses a walking stick in his geriatric period.

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The MOL is a significant source for protein, amino acids, calcium, potassium, iron, zinc, as well as vitamins like A, B, C, and E.<sup>3</sup> It also has polyphenol, phenolic acids, flavonoids, alkaloids, a simple sugar, tannins, vitamins, rhamnose, carotenoids, phytates, isothiocyanates, saponins, oxalates, and triterpenoid glucosinolates.<sup>2</sup> Many investigations explored that the micronutrients of MOL have anti-inflammatory, antidiabetic, antihypertensive, antiepileptic, and antitumor properties.<sup>3</sup> It shows high antioxidant property against free radicals induced tissue damage because it contains phenolic compounds.<sup>3</sup> Literature explored the contents of MOL from various countries and thus, the present study aims to evaluate the existence



# Effect of 24-hrs of sleep deprivation on Central Auditory Processing in young people - A Quasi-Experimental study



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## ABSTRACT

**Background:** Adequate amount of sleep is the basic need for survival. It is a well-known fact that disturbed sleep, acute or chronic, deteriorates the homeostasis. Sleep deprivation (SD) produces many adverse health consequences by affecting almost all the organ systems and their functions. However, sufficient literature was lacking on the effect of SD on central auditory processing (CAP), especially the temporal resolution component in young individuals. **Aims and Objective:** Therefore, this study aimed to investigate the impact of 24-hrs of sleep deprivation on the temporal resolution ability of young healthy night-shift employees. **Materials and Methods:** It was a Pretest-posttest study design (Quasi-Experimental study) comprising sixty (N=60) healthy security staff. After the initial survey, Tuning fork tests and Pure Tone Audiometry were performed to rule out hearing loss. Temporal resolution was assessed twice (before and after SD) by Random Gap Detection test (RGDT) where a pair of pure tone was presented at different frequencies with 'intervals of silence' between each pair of tones and average time interval (in milliseconds) was taken. Data analysis was done by SPSS 24 software. **Results:** There was an increase in RGDT values after sleep deprivation  $10.70 \pm 0.46$  (Mean  $\pm$  SD), but the difference was not significant ( $p$ -value = 0.5172) when compared with baseline values  $10.65 \pm 0.48$  (Mean  $\pm$  SD). **Conclusion:** Based on the research findings, we conclude that 24-hours of acute sleep deprivation didn't show any negative impact on the temporal resolution component of CAP mechanism in young, healthy individuals.

**Key words:** Central auditory processing; Homeostasis; Pure tone audiometry; Random gap detection test; Sleep deprivation

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## INTRODUCTION

Sleep is a vital biologic process necessary for the survival of all living creatures. In human beings, an adequate amount of sleep is a fundamental requirement in everyday life for maintaining optimal health state i.e. Homeostasis. Existing literature on sleep provides us variety of definitions. In simple terms, sleep is defined as the state of unconsciousness from which a person can be aroused by sensory or other stimuli.<sup>1</sup> Being essential for life, sleep plays an important role in optimal functioning of various physiological processes of nervous, immune, hormonal, cardiovascular, and other systems.

Inadequate sleep or sleep deprivation (SD) is a common problem in modern society affecting almost all humans irrespective of their professions. Numerous factors affect sleep that range from lifestyle factors to various medical conditions. Condensed sleep-time has been associated with many adverse health consequences, which include reduced quality of life, emotional distress, autonomic nervous system imbalance, somatic problems, behavior problems, performance reductions in physical and mental tasks, obesity, hypertension, diabetes mellitus, etc.<sup>2</sup> However, there is a paucity of information on the effect of SD on auditory processing of sound stimuli in young, sleep-deprived adults. Interestingly, by online and

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## Original Article

# The Relationship between Non-Linear Analysis of Heart Rate Variability, QTc Interval and Cardiovascular Risk Factors in Young Individuals with Pre-Diabetes

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## Abstract

**Introduction:** Cardiac autonomic functions and cardiovascular risk factors are closely associated with each other. This study aimed to evaluate the cardiac autonomic status employing the Poincaré plot and QTc in young pre-diabetic individuals and correlate it with the cardiovascular risk factors. **Material and Methods:** This was a cross-sectional study. The students participating in the health check-up program organized by the college were the study participants. Basal anthropometric measurements, detailed family, and personal medical history were documented. Autonomic functions were evaluated. Plasma glucose and lipid profile were evaluated biochemically. Based on the impaired fasting plasma glucose and impaired glucose tolerance values, subjects were classified as normal and pre-diabetes mellitus groups. **Results:** A total of 295 subjects (198 normal and 97 pre-diabetes mellitus), were evaluated. Standard descriptor 1 and 2 in the pre-diabetes mellitus group reported a significant decrease,  $p < 0.0001$ , (95% CI 15.98, 19.07) (95% CI 31.73 37.26) compared to the normal group (95% CI 26.33, 30.27) (95% CI 48.39, 52.71). QTc was significantly increased in the pre-diabetes mellitus group,  $p < 0.0001$ , (95% CI 415.62, 423.99). Body mass index, fasting plasma glucose, and lipid parameters reported as being significant independent variables were associated with autonomic function test parameters. **Conclusion:** Cardiac autonomic dysfunction starts appearing in the pre-diabetic stage itself. Body mass index and altered lipid profiles showed a significant association with increased blood glucose levels. Early detection at a young age can help to plan better prevention and treatment strategies.

**Keywords:** Impaired fasting glucose, Oral glucose tolerance, QTc interval, Heart rate variability.

## Introduction

In India, 69.1 million individuals have diabetes, making it the Diabetic Capital of the world [1]. The reasons for the alarming increase may be due to rapid socio-economic and nutritional transition, lack of self-awareness, and follow-up programs in the society. As per the "ticking clock hypothesis", the microvascular disease manifestation appears in the precursor stage,

before the expression of full-blown clinical type 2 diabetes mellitus [2]. According to the American Diabetes Association, pre-diabetes is Impaired Fasting Glucose (IFG) ranging from 100–125 mg/dL or Impaired Glucose Tolerance (IGT) of 140–199 mg/dL [3]. Pre-diabetes is related to increased cardiovascular (CV) disease and mortality [4]. Evaluation strategies targeting the younger candidates with increased risk will be a potential boon for the society to plan early interventional strategies.



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## Research article

**Jigsaw technique as an active learning strategy in Physiology for I MBBS Students**K. Soundariya<sup>1</sup>, M. Senthilvelou<sup>2</sup>, Shivayogappa S. Teli<sup>3</sup>, V. Deepika<sup>4</sup>, K. Senthamil Selvi<sup>5</sup>, S. Mangani Mangalavalli<sup>5</sup><sup>1</sup>Professor, <sup>3</sup>Professor and Head, <sup>4</sup>Associate Professor, <sup>5</sup>Assistant Professor, Department of Physiology, Sri Manakula Vinayagar Medical College and Hospital, Puducherry, India<sup>2</sup>Assistant Professor, Department of Physiology, AIIMS, Mangalagiri, Andhra Pradesh, India

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**ABSTRACT**

**Introduction and Aim:** Innovative learning strategies may be introduced along with the conventional methods to enhance active learning by the students. Jigsaw technique is a co-operative learning method, where students play a dual role as an active learner and teacher. Hence the present study aimed to introduce and assess the acceptability of the Jigsaw technique as an active learning strategy in Physiology for first year medical undergraduates.

**Methods:** Five parent groups were formed from 30 first year medical undergraduates with six members in each group. Each member in the parent group was allotted a sub-topic in "Immunity". Members with the same sub-topic joined to form the expert groups. After three sessions of face-face and asynchronous online discussions spanning a duration of three weeks, facilitated by faculty, the students returned to their parent groups for peer teaching and presentation. The content of the presentation was evaluated by faculty with help of a checklist. Feedback questionnaire was administered to both the students and the faculty to assess their perceptions and acceptability of Jigsaw technique.

**Results:** Jigsaw method was addressed as an innovative method that favored active participation, high interaction and promoted communication skills and referral habits among the students. However, it was time consuming, and students expressed difficulty in adapting to the technique.

**Conclusion:** Students consider the learning process enjoyable and effective with Jigsaw technique in Physiology. However, owing to the time consumption and its complexity it may be sparingly used in routine curriculum.

**Keywords:** Active learning; jigsaw technique; medical education; physiology.

**Introduction**

Active learning strategies enhance student participation and learning process compared to the traditional didactic lectures (1,2). Designing of student-centered teaching learning methods, has been emphasized in the directives of undergraduate medical education by the Medical Council of India (3). Student motivation and performance improves when the instructions are adapted to student learning preferences (4).

The Jigsaw technique is a cooperative learning technique where each student is made to play an essential role by active participation (5). Jigsaw technique is unique in promoting peer teaching as well as learning as here the students work towards the mastery over a particular concept and become an expert in sharing the obtained knowledge with their peers (6).

Physiology is a constantly evolving subject; hence it demands an active participation from the students for an effective learning. Understanding of the concepts and retaining the information plays a major role in learning physiology. Active learning techniques that improve student participation, concept understanding, and long-term retention need to be integrated with the traditional teaching methods in Physiology.

Hence the present study aimed to introduce and assess the acceptability of "Jigsaw technique" as an active learning strategy in Physiology for I MBBS students.

**MATERIALS AND METHODS****Study participants**

About 30 first year medical undergraduate students were randomly selected for the study, comprising of 15 boys and 15 girls. Informed consent was obtained from all the study participants. The objectives and the implications of the study was clearly explained to them. Institutional Ethics committee clearance was obtained prior to the conduct of the study.

**Description of the Jigsaw technique**

A physiological concept is chosen. It is divided into sub-topics. The students are divided into parent groups, where each student in the parent group is assigned a sub-topic of the chosen concept. Then expert groups will be temporarily formed by having one student from each parent group join other students assigned with the same sub-topic. After discussion among the expert groups, the students will return to their original parent groups. Each student in the parent-group will give a presentation of their concerned sub-topic. As a result, every student will get a holistic view of the chosen physiological concept.





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### Case Report:

## Cystic Primary Ovarian Malignant Mixed Mullerian Tumour

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**Abstract:** Primary carcinosarcoma of the ovary is a rare, challenging malignancy of the female genital tract. Preoperative diagnosis of this tumor is seldom made as it mimics epithelial ovarian tumors. We report a case of 45 years multiparous lady who underwent staging laparotomy to disclose smooth surface left ovarian cystic mass with minimal solid areas. Histopathologically a biphasic tumor with malignant epithelial and mesenchymal component was seen. Explicit diagnosis of primary ovarian carcinosarcoma was established using immunohistochemical marker study. Primary mixed Mullerian tumor of the ovary has to be considered in the differential diagnosis of predominantly cystic ovarian lesion with minimal solid areas. Regular followup and close monitoring of the patient is required to understand the behavior of this exceptional tumor.

**Key Words:** Carcinosarcoma, Cystic mass, Staging laparotomy

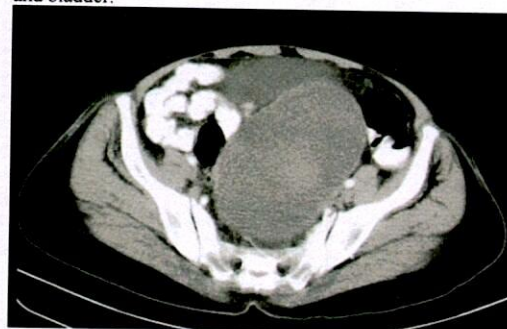
### Introduction:

Primary malignant mixed Mullerian neoplasm of ovary incessantly known as carcinosarcoma is an aggressive tumor with dismal prognosis. This infrequent tumor usually involves the uterine corpus but its incidence outside the genital tract has also been reported(1). The accounted frequency of ovarian carcinosarcoma is around 1-3%(2). Risk factors of ovarian carcinosarcoma (OCS) are obesity, nulliparity, estrogen exposure and long term tamoxifen use. Most of the OCS reported so far is common in the postmenopausal women(3). Histologically they are biphasic tumor with varying proportions of distinct malignant epithelial and stromal component. Majority of OCS are solid tumor with varying proportions of cystic spaces. Herein we report a case of ovarian carcinosarcoma presenting as a predominantly cystic lesion with minimal solid component.

### Case Report

A 45 year old multiparous female presented to the gynecology outpatient department of Sri Venkateswara Medical College and Research Centre with history of recurrent abdominal pain,

dysuria, weight loss and loss of appetite for the past two weeks. She had three live children with no history of abortion and her last child birth was 20 years back. She had a past history of simple hysterectomy with right salpingo-oophorectomy seven years back for complaints of profuse bleeding per vagina. Histopathologically, uterus was reported to show anterior wall leiomyoma with no other significant pathology. The patient was symptomless thereafter till she presented here. On examination a mobile mass was felt through fornix per vaginally. Abdominal and pelvic contrast enhanced computed tomography showed a 12.1x8.1x10.5 cm predominantly cystic lesion with thin septa (3 mm) with few minimally enhancing solid components possibly arising from left ovary. [Fig 1] An explorative laparotomy was planned and the patient underwent left salpingo-oophorectomy along with infracolicomentectomy, para-aortic lymph node dissection and peritoneal washing with biopsy. Intraoperatively a 13x10cm left complex ovarian cyst with no surface deposits was identified. The cyst was grossly adherent to the vaginal vault and bladder.



**Fig 1:** CT scan showing central occupying, single cystic and solid enhancing component tumor with smooth contour. The tumor is closely associated with the left pelvic side wall and abuts the left external iliac vein and artery.



# PRACTICE OF DOCUMENTATION AT CASUALTY OF TERTIARY CARE HOSPITAL – AN INTERVENTIONAL STUDY

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## Abstract

A medical record plays a major role for the patient and health care sector in terms of treatment and making policies on certain diseases. In any suit of negligence, this medical record will help the doctors to defend them. Many a times the complete and accurate documentation only have helped the medical fraternities from getting entangled in various consumer cases made by the patient against the doctors. Even though we have seen so many negligence cases on doctors, documentations are still incomplete in any medical record. There are studies shown that the average time spent by a doctor on a medical record is very less and the scenario is much worse when it comes to critical areas of the hospitals like casualty where the time is very precious in treating the patient and not much of importance is given for documentation. So to identify the current practice of documentation of medical records, this study was carried out to assess the documentation practice of the admission case sheets in the casualty of SMVMCH, Puducherry. An intervention was done to improve the completeness of documentation in the casualty and post-intervention analysis was also done. The results of the study showed that the percentage of documentation out of the 34 variables documented in the admission case sheets found to have significant deficiencies. But following the intervention on improving the documentation there has been a significant decrease of the deficiencies in the documentation practice on all those 34 variables.

**Keywords:** Medical record, Documentation, Casualty and Admission case sheet.

## Introduction

In a tertiary care hospital, medical records serve as a tool to provide better clinical care and to act as a means of communication between care providers.<sup>1</sup> Completed documentation of this medical record is very important, because the deficiencies in this documentation, have made the doctor's defenseless in medical negligence cases filed against them in the court.<sup>2</sup> Casualty being the

first place of contact, a properly documented medical record is needed proper diagnosis and treatment.<sup>3</sup> Thus in view of a good patient care and to prevent a health care provider from negligence suits, a standardized medical record documentation is very essential. This needs to stress on the "Golden Rule" in documentation i.e. "If it isn't written down, you didn't do it."<sup>4</sup> Following the Honourable Supreme Court judgement in the year 1995, stating that "doctors also come under the purview of the Consumer Protection Act, 1986 which makes the medical fraternity liable under the consumer forum for deficiencies in the quality care and treatment". To safeguard the physicians from these forums, the only defensive evidence was proper documentation which is the need of the hour.<sup>5</sup> So our study helps in identifying various deficiencies in the documentation of medical records mainly the admission case sheet in the casualty,

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# Determinants of Categories of TB Retreatment with Special Reference to Sources of Primary Anti-TB Treatment

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## Abstract

**Introduction** Retreatment (previously treated) cases are the tuberculosis (TB) patients who have been treated previously with anti-TB drugs for at least a month and who have now been registered for category II anti-TB therapy. Retreatment cases arise due to inadequate and improper treatment of the new TB cases.

**Objective** The aim of the study is to assess the information regarding sources of previous TB drug exposure and treatment practices leading to retreatment cases (category II) and determinants leading to retreatment.

**Material and Methods** It was a community-based cross-sectional study of patients registered as retreatment TB cases under revised national TB control program (RNTCP) in the TB unit of Puducherry between October 2013 and September 2014. The study was held between October 2013 and October 2015. Initially the quantitative data were collected and followed by qualitative data. Data were collected by interviewing the patients using a predesigned questionnaire. Data were entered and analyzed by using Epi Info (Version 3.4.3) software package.

**Results** Out of the 193 study participants, relapse cases were the most common 50.8%, followed by treatment after default cases 23.8%, failure cases 11.9%, and retreatment others 13.5%. There is a significant association between the retreatment categories such as failure, TAD (treatment after default), retreatment others, and ever usage of tobacco ( $p < 0.05$ ). There is also a significant association between the retreatment categories such as TAD, retreatment others, and ever usage of alcohol ( $p < 0.05$ ). The sources of previous antitubercular therapy for 90.16% retreatment cases were from government health care facilities under RNTCP, whereas for 9.84% retreatment cases the sources of previous antitubercular treatment were private health care facilities. There is a significant association between public health care facility where patients were previously treated for TB and relapse ( $p = 0.001$ ) and private health care facility where patients were previously treated for TB and TAD ( $p = 0.008$ ).

**Conclusion** As 90% of the patients have utilized the government health services for treatment, it shows the effective functioning of RNTCP-STF (state task force-revised national TB control program) mechanism in Puducherry.

## Keywords

- ▶ previously treated
- ▶ retreatment
- ▶ sources of previous treatment
- ▶ tuberculosis

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# Injury and its associated factors among residents of an urban slum during the festival month in South India: A community-based survey

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## ABSTRACT

**Introduction:** Injury morbidity and mortality have been steadily increasing in both developed and developing countries including India. The current study tried to assess the incidence of injury and identify the risk factors associated with injuries during the festival month in a selected urban area in Puducherry. **Methods:** It is a community-based cross-sectional survey conducted among the residents in the urban field practice area of a medical college in Puducherry. Participants were interviewed using a pretested questionnaire. Information on the incidence of injury and its associated factors were collected. Data were entered in EpiData and analyzed using Stata. Generalized linear models with Poisson distribution were used to identify the risk factors associated with the injuries. **Results:** Overall, 1380 participants from two selected clusters were interviewed. The incidence rate of injuries was 5.2% (95% CI: 4.0–6.4). In adjusted analysis male (RR 1.96, 95% CI: 1.15–3.37) and student (RR 2.91, 95% CI: 1.13–7.54) were independently associated with having an injury. Most of the injuries were unintentional and accidental. **Conclusion:** The reported incidence of at least one injury was 52 per 1000 population per month and the majority were accidental in nature. It was higher during the festival week. Public health strategies at the primary healthcare level targeting adult males and school children will be effective in the reduction and prevention of injury.

**Keywords:** Accidents, festivals, injuries, urban slums, wounds

## Introduction

Injury is broadly defined as the occurrence of “body damage due to sudden transfer of energy (physical, mechanical, chemical, thermal or radiant), resulting from an interaction

of agent, host and environment and beyond the physiological tolerance of an individual.” It can also result due to sudden deprivation of an essential requirement like oxygen as in the case of drowning.<sup>[1]</sup> Injuries are a major public health problem worldwide and have been increasing steeply in developing and developed countries. Someone in the world dies once every six seconds due to the consequences of any injury and globally more than 5 million people die every year as a result of injuries. Nine percent of the world’s deaths is due to injury and it gives rise to nearly 1.7 times the number of fatalities that


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## Suicide attempt among adolescent in Tamil Nadu: A case-control study

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### Abstract

**Introduction:** Suicide is a complex social issue and a serious global health problem. Its incidence among adolescents is increasing. Understanding of risk factors helps early detection and prompt treatment of high-risk youngsters.

**Materials and Methods:** It was a hospital-based case-control study carried out among 60 adolescent suicide attempters and 60 of their normal counterparts for the period of one year. Pretested structured questionnaire was used to collect information. Ethical principles were followed throughout the study. SPSS version 24 was used to do the analysis. Odd's ratio (OR) and its 95% confidence interval (CI) were calculated as a measure of the strength of association between risk factors and suicide attempts.

**Results:** Among the study participants, 70% were in the age group of 16 – 18 years and 45% were males. The identified risk factors for suicide attempt were, presence of psychiatric illness (OR-7.8; 95% CI: 3.3-19), substance abuse among family members (OR-4.3; 95% CI: 2-9.3), family history of attempted suicide (OR-7.2; 95% CI: 1.5-3.3), family history of completed suicide (OR-3.6; 95% CI: 1.2-1.1) and residence at rural areas (OR-2.8; 95% CI: 1.2 – 6.3). Suicide intent score was significantly correlated with various standard scoring tools for stress and depression among cases.

**Conclusion:** The established risk factors should be considered in creating an effective intervention program and strategies with intersectoral collaboration and coordination to prevent suicide among high-risk adolescents.

**Keywords:** Adolescent, Attempted suicide, Case-control study, Risk factors.

### Introduction

Suicide is a complex social issue and a serious public health problem. Suicidal behavior is a spectrum that ranges from suicidal ideation at one end to completed suicide at the other end. World Health Organization reports that every year nearly 800,000 deaths occur due to suicide worldwide.<sup>1</sup> Suicide is the second leading cause of death among youngsters (15 to 29 years old) globally and its incidence rate is increasing.<sup>2</sup> More than 78% of global suicides occur in low and middle-income countries.<sup>3</sup> In India, over one lakh lives are lost every year due to suicide and in the last three decades, the suicide rate was found to be increased by 43%.<sup>4</sup> The National Crime Record Bureau, report reveals that South Indian states has the highest suicide rate among India and Tamil Nadu stands in third position with 18.6/100,000 population.<sup>5</sup>

As there is no effective protocol to predict suicide among adolescents in routine clinical practice, improving the recognition and understanding of clinical, psychological, sociological, and biological factors could help in the detection of high-risk youngsters so as to assist in treatment options. Therefore the present study was designed with the objectives to assess the association of childhood adversity, demographic factors and psychiatric co-morbidities with adolescent suicide attempt. We also tried to identify the correlation between suicide intent score with stressful life events, hopelessness and depressive scores among suicide attempters.

### Materials and Methods

#### Study setting and design

Our study was an age and gender-matched case-control study that was carried out in a tertiary care teaching hospital situated in Cuddalore district of Tamil Nadu. It is a 1000 bedded teaching hospital. The average outpatient and inpatient load of Psychiatry department per day is 80 and 20 respectively. The department admits and provides care to nearly 150 attempted suicide patients every year.

#### Study population

Cases were adolescents belonged to both genders and in the age group of 13 to 18 years, admitted with the history of attempted suicide in the emergency department and were referred to the Department of Psychiatry for providing care and support during the year 2012. Subjects with the stable physical condition who could undergo detailed assessment were included. Those who were in the state of disorientation and confusion which interfered with the administration of rating scale to them and those without a reliable informant were excluded. Controls were the adolescents who accompanied those patients admitted to any other departments of the hospital with complaints other than the psychiatric disorder. They were selected in such a way their age and gender were matched with the selected cases.

#### Sampling and sample size

Sample size was calculated to be 60 cases and 60 controls using OpenEpi software version 3.0, taking the exposure of cases to worrying issues in family as 65% and exposure of controls to same risk factor as 35.3% and odds ratio of 3.4,



## Original Article

# Predictors of impending cardiac arrhythmias by electrocardiographic markers in proven obstructive sleep apnea patients

### ABSTRACT

**Background:** Obstructive sleep apnoea is proved to be one of the causes of sudden cardiac death due to undocumented transient cardiac arrhythmias. So we studied the changes in various electrocardiographic parameters (*P* wave duration, QRS duration and Tpeak to Tend interval) and its association with increasing severity of OSA by AHI to predict the risk of impending cardiac atrial and ventricular arrhythmias in these patients.

**Objective:** This study compares the risk of impending cardiac arrhythmias by electrocardiographic parameters with the increasing severity of obstructive sleep apnoea by AHI (apnoea-hypopnea index) in polysomnography.

**Methodology:** The study was conducted in a rural based teaching tertiary care hospital in Puducherry, India. The electrocardiogram (ECG) of the 30 proven OSA patients were analysed for parameters like *P* wave duration, QRS duration and peak of T wave to end of T wave interval. Any deviation from the normal duration is recorded and compared with the severity of OSA by AHI to estimate the risk of arrhythmogenicity.

**Results:** Out of 30 OSA patients in the study group 7 (23.3%) were found to have mild OSA [i.e. AHI= 5 TO 14 events/hr], 6 (20%) were found to have moderate OSA [i.e. AHI=15 to 29 events/hr] and 17 (56.7%) were found to have severe OSA [i.e. AHI=30 and above]. The *p* value is significant [ $<0.001$ ] for electrocardiographic parameters like Tp-Te interval and *P* wave duration in patients with AHI more than 15 events/hr [i.e. moderate and severe OSA] and *p* value for QRS duration is 0.162.

**Conclusion:** We concluded that the increase in duration of *P* wave, QRS duration and prolongation of Tp-Te interval in electrocardiogram is associated with increasing severity of obstructive sleep apnoea tends to possess significant risk of developing impending cardiac atrial and ventricular arrhythmias respectively which can be attributed to one of the causes of sudden cardiac death in OSA patients.

**Keywords:** Apnea hypopnea index, obstructive sleep apnea, P-wave duration, QRS duration, Tp-Te interval

### INTRODUCTION

Obstructive sleep apnea (OSA) is the most common type of sleep apnea caused by complete or partial obstruction of the upper airway. It is characterized by repetitive shallow pauses in breathing in spite of efforts to breathe normally. If the symptoms are present in day time also, then it is referred to as OSA syndrome (OSAS). Symptomatic OSAS has been proven to be a risk factor for hypertension, heart failure, and vascular dysfunction and has been proposed to be causally related to both nonfatal and fatal coronary and cerebrovascular events. Preliminary data suggest that there is also a relationship between sleep-disordered breathing, cardiac arrhythmias, and sudden cardiac death.<sup>[1]</sup>


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## ORIGINAL RESEARCH

# Renal Equations Using Cystatin C and Creatinine in Correlation to Lipids in Chronic Kidney Disease - A Cross-Sectional Study

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## Abstract

**Aim:** To study and compare the association between estimated GFR with cystatin-C and serum creatinine and the lipid profile in chronic kidney disease.

**Background:** Chronic kidney disease (CKD) is frequently complicated by the coexistence of cardiovascular (CV) events, making it essential to identify CV risk in CKD. Serum cystatin-C is an upcoming renal biomarker, which is used to measure estimated glomerular filtration rate (eGFR) by the CKD-EPI formula.

**Methods:** This cross-sectional study, comprising of 120 CKD patients, attempted to determine, which of the two equations for estimating GFR, either by serum cystatin-C or by serum creatinine, is better related with lipid profile which is widely portrayed as a cardiovascular risk factor. The parameters evaluated included lipid profile, serum creatinine and serum cystatin-C among others. Staging was done by both the equations (MDRD equation by creatinine and CKD-EPI equation by cystatin-C) and compared, and both the eGFRs were correlated with the lipid profile.

**Results:** eGFR estimation by cystatin-C was found to relate inversely and significantly with lipid profile which included-TC, TG, LDL, VLDL ( $r = -0.19, -0.23, -0.18, -0.23$ ;  $p < 0.05$  respectively) and lipid ratios TC/HDL, LDL/HDL ( $r = -0.26, -0.24$ ;  $p < 0.01$  respectively). Lipid profile except HDL was found to correlate negatively and significantly with eGFR estimation by serum cystatin-C ( $p < 0.05$ ). Lipid ratios- TC/HDL and LDL/HDL were also found to correlate inversely and significantly ( $p < 0.01$ ). However, eGFR using serum creatinine failed to offer a similar significant relation.

**Conclusion:** Serum cystatin-C based eGFR was found to be better correlated with the lipid profile, when compared with eGFR estimation using serum creatinine. Hence, the

correlation between cystatin-C based eGFR and lipids might indicate that this eGFR methodology may be a better marker of cardiovascular risk as lipids are a well known traditional risk factor for cardiovascular disease.

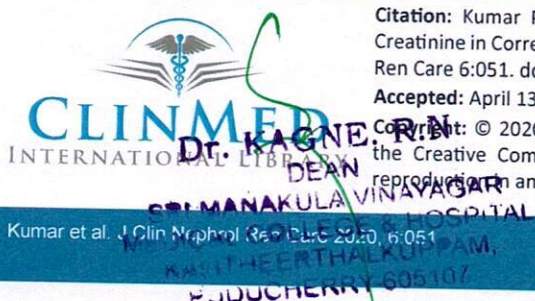
## Keywords

Cystatin C, Renal insufficiency, Estimated glomerular filtration rate, MDRD equation, CKD-EPI equation, Cardio-renal disease, Cardiovascular risk, Lipid profile

## Introduction

Chronic kidney disease (CKD) is a world-wide health problem whose burden continues to increase. CKD encompasses a spectrum of different pathophysiologic processes, associated with abnormal kidney function and a progressive decline in glomerular filtration rate (GFR). The National Kidney Foundation had provided a classification for chronic kidney diseases, which has since evolved through time. This staging of chronic kidney disease, as delineated by the Kidney Dialysis Outcomes Quality Initiative (KDOQI), depends on the estimated glomerular filtration rate (eGFR) [1].

CKD is defined using eGFR as the presence of evidence of kidney damage with an abnormal GFR for at least 3 months or by a GFR below '60 ml/min/1.73 m<sup>2</sup>, body surface area [2]. Serum creatinine is the most commonly used marker for eGFR using the Cockcroft-Gault formula or the MDRD (Modification of Diet in Renal Disease) [3]. However, creatinine is an unstable entity and has wide variance. Even though it is still most



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Rainwater harvesting



Rainwater harvesting



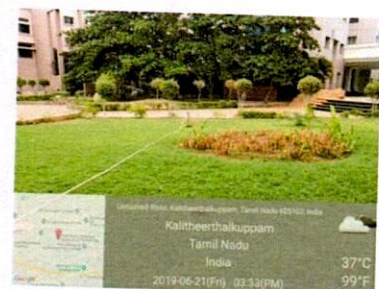
Borewell



Waste water recycling



Waste water recycling



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**Arterial thrombosis in antiphospholipid syndrome (APS): Clinical approach and treatment. A systematic review.**

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Thrombotic Antiphospholipid Syndrome (APS) is a condition affecting young individuals in whom a thromboembolic event occurs in the presence of circulating antiphospholipid antibodies (aPL). An extensive body of literature has covered the most common clinical presentation of the syndrome, venous thromboembolism. Arterial thrombosis in APS, a lesser clinical expression, is less studied. This review will concentrate on the body of literature concerning pathogenesis, clinical presentation and management of arterial thrombosis in APS.

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**Exploring the Novel Therapeutic options in Global Pandemic COVID 19**

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**Introduction**

In the prevailing novel coronavirus disease 2019 (COVID-19) Global Pandemic spreads, major focus is interrupting its transmission with the standard public health measures on early diagnosis, tracing of contacts and isolation of patients. The current scenario warrants an urgent development of potential strategies and therapeutic options which is a major public health concern. More robust data on antiviral drugs which are effective against COVID 19 is yet to come. Both coronavirus disease 2019 (COVID-19) and severe acute respiratory syndrome (SARS) are characterised by an overexuberant inflammatory response and, for SARS, viral load is not correlated with the worsening of symptoms[1][2].

In this short commentary, We would like to discuss the possible therapeutic options with Montelukast, Leflunamide and Pycnogenol for this novel pandemic, Covid-19.

Montelukast is one of the most commonly used drug among the pulmonologists as an add on therapy in the clinical management of Asthma. Standard dosage in adults is usually 10mg once a day. Various studies quote montelukast as potential anti inflammatory agent when given in higher doses. Doses upto 1000mg is found non toxic in clinical trials.

Cysteinyl leukotrienes (CysLTs) are lipoxygenase products derived from the metabolism of arachidonic acid and they are potent endogenous mediators of inflammation. Montelukast is a leukotriene receptor antagonist (LTRA) that acts as an antagonist of CysLT1R, blocking its signal transduction without affecting cysteinyl-LT signalling through CysLT2R, or the action of leukotriene B4 (LTB4) via the BLT receptors.

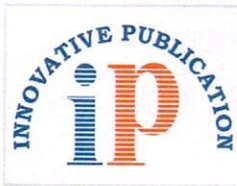
Mahir Igde et al studied the antiviral properties of montelukast in human herpes and adeno viruses invitro which showed significant decrease in viral infectivity [3].

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## Original Research Article

## Study on assessment of Obstructive sleep apnea (OSA) risk in Obese pregnant women

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## ABSTRACT

**Introduction:** Obstructive sleep apnea is a major public health concern which is associated with cardiovascular and cerebrovascular comorbidities. Eventhough association of OSA with adverse fetomaternal outcomes is documented, screening for OSA in pregnancy is a challenging task. So the purpose of our study is to assess the risk of OSA in obese pregnant ladies by using established STOP BANG Questionnaire for OSA.

**Materials and Methods:** This cross sectional study on assessment of obstructive sleep apnea risk among the obese pregnant women was done in tertiary care centre in the rural population of Puducherry.

**Results:** 21 obese pregnant women were included in our study. The mean age of our study population was 29.5 years. Most of the study subjects (85.7%) had history of snoring both reported by them and their bed partners. History of tiredness was reported by 14 patients (66.6%). Choking or history of gasping was reported by only 4 patients (19%). Results of our study showed that 42.9% of the obese pregnant women had high risk, 42.9% had intermediate risk and 14.3% for OSA as per the STOP BANG scoring.

**Conclusion:** Thus our study subjects were having higher risk of OSA which needed further evaluation with polysomnography. Thus the STOPBANG questionnaire can be used to screen for obstructive sleep apnea (OSA) in obese women during pregnancy.

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## 1. Introduction

Obstructive sleep apnea (OSA) may affect nearly 20 percent of obese pregnant women.<sup>1</sup> Hypertensive disorders of pregnancy, Gestational diabetes mellitus and cardiomyopathy are the major comorbidities associated with OSA in pregnancy. It has been well documented that OSA in pregnancy have 2-fold increased risk of developing preeclampsia and 1.5-3.5-fold increased risk of the developing of gestational diabetes mellitus.<sup>2</sup>

Obstructive sleep apnea is a major public health concern which increases the cardiovascular and cerebrovascular comorbidities. OSA screening is mandatory for specific

population which includes obese people, patients with Resistant /poorly controlled diabetes mellitus/hypertension and Chronic kidney diseases. Even though lot of pathophysiological factors increases the risk of OSA in pregnancy, available literature in these group of population is sparse.

Adverse fetomaternal outcomes were well documented in patients with OSA in pregnancy. Hence it is mandatory to screen these patients which is a challenging task. Polysomnography is the gold standard investigation for the diagnosis of OSA but limited by its cost, waiting period in health care setting with significant patient load and time consumption. Unattended level 3 home based sleep studies is emerging as reliable cost-effective method for diagnosing

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## Insect tattoos



**Figure 1:** Multiple irregular light brown to blackish brown macules of varying sizes over bilateral soles

A 62-year-old male patient presented with sudden-onset asymptomatic, multiple irregular light brown to blackish-brown macules of size varying from 0.1 to 0.7 mm on bilateral soles [Figure 1]. The insteps were spared. There was history of him walking barefoot in his grocery shop, where there were multiple insects crawling over the floor during the monsoon season. The macules could not be removed with soap and water, but faded partially on scrubbing with acetone. A diagnosis of burrowing bug (*Chilocoris assmuthi*) pigmentation was made. Insects such as *Kermococcus vermilis* (kermes dye), *Kerria lacca* (lac dye), and Cochineal species (scarlet, orange, red tints) have been used as sources of dyes since ancient times. Burrowing bug produces blackish brown pigmentation when crushed. This may be due to insect pigment, ingested pigments, or the colour may

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Traditional threads tied on children in india trigger dermatitis and may contain carcinogens.

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**BACKGROUND/OBJECTIVES:** It is a common Indian custom to tie threads on the hip, neck, or wrist of infants and children.


**METHODS/RESULTS:** A retrospective registry review was performed for 23 children (age range 5-18 months) with threads tied around the hip/neck/forearm who presented with dermatitis. Analysis of one of the threads revealed the presence of three banned azo dyes and disperse yellow 3 (category 2B possible carcinogens).

**CONCLUSION:** Thread dermatitis is a unique cultural dermatosis. Dermatitis caused by threads may have multifactorial causes including friction, maceration, and contact dermatitis (allergic and/ or irritant) to the thread contents. Use of banned dyes still used to color these threads may be contributory to dermatitis, but there is also concern for health and environmental hazards to children. Strict regulation is needed in the manufacture of these threads to protect the health and welfare of young children.

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# For the love of color: Plant colors and the dermatologist

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## Abstract

Humans have been anointing their skin with natural colorants since antiquity. Before the advent of modern cosmetics, tattoos and hair dyes, the spectacular colors in plants served as a palette for humanity's fascination with color. Skin, hair, nails, teeth and clothing have been altered with botanical colorants for centuries. Understanding the relevance of botanical colorants is an important part of cultural competency. Substitution or adulteration of plant colorants with synthetic colorants has played a role in varied dermatoses (eg. black henna, kumkum, and Holi dermatoses). Safety concerns over synthetic colorants have led to a resurgence of natural colorants. However, some plant colorants have produced adverse reactions. Plant colorants have also played an integral role in medicine. Ingested plant colorants are an indispensable part of our diet, playing crucial roles in the maintenance of health and prevention of disease. Excessive intake of some pigments can alter skin color (carotenoderma, lycopemia, and the golden tan of canthaxanthin). We have relied on the colors of hematoxylin and alizarin red, derived from the logwood tree and madder roots, respectively, to study and diagnose disease in pathology. We briefly review the uses, cultural relevance, and adverse effects of the common botanical colorants on the skin, hair, and mucosa. We also describe their relevance in our diet, and in the diagnosis and description of dermatological diseases.

**Key words:** Beta carotene, cosmetic, lycopene, plant extract, tattoo

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## Introduction

From palaeolithic times, humans have enriched their appearance with various body paints derived from nature.<sup>1</sup> Plants, minerals and insects have been used to color skin, hair, nails, and clothing for aesthetic, ceremonial, military and religious reasons.<sup>2</sup> The major botanical colorant groups such as chlorophylls, carotenoids, flavonoids, and betalains, along with several other minor colorant groups, provide an endless array of colors that has inspired art and intrigued medicine.<sup>3</sup> We briefly review the decorative, dietary, diagnostic and descriptive aspects of botanical colorants in dermatology.

## Henna

Henna is obtained from the plant *Lawsonia inermis* [Figure 1], an ancient medicinal shrub. It has been used by Egyptians as seen in the mummies to color hair and nails, and in the Orient to color skin, hair and nails. It was brought to India in the 12<sup>th</sup> century by the Mughals from Persia. It is traditionally used to color hands and feet (Mehndi) before weddings and other celebrations.<sup>4</sup> Muslims and Orthodox Jews have used it to color natural textiles. Surgeons in India have used it as a pre-operative

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## Suicide attempt among adolescent in Tamil Nadu: A case-control study

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## Abstract

**Introduction:** Suicide is a complex social issue and a serious global health problem. Its incidence among adolescents is increasing. Understanding of risk factors helps early detection and prompt treatment of high-risk youngsters.

**Materials and Methods:** It was a hospital-based case-control study carried out among 60 adolescent suicide attempters and 60 of their normal counterparts for the period of one year. Pretested structured questionnaire was used to collect information. Ethical principles were followed throughout the study. SPSS version 24 was used to do the analysis. Odd's ratio (OR) and its 95% confidence interval (CI) were calculated as a measure of the strength of association between risk factors and suicide attempts.

**Results:** Among the study participants, 70% were in the age group of 16 – 18 years and 45% were males. The identified risk factors for suicide attempt were, presence of psychiatric illness (OR-7.8; 95% CI: 3.3-19), substance abuse among family members (OR-4.3; 95% CI: 2-9.3), family history of attempted suicide (OR-7.2; 95% CI: 1.5-3.3), family history of completed suicide (OR-3.6; 95% CI: 1.2-1.1) and residence at rural areas (OR-2.8; 95% CI: 1.2 – 6.3). Suicide intent score was significantly correlated with various standard scoring tools for stress and depression among cases.

**Conclusion:** The established risk factors should be considered in creating an effective intervention program and strategies with intersectoral collaboration and coordination to prevent suicide among high-risk adolescents.

**Keywords:** Adolescent, Attempted suicide, Case-control study, Risk factors.

## Introduction

Suicide is a complex social issue and a serious public health problem. Suicidal behavior is a spectrum that ranges from suicidal ideation at one end to completed suicide at the other end. World Health Organization reports that every year nearly 800,000 deaths occur due to suicide worldwide.<sup>1</sup> Suicide is the second leading cause of death among youngsters (15 to 29 years old) globally and its incidence rate is increasing.<sup>2</sup> More than 78% of global suicides occur in low and middle-income countries.<sup>3</sup> In India, over one lakh lives are lost every year due to suicide and in the last three decades, the suicide rate was found to be increased by 43%.<sup>4</sup> The National Crime Record Bureau, report reveals that South Indian states has the highest suicide rate among India and Tamil Nadu stands in third position with 18.6/100,000 population.<sup>5</sup>

As there is no effective protocol to predict suicide among adolescents in routine clinical practice, improving the recognition and understanding of clinical, psychological, sociological, and biological factors could help in the detection of high-risk youngsters so as to assist in treatment options. Therefore the present study was designed with the objectives to assess the association of childhood adversity, demographic factors and psychiatric co-morbidities with adolescent suicide attempt. We also tried to identify the correlation between suicide intent score with stressful life events, hopelessness and depressive scores among suicide attempters.

## Materials and Methods

### Study setting and design

Our study was an age and gender-matched case-control study that was carried out in a tertiary care teaching hospital situated in Cuddalore district of Tamil Nadu. It is a 1000 bedded teaching hospital. The average outpatient and inpatient load of Psychiatry department per day is 80 and 20 respectively. The department admits and provides care to nearly 150 attempted suicide patients every year.

## Study population

Cases were adolescents belonged to both genders and in the age group of 13 to 18 years, admitted with the history of attempted suicide in the emergency department and were referred to the Department of Psychiatry for providing care and support during the year 2012. Subjects with the stable physical condition who could undergo detailed assessment were included. Those who were in the state of disorientation and confusion which interfered with the administration of rating scale to them and those without a reliable informant were excluded. Controls were the adolescents who accompanied those patients admitted to any other departments of the hospital with complaints other than the psychiatric disorder. They were selected in such a way their age and gender were matched with the selected cases.

### Sampling and sample size

Sample size was calculated to be 60 cases and 60 controls using OpenEpi software version 3.0, taking the exposure of cases to worrying issues in family as 65% and exposure of controls to same risk factor as 35.3% and odds ratio of 3.4,



# Bi-ventricular repair of Double Outlet Left ventricle - Experience and Review of Literature

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## Abstract

Double-outlet left ventricle (DOLV) is a rare congenital cardiac anomaly. The aorta and the main pulmonary arterial trunk arises predominantly from the left ventricle(LV) and is associated with a malaligned ventricular septal defect(VSD), various degrees of hypoplasia of the right ventricle, and presence or absence of pulmonary stenosis. Bi-ventricular repair is the preferred treatment option whenever possible. Various techniques for bi-ventricular repair have been described. The best option for DOLV correction is by translocating the pulmonary root to the right ventricle(RV)[1]. In this series, we report four patients who underwent biventricular repair of DOLV in our institute with excellent outcomes. All patient details were collected from the institute patient record system. Echocardiographic data were obtained from the records. Intraoperative charts were reviewed for further information on the surgical procedure and cardiopulmonary bypass. Postoperative data included survival, functional status and followup echocardiography. Of the four children, three underwent pulmonary root translocation and one child underwent Reparation al etage Ventriculaire(REV) procedure. There was no mortality and all children are in stable clinical condition in the recent follow-up and no re-operations or interventions were required following primary surgical correction. Thus DOLV is anatomically and surgically a challenging subset. Pulmonary root translocation in this anatomy is technically challenging but safe and superior option when compared to other alternative surgical procedures and it can be performed with excellent results, even in infants.

## Hosted file

DOLV new.edited.pdf available at <https://authorea.com/users/324378/articles/452589-bi-ventricular-repair-of-double-outlet-left-ventricle-experience-and-review-of-literature>

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## Original Research Article

# Systemic inflammatory response syndrome as a predictor of poorer outcomes in diabetic foot infection: a prospective analytical study

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## ABSTRACT

**Background:** This study was done to diagnose the severity of infection in a group of hospitalized diabetic foot infection (DFI) patients based on the presence or absence of systemic inflammatory response syndrome (SIRS) and compare the outcomes.

**Methods:** This was a single-center cohort study, in which 50 consecutive DFI patients having SIRS and 50 consecutive patients not having SIRS were included. Patients were followed for the duration of the hospital stay; parameters for glycaemic control, minor and major amputation, microbial culture, duration of hospital and ICU stay and mortality was recorded.

**Results:** The relative risk of major amputation among the patients of DFI who presented with SIRS was 2.66 times higher compared to who was not having SIRS at presentation (95% CI, 1.56-4.55). The presence of polymicrobial infection also had a statistically significant association with the incidence of major amputation. The duration of hospital stay was ~9.5 days longer in the DFI patients who presented with SIRS compared to who was not having SIRS at the time of presentation [8.00 (4.00-20.50) days versus 17.50 (10.75-38.25) days]. DFI patients with SIRS required a significantly prolonged ICU.

**Conclusions:** SIRS can be used as objective criteria to predict poorer outcomes in the diabetic foot infection patient and also to classify it.

**Keywords:** DFI, Morbidity, Sepsis, SIRS, Quality of life

## INTRODUCTION

Diabetes mellitus has been a global epidemic of 21<sup>st</sup> century. In 2015, International Diabetes Federation (IDF) published its seventh atlas, which estimated that 415 million people among the adults of age group 20-79 years worldwide are suffering from diabetes mellitus. Which amounts to 8.8% of adults aged between 20-79 years of age. One in eleven adults is suffering from diabetes mellitus. Taking ongoing trends into consideration IDF predicted by 2040, 642 million people worldwide will be

diabetic. India is house for 69.2 million diabetics. It ranks second in the absolute number of diabetics following China at first place.<sup>1</sup>

Most dreaded complication of diabetes mellitus is lower extremity amputations. Patients who are undergoing lower extremity amputation will require ipsilateral or contralateral amputation within next three to five years. Five-year mortality related to diabetic foot ulcer is very high. According to Moulik et al, five-year mortality rate for patients with diabetic foot ulcer is 45%, 18% and 55%

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# Management of Infertility—Recommendations in the COVID-19 Era

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## ABSTRACT

Worldwide, the incidence of infertility is 15%. In India, the incidence of infertility varies between states ranging between 3.9% and 16.8%. India has 22–23 million infertile couples, and the total fertility rate has declined from 3.9 in 1990s to 2.3 in 2019. At present, the estimated number of *in vitro* fertilization cycles countrywide are around 100,000, and it was expected to reach 250,000 by the end of 2020. But with the COVID-19 pandemic, all these treatments have been brought to a sudden halt. Decision to stop all treatment is because SARS CoV2 is a global health pandemic and infertility treatments are usually electively done. Also we need more studies to show that COVID-19 has no effect on newer pregnancies.

**Keywords:** COVID, Cross-training, Freeze-all, Infertility.

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## INTRODUCTION

The World Health Organization (WHO) states that one in every four couples in developing nations is affected by infertility. India has 22–23 million infertile couples, and the total fertility rate has declined from 3.9 in 1990s to 2.3 in 2019. At present, the estimated number of *in vitro* fertilization cycles countrywide is around 100,000, and it was expected to reach 250,000 by the end of 2020.<sup>1</sup> As the world faces a pandemic with enormous casualties and an uncertain future for most people, the physicians in reproductive medicine and their patients are faced with newer challenges.

Patients should be informed that considering the rapid community transmission and the lack of symptoms among infected people, frequent visits to the hospital may endanger them and their families. Healthcare workers in fertility centers should understand that high virulence and the sustained surface viability of the virus may cause severe difficulty in keeping the lab surfaces sterile.

Keeping the healthcare workers and their patients a priority, most fertility societies have advised suspension of elective clinical activities. This is highly applicable to infertility workup and procedures. As we have very little information on the effect of COVID-19 on organogenesis (teratogenic ability) and also on perinatal outcome,<sup>2</sup> it is better to withhold fertility procedures. But if women are in the middle of an intervention or a treatment cycle or for fertility preservation before oncology treatment, treatment cycles can be completed with the full counseling and understanding of the implications by the patients.

## RECOMMENDATIONS

The following guideline will help decrease the chance of acquiring the infection and help conserve essential resource of healthcare workers.<sup>3,4</sup>

### Social Distancing

- All persons entering clinical spaces, both patients and healthcare workers, should be carefully assessed for body temperature and health status.
- Minimize the number of healthcare providers in the clinic.

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- Minimize number of patients in the reception and patient waiting area when they come in for urgent procedures.
- Follow social distancing by shifting the OPD practice to the telehealth model either using telephone or computer-based face-to-face office-based consultations.

### Travel

- Advise patients to avoid travel to fertility clinics for the sole purpose on non-emergency procedures like egg donation, gestational surrogacy, etc.
- Patients who have had babies delivered through gestational carriers from travel-restricted areas should make alternative care plans for the infants until the travel restrictions are withdrawn.
- For geographically distant patients teleconsultations are recommended to ascertain the need for an appointment.

## CLINICAL MANAGEMENT

- Plan suspension of all new treatment cycles that include ovulation induction, intrauterine inseminations, *in vitro* fertilization, and gamete cryopreservation.

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**KEYWORDS:** Pain, Vas Score, Bupivacaine, Laprotomy, Intraperitoneal

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Laparoscopic techniques have revolutionized the field of surgery with benefits that include decreased postoperative pain, earlier return to normal activities following surgery, and fewer postoperative complications (eg, wound infection, hernia). However, unique complications are associated with gaining access to the abdomen for laparoscopic surgery. Inadvertent bowel injury or major vascular injury is uncommon, but both are potentially life-threatening complications that are most likely to occur during initial access.<sup>1,2,3</sup>

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## Case Report

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# An odd cause of the lower limb restriction: Emphysematous pyelonephritis

Vigneshwar Adhithiya, Kulasekaran Nadhamuni, Anand A.M, Mohamed Rafi Kathar Hussain

### Abstract:

Lower limb restriction is usually due to any pathology affecting the joints or neurological causes. Emphysematous pyelonephritis is caused by gas-producing anaerobes and is one of the life-threatening diseases. It can extend into various fascial planes and be seen causing multiple ranges of symptoms. A 49-year-old male patient came with complaints of difficulty in extending the left lower limb for the past 1 month with associated left loin pain radiating to the left lower limb. Plain CT KUB shows features suggestive of bilateral emphysematous pyelonephritis with left retro-renal multi-loculated collection with extension of infection into anterior abdominal wall fascia and inferiorly into the left pelvic muscles and left thigh. Emphysematous pyelonephritis presenting as necrotizing fasciitis is a rare phenomenon. Patients with uncontrolled diabetes can clinically present with both these entities. Necrotizing fasciitis of the thigh leading to restriction of movement in the lower limb can sometimes be the cardinal clinical and odd presentation of emphysematous pyelonephritis.

### Keywords:

Emphysematous, fasciitis, necrotizing, pyelonephritis

Lower limb restriction is usually due to any pathology affecting the joints or neurological causes. We are presenting a rare manifestation of bilateral emphysematous pyelonephritis as the cause of restriction of the lower limb movements. Emphysematous pyelonephritis is caused by gas-producing anaerobes and is one of the life-threatening diseases. It can extend into various fascial planes and be seen causing multiple ranges of symptoms.

## Case Report

A 49-year-old male patient came with complaints of difficulty in extending the left lower limb for the past 1 month with associated left loin pain radiating to the left lower limb. He has diabetes for the past

11 years with irregular medication. He is not a known case of hypertension or thyroid disorder. There was no history of surgery or trauma in the past.

On examination, vital parameters were stable. Cardiovascular and respiratory system examinations were normal. The central nervous system examination was unremarkable. Tenderness was noted over the left lumbar region, suprapubic region, and proximal left thigh. Local examination of the left lower limb showed restricted limb movement on both flexion and extension. No atrophy of muscle was seen. The sensation was within the normal limits. The renal function test revealed a significant increase in the serum creatinine (3.5 mg/dl) and blood urea (111 mg/dl) levels. Random blood glucose was increased measuring 302 mg/dl. Urine routine examination revealed significantly

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# Voluntary Body Donation-Knowledge and Perspectives among Healthcare Workers in Southern India

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## ABSTRACT

**Introduction:** Cadaveric dissection is an integral part of teaching anatomy. In a developing country like India, where many medical institutions are on the cusp of growth, procuring cadavers leads to a great challenge. The major source of cadavers is unclaimed bodies, followed by a meagre number by the way of voluntary body donation. It is the call of the hour to encourage people to go in for voluntary body donation.

**Aim:** To document legal and in-depth knowledge and attitude about body donation among healthcare professionals.

**Materials and Methods:** This was a cross-sectional study conducted during October 2017 to August 2018. A prevalidated, semi-structured questionnaire was used to assess the knowledge and attitude among 75 medical professionals and 75 healthcare assistants at Pondicherry Institute of Medical Sciences, a tertiary care hospital in Pondicherry, India. Data was analysed by descriptive statistics using Statistical Package for the Social Sciences (SPSS) statistical version 21.0 for windows, and results expressed as percentage of the total study population. The Chi-square test was used to compare variables between doctors and healthcare assistants and p-value <0.05 was considered as significant.

**Results:** Even though 96.7% of healthcare professionals were aware of body donation, only 65.3% doctors had adequate

knowledge about legal aspects. This was much low among healthcare assistants (38.7%). All participants accepted that body donation enhances medical advancement, but only 17% of doctors were willing to donate. On the contrary, 47% of doctors and 40% of healthcare assistants expected the general public to donate (p=0.02). Although many influencing factors, 68.7% (75% doctors and 62% healthcare assistants) inferred that religion was not a barrier and participants of extreme ages (22.5 and 22%) were willing to engage in this altruist act. The major psychological frontier was depersonalisation of self by dissection of his or her own body (63% among doctors).

**Conclusion:** The study revealed that lacunae regarding the legal aspect of body bequeathing prevail among healthcare professionals that need to be curtailed by providing adequate knowledge through seminars and continuing medical education programs aiming to healthcare professionals including healthcare assistants who bridge the gap between the medical professionals and common people. So, the reflection of knowledge and attitude of healthcare assistants are also considered crucial for winning the noble theme of "voluntary body donation." Breaching the psychological barrier, depersonalisation of self and motivation would be the dawn of voluntary body donation.

**Keywords:** Anatomical act, Body bequest, Healthcare professionals, Psychology

## INTRODUCTION

The cadaveric dissection is the epitome of medical education as it fulfils all the domains of learning [1]. In true sense, it facilitates a higher level of learning, that is, perception and interpretation. Because of which cadaveric dissection remains to be the spine of anatomy learning [2]. This "Anatomical Act" was established by many states of India, which helps the medical colleges to procure cadavers for dissection. Unclaimed bodies remain to be the major source of cadavers in medical education and body bequest remains to be meagre [3]. Body donation became sublime because of the lack of awareness among the common public due to superstitions [4]. The medical profession stands still without dissection, but the perception and attitude toward body donation among this community is also questionable.

There is a gap between medical professionals and common people regarding the awareness of body donation [3]. Many factors such as age, religion, cultural variations, personality differences, views regarding death and mortality, body image concerns, and humanitarian values can have an influence on peoples' mindset toward body bequest [5]. A voluntary body donation is an act of conferring one's body for medical teaching and research. It denotes a determined mind and a pious soul dedicated to help humanity through medical sciences [1]. The attitude of potential donors and their relatives toward body donation is the major influencing factor for the procurement of donor bodies.

The prime beneficiary of this noble act are the doctors who should be expected to be beyond social, cultural stigma, and fear of body donation. Many studies were reported to assess the knowledge, attitude, and practice of whole body donation among the people of different social and cultural backgrounds [6,7]. Basic knowledge of voluntary body donation is not suffice in achieving willed individuals into voluntary body donors, it also includes legal knowledge [8].

The study highlights the legal knowledge and attitude regarding whole body donation among the gamut of the healthcare system in India, including the healthcare assistants, whose role is crucial in bridging the lacunae between the doctor-patient relationships.

## MATERIALS AND METHODS

This was a cross-sectional study conducted from October 2017 to August 2018, at Pondicherry Institute of Medical Sciences, Pondicherry, India, among healthcare professionals who were medical graduates, postgraduates, superspecialists and healthcare assistants including staff nurses and nursing faculties. As it was designed to assess the in-depth knowledge regarding body donation among healthcare workers, anatomists, and forensic experts, who might be well-aware, were excluded.

The sample size was 150, calculated by the formula  $N = \frac{Z^2 pq}{d}$ ,  $P = 50\%$ , i.e., anticipated prevalence of adequate knowledge,  $q = 1 - p$ ,

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# Association of Anti-TPO Antibodies with Insulin Resistance and Dyslipidemia in Hashimoto's Thyroiditis: An Observational Study on South Indian Population

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## ABSTRACT

**Introduction:** Hashimoto's Thyroiditis (HT) is a frequently observed autoimmune thyroid disease and the commonest cause of hypothyroidism. Although the association of hypothyroidism with cardiovascular risk is a well-documented fact, it is still not clear as to whether thyroid autoimmunity is an independent risk factor for atherosclerosis, a cardiometabolic risk factor.

**Objective:** In this study, we attempted to elicit the probable association of Anti-Thyroid peroxidase (Anti-TPO) antibodies with cardiometabolic factors (insulin resistance and dyslipidemia) in patients.

**Methods:** In this observational study, sixty-five healthy controls and sixty-eight HT patients were enrolled. Serum concentrations of TSH, FT4, FT3, (Anti-TPO), Total Cholesterol (TC), Triglycerides (TG), HDL-Cholesterol (HDL-C), Very Low-Density Lipoprotein (VLDL), Fasting Blood Glucose (FBG) and Fasting Insulin levels were measured. LDL-Cholesterol (LDL-C), HOMA-IR and Atherogenic Index of Plasma (AIP) were calculated.

**Results:** There was a significant increase in TC, TG, LDL, VLDL, AIP, Fasting Insulin and HOMA-IR among the HT group ( $P < 0.001$ ) compared to healthy controls. Despite a significant positive correlation between Anti-TPO antibodies and TC, LDL, Fasting Insulin, HOMA-IR, Anti-TPO was found to be independently associated with AIP as revealed in Regression analysis, which unequivocally demonstrates the cardiovascular risk in HT.

**Conclusion:** The findings of the present study point to the implication of thyroid autoimmunity in insulin resistance and dyslipidemia, independent of thyroid function in patients with HT. Thus, the assessment of lipid profile variables and insulin resistance possess value in the treatment and management of HT patients.

**Key Words:** Hypothyroidism, Thyroid autoimmunity, Anti-Thyroid peroxidase antibodies, Hyperlipidemia, Insulin resistance, Cardiovascular disease risk

## INTRODUCTION

Hashimoto's Thyroiditis (HT) is a genetic autoimmune disease, characterized by the destruction of thyroid cells by cell- and antibody-mediated immune responses<sup>1</sup> and is regarded as the commonest cause of hypothyroidism. HT has a prevalence rate of 1-4% and found to be more common in women and increases with age.<sup>2,3</sup> Elevated circulating antibodies to thyroid antigens is a characteristic feature in HT patients, of which anti-thyroid peroxidase antibodies (anti-TPO) being the most specific and sensitive for the diagnosis of the

disease.<sup>2</sup> Several studies have found that hypothyroidism is associated with insulin resistance, dyslipidemia and chronic inflammation and in turn, increases the risk for atherosclerosis.<sup>4,5</sup> Though the exact mechanism of the atherosclerotic process in hypothyroidism remains to be delineated, few studies suggest the role of thyroid autoimmunity in atherosclerosis, independent of thyroid function.<sup>6-8</sup> Inflammation observed in HT may induce alterations in lipid metabolism, contributing to the increased risk of atherosclerosis.<sup>9</sup> Few studies have reported insulin resistance in hypothyroid state<sup>10,11</sup>, whereas, a few other studies failed to demonstrate the relationship.<sup>12,13</sup>

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# Cardiovascular Risk in Hashimoto's Thyroiditis: Role of Thyroid Autoimmunity

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## ABSTRACT

Hashimoto's thyroiditis (HT) is the most common autoimmune thyroid disease synonymous with hypothyroidism. The link between hypothyroidism and the risk of cardiovascular diseases is of contemporary interest. Studies have indicated the prevalence of metabolic syndrome and endothelial dysfunction in HT patients. HT *per se* might possess a role in atherosclerosis. Association of HT with dyslipidemia and chronic inflammation leading to endothelial dysfunction has been documented. However, the role of thyroid autoimmunity in promoting cardiovascular diseases remains unclear. Further studies unraveling the causal relationship between HT and cardiovascular disease would provide greater insight into the management of atherogenic complications observed in HT patients.

**Keywords:** Chronic inflammation, Dyslipidemia, Endothelial dysfunction, Hashimoto's thyroiditis.

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## INTRODUCTION

Hashimoto's thyroiditis (HT) is an autoimmune disease characterized by the destruction of thyroid cells by both cell- and antibody-mediated immune responses<sup>1</sup> and is regarded as the commonest cause of hypothyroidism. HT has a prevalence rate of 1–4%. HT is more common in women and increases with age.<sup>2,3</sup> Several studies have shown the association of hypothyroidism with dyslipidemia and chronic inflammation, which in turn enhances the risk for cardiovascular diseases.<sup>4</sup> A marked increase in low-density lipoprotein (LDL) is seen in hypothyroidism, attributed to decreased LDL receptors in the liver culminating in reduced LDL clearance.<sup>5,6</sup> Hyperlipidemia and chronic inflammation are implicated in atherosclerotic lesion formation. The levels of major inflammatory markers, such as interleukin (IL) 6, tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ), and high sensitive C-reactive protein (hs-CRP), were found to be elevated in HT patients.<sup>7</sup> Though cardiovascular risk seen in overt hypothyroidism is a well-established fact, the influence of thyroid autoimmunity in increasing the cardiovascular events independent of thyroid dysfunction still remains a conundrum. Few studies suggest a putative role of thyroid autoimmunity in atherosclerosis development independent of thyroid dysfunction. Chronic inflammation and endothelial dysfunction could be the link. Cytokines are believed to modify epithelium thereby allowing infiltration of the thyroid by immune cells: a mechanism underlying HT.<sup>8</sup> Thus, the purpose of this review is to primarily provide the discerning researchers an overall picture of cardiovascular risk seen in HT patients, which might be a great source of help in the management.

## DYSLIPIDEMIA AND HASHIMOTO'S THYROIDITIS: THE NEXUS

Dyslipidemia as observed in thyroid abnormalities is a potent risk factor of cardiovascular events among patients with abnormal thyroid function.<sup>9</sup> Studies have shown a positive association of extracellular thyroid stimulating hormone (TSH) with lipid levels in hypothyroid subjects. In a prominent study referred to as the HUNT study, the association of hypothyroidism with high blood lipids was

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observed as a linear function across the entire reference range of TSH.<sup>10</sup> Tagami et al. determined an association between serum TSH and lipid levels.<sup>11</sup> A pronounced atherosclerotic lesion has been demonstrated in children and adolescents with hypothyroidism, with an accompanying elevation in total cholesterol (TC) and LDL levels and decreased high-density lipoprotein (HDL) level.<sup>12</sup>

## Endothelial Dysfunction—An Important Point for Consideration

Whickham's study showed no association between elevated TSH and dyslipidemia.<sup>13</sup> A study by Tamer et al. also showed no discernible correlation of TSH levels with serum lipids. However, an interesting point had emerged, viz., anti-thyroperoxidase antibodies (TPOAb) have correlated positively and pronouncedly with serum triglyceride (TG).<sup>14</sup> Increased carotid intima-media thickness in HT women, independent of thyroid function has also been reported.<sup>15</sup> Subclinical hypothyroid patients are more prone to

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# Drug utilization pattern and factors associated with polypharmacy and excessive polypharmacy in geriatric medical out-patients at a rural health training centre in India

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## ABSTRACT

**Context:** Multiple chronic illnesses associated with ageing population demands the role of polypharmacy. Drug utilization study in terms of description of drug use pattern in the geriatric patients aids in monitoring polypharmacy as well as to determine the factors contributing to it. **Objectives:** To analyse the drug utilization pattern in geriatric patients at a rural health training centre. **Subjects and Methods:** A cross-sectional study was conducted in a rural health centre to assess the drug utilization pattern using the WHO core drug prescribing indicators. Polypharmacy was defined as usage of 5-8 drugs and excessive polypharmacy as intake of 10 or more drugs. The drugs were coded using Anatomical Therapeutic Chemical classification. Univariate and bivariate analysis were done using SPSS to present the data. **Results:** Among 207 patients, 29.5% were on polypharmacy and 1.5% patients on excessive polypharmacy. About 75% of patients had one or more comorbid medical condition. A total number of 829 drugs were prescribed and the average number of drugs per prescription was 4.02. **Conclusion:** The drug utilization pattern analysis in the geriatric patients reveals deviation of the average number of drugs per prescription from the WHO standard recommendation. The most common comorbid condition among the geriatric patients was diabetes mellitus. This drug utilization study imparts knowledge about the use of polypharmacy, comorbidities and the pattern of commonly used drugs among the geriatric patients in rural area. Periodic assessment of the pattern of drug utilization in the elderly aids to improve the prescribing pattern and minimize patient harm.

**Keywords:** Drug utilization, geriatrics, polypharmacy

## Introduction

Ageing is at a growing pace globally and is considered to be one of the most significant phenomena of the century. In India by the year 2050 about 12.5% of the population will be 60 years and older as outlined by the United Nations Population Fund (UNFPA) report in 2017. In relation to the health sector, ageing tends to increase the risk of development of concomitant

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## Original Research Article

### Histopathological Study of Gastric Endoscopic Biopsies

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#### Abstract

**Background:** Neoplastic and non-neoplastic Gastrointestinal tract (G.I) disorders are frequently encountered in clinical practice. Upper gastrointestinal endoscopy is a common tool for diagnosis. The common indication of upper gastrointestinal endoscopic biopsy includes odynophagia, gastroesophageal reflux and dysphagia. Endoscopic studies include biopsy for histopathological evaluation in clinically suspicious lesions. **Aims and Objectives:** To study the histopathological features in endoscopic biopsy of the gastric lesions. To study the correlation between various histopathological gastric lesions with age, sex and clinical presentation. To study the association of *H. pylori* in various gastric lesions. **Material and Methods:** The present study was done in the department of pathology and Gastroenterology in Sri Manakula Vinayagar Medical College and Hospital Pondicherry for 18 months. Detailed clinical history was taken and endoscopic biopsies were obtained from the gastric lesions. All the clinical and endoscopic findings of these cases along with diagnosis were noted down. A total of 74 cases were collected in the study period. **Results:** Average age of the patients in the present study was 46.7 years with 65% males and 35% females. The most common symptom reported by the patients in the present study was upper abdominal pain (87.8%). Non-specific gastritis was the most common diagnosis (48.7%) in the present study. *H. pylori* was the second most common diagnosis (36.5%). Adenocarcinoma, chronic gastritis and hyperplastic polyp/mucosa were diagnosed in 8.1%, 4.1% and 2.7% of the patients respectively. **Conclusion:** Our study confirms that non-specific gastritis and *H. pylori* gastritis are the most common etiologies of dyspepsia.

**Keywords:** Histopathology; Gastrointestinal; Endoscopic biopsy; *H. pylori*; Gastritis; Adenocarcinoma.

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#### Introduction

Gastrointestinal tract (G.I) disorders are frequently encountered in clinical practice.

lesions in the upper gastrointestinal tract range from mild esophagitis, gastritis, peptic ulcer disease to oesophageal, gastric and duodenal carcinomas. Endoscopic examination and biopsy is a simple,



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### Comparison of cell based and solid phase assays in detecting pre transplant donor specific antibody and impact of its results on graft outcome

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**DOI:** <https://doi.org/10.33545/pathol.2020.v3.i1a.144>

#### Abstract

**Background:** The clinical significance of positive results on more sensitive platforms available for antibody screening has been a matter of contention. This study explores the relationship of test results of Complement Dependent Cytotoxicity (CDC) crossmatch, ELISA anti HLA antibody test and Donor Specific Antibody (DSA) assay using donor lysate on the Luminex platform and their impact on graft outcome.

**Materials and Methods:** Participants included patients who underwent renal transplant over four years, in whom pre transplant screening included an initial CDC cross match, followed by final CDC cross match, ELISA and DSA screening by the Luminex on the final pre transplant serum. Relevant clinical data and results of supportive laboratory investigations were taken from HLA laboratory and computerised records.

**Results:** 126 recipients were included in the study. Pre transplant CDC positivity correlated with overall rejection episodes ( $P=0.03$ ) and the historical crossmatch Ig M/G positivity with biopsy proven rejections ( $P=0.029$ ). There was no significant correlation between pre-transplant DSA and ELISA results and rejection episodes. A comparison between DSA, ELISA and CDC showed a low association (Kappa value for DSA and CDC: -0.42; ELISA and CDC: -0.63; DSA and ELISA: +0.159).

**Conclusion:** CDC continues to have relevance in pre transplant screening. In spite of their technical advantages and superior sensitivity, the ELISA pooled antigen assay and the Luminex crossmatch do not appear to show any significant clinical advantage when used with conventional CDC.

**Keywords:** Donor specific antibody (DSA) assay, complement dependent cytotoxicity (CDC) crossmatch, anti HLA antibody test, Luminex assay, renal transplant

#### Introduction

Despite the effective immunosuppressive regimens, Chronic allograft dysfunction poses a great challenge to renal transplantation [1]. Post transplant denovo Donor Specific Antibodies (DSA) against foreign graft HLA are strongly associated with antibody mediated graft failure [2].

Pre transplant anti HLA antibodies are generally known to be deleterious for a renal graft [3]. They are responsible for hyper acute rejections, some acute (antibody mediated) rejections and are believed to play an indirect role in chronic rejections. The Complement Dependent Cytotoxicity (CDC) test has been traditionally used for screening for pre-transplant anti HLA antibodies and its outcome has been a gold standard for years to determine whether a patient may safely proceed for transplant [4]. However, many newer, more sensitive platforms are now available for antibody screening, including the ELISA and Luminex solid phase. However, the clinical significance of positive results on these more sensitive platforms when the CDC is negative, has been a matter of contention [5]. This study attempts to explore the relationship of test results of CDC crossmatch, ELISA anti HLA antibody test and DSA assay using donor lysate on the Luminex platform and their impact on graft outcome.

#### Materials and Methods

Institutional Ethics committee approval was obtained before commencing the study. Participants included patients who underwent renal transplant in our centre over four years, in whom pre transplant screening included an initial CDC cross match, followed by final

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# Role of Pleural Fluid C-Reactive Protein in the Aetiological Diagnosis of Exudative Pleural Effusion

PRAVEEN RADHAKRISHNAN<sup>1</sup>, S MATHANRAJ<sup>2</sup>

## ABSTRACT

**Introduction:** Pleural effusions, the result of the accumulation of fluid in the pleural space, are a major diagnostic problem due to its anatomical nature with no direct access. There is variation in management, depending on the pleural disease. The pleural effusion can either exhibit specific or nonspecific characteristics.

**Aim:** To determine the clinical significance and diagnostic role of pleural fluid C-Reactive Protein (CRP) level in the aetiological diagnosis of exudative pleural effusion.

**Materials and Methods:** This was a cross-sectional study performed during the study period of September 2013 to December 2014. A total of 53 Patients identified with pleural effusion were recruited in the study and pleural fluid was subjected for the measurement of CRP level. Pleural fluid CRP was assessed with CRP-Turbidex-Quantitative turbidimetric immunoassay method which is based on the principle agglutination reaction. The data was subjected to statistical analysis using Epi info software version 3.4.3. The Receiver Operating Characteristic (ROC) curve

was plotted to illustrate the diagnostic ability. The smallest cut-off value was the minimum observed test value minus 1, and the largest cut-off value was the maximum observed test value plus 1. All the other cut-off values were the averages of two consecutive ordered observed test values.

**Results:** Among the 53 patients in the study, 42 had exudative effusions (79.20%) and 11 had transudative effusions (20.80%). The common cause of exudative effusion was tuberculosis 26 (61.90%), followed by 9 malignancy (21.40%) and 7 parapneumonic effusion (16.70%). In our study, the pleural fluid CRP was statistically significant ( $p < 0.001$ ) marker to differentiate exudative effusions with CRP-value  $< 30$  suggestive of malignancy, CRP-value 30-50 mg/L suggestive of tuberculosis and CRP-value  $> 70$  mg/L suggestive of parapneumonic effusions.

**Conclusion:** Determination of pleural fluid CRP is a useful diagnostic marker for differentiating exudative and transudative effusions. Also, Pleural fluid CRP is a statistically significant marker in differentiating tubercular effusions from nontubercular exudative effusions.

**Keywords:** Parapneumonic effusions, Pulmonary tuberculosis, Thoracentesis

## INTRODUCTION

Pleural effusions are abnormal collection of fluid in the pleural space, manifested in pulmonary, pleural or extra-pulmonary disease [1]. Approximately, 0.1 to 0.2 mL/kg of fluid produced in the pleural leaves facilitates the normal pleural movements. In certain clinical conditions there might be imbalance between the production and reabsorption of this fluid which may eventually leads to pleural fluid collection. Mechanisms of pleural effusion includes increased hydrostatic pressure, decreased oncotic pressure and increased permeability in the microvascular circulation in association with increased negative pressure in the pleural space followed by separation of pleural leaves, decrease in lymphatic drainage capacity and transition from the abdomen to the thorax [2,3].

Diagnostic approaches in pleural effusion include, Radiology (conventional radiography, ultrasonography, computersized tomography), Thoracentesis (pleural fluid analysis), closed pleural biopsy and video assisted thoroscopic biopsy. Currently, Light's criteria are being used to differentiate pleural fluid into transudates and exudates. However, exudative effusions are further commonly classified into tubercular, parapneumonic and malignant effusions. As of now pleural fluid Adenosine Deaminase (ADA) is being used for differentiating tubercular effusion from other exudative effusions. There is a specified cut-off for ADA ( $> 45$  IU) to suggest tubercular effusions [4,5].

The aetiology of effusions varies according to presence or absence of tuberculosis, to achieve a specific diagnosis, more informative tests are required. Biochemical, microbiologic and cytological analyses of pleural effusion are the fundamental studies to determine the aetiology of the effusion but it is not easy to find the main cause every time. Therefore, several

biomarkers have been suggested to help in differential diagnosis. Procalcitonin, Amyloid A and CRP are well known acute-phase proteins and the results of these have lately been proposed to use for differentiation of infectious diseases from other origin of pleural effusion [6].

A number of markers are being currently tested, of which pleural fluid CRP levels have gained attention. As of now very few studies have focused on CRP levels in pleural effusion [7-9]. Increased production of this protein is triggered by cytokines, IL6, TNF and IL1, released by inflammatory cells [10]. The current research focused to determine the clinical significance and diagnostic role of pleural fluid CRP level in the aetiological diagnosis of exudative pleural effusion.

## MATERIALS AND METHODS

A cross-sectional study was performed during the period of September 2013 to December 2014 with the prior approval from the Institutional Review Board of Sri Manakula Vinayagar Medical College and Hospital, Puducherry with IEC Code No: 81/2013.

**Inclusion criteria:** The patients who presented to the pulmonary medicine OPD and were diagnosed with the presence of pulmonary infections associated with acute febrile illness, pulmonary infiltrates, purulent sputum and response to antibiotic treatment; identification of the organism in the pleural fluid; or the presence of emphysema, associated with the finding of frank pus in the pleural cavity with pleural effusion were included in the study.

**Exclusion criteria:** Patients below 10 years of age, patients in emergency ward, critically ill and patients who were not willing to participate in the study were excluded.

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## Fetomaternal trauma in instrumental deliveries - a retrospective comparative study

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### Abstract:

**Objective:** This study was undertaken to compare the fetomaternal trauma in forceps and vacuum deliveries. **Methods:** 103 forceps and 103 vacuum deliveries considered in this retrospective study. Maternal outcome is assessed in terms of episiotomy extension, vaginal tears, cervical tears, exploration and repair under anesthesia, blood transfusion, vulval hematoma, puerperal pyrexia, and maternal mortality. Fetal outcome is assessed in terms Apgar score, respiratory distress, birth asphyxia, meconium aspiration syndrome (MAS), necrotizing enterocolitis, hypoxic ischemic encephalopathy (HIE), hyperbilirubinemia, infection, duration of neonatal intensive unit (NICU) stay, birth injuries and infant mortality. **Results:** 85% of instrumental deliveries were conducted by consultants and 15% by residents. Decision to delivery interval was significantly lower in forceps compare to vacuum deliveries. Episiotomy extension and vaginal tears were significantly higher in forceps compare to vacuum. There was no significant difference in cervical tears, exploration and repair under anesthesia, blood transfusion, puerperal pyrexia, sepsis and maternal mortality. Apgar score, respiratory distress, birth asphyxia, MAS, necrotizing enterocolitis, HIE, hyperbilirubinemia, infection, duration of NICU stay and infant mortality was not significant between 2 groups. **Conclusions:** Vacuum delivery is associated with less maternal trauma compare to forceps delivery with no difference neonatal outcome. Skill training for instrumental deliveries with modern education tools, simulators and hands on training for residents is need of the hour to achieve maternal and neonatal safety. Reasonable judgment in choosing cases along with skilled operators can reduce unwarranted caesarians in second stage.

**Keywords:** Maternal outcome, neonatal outcome, respiratory distress, birth asphyxia, episiotomy extension, vaginal tears, cervical tears, 3rd degree perineal tear, complete perineal tear.

Instrumental delivery is safe option for practicing modern obstetrics in second stage of labor. It is an essential skill for practicing obstetrician to reduce maternal and neonatal morbidity in second stage. Complications of delivery and obstructed labor accounted for 9.6% of all maternal deaths worldwide<sup>1</sup>. World has seen decreasing trend in instrumental deliveries with the rise of caesarian section rate. Data from UK<sup>2</sup> stated that, the instrumental deliveries are 10% which has been constant since several years with preference to vacuum delivery. Instrumental deliveries have key role in reducing maternal and fetal morbidity but compare to developed countries it is underused in developing world. The reasons for decreasing trend are being fear of litigation, lack of skill training, availability of

Nitya R, Veena KS, Rajeswari R. Fetomaternal trauma in instrumental deliveries - a retrospective comparative study. The New Indian Journal of OBGYN. 7<sup>th</sup> September 2020. Epub Ahead of Print.



## RESEARCH ARTICLE

# Maternal and fetal complications during pregnancy and puerperium in obese women

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## ABSTRACT

**Background:** The magnitude of prevalence of obesity has been increasing in developing nations. Obesity poses risk of cardiovascular and metabolic problems for the woman and her offspring. There is paucity of data regarding complications among obese pregnant women in India, hence this study was conducted. **Objectives:** To assess complications associated during pregnancy, labor, puerperium and immediate effect on new born among obese women. **Methodology:** 110 pregnant women attending antenatal clinic in first trimester were enrolled and grouped into obese and non-obese based on BMI. Patients were observed for development of gestational hypertension, preeclampsia, GDM, mode of delivery and puerperial infection. Fetal outcome was documented in terms of APGAR scores, birth weight, NICU admission and compared between two groups. **Results:** Incidence of gestational diabetes was 14% and 2%, gestational hypertension was 8% and 0%, preeclampsia was 16% and 4% in obese and control groups respectively which were statistically significant. Obese women had 3.14 times increased risk of being induced than controls. The primary caesarean delivery rates were higher in obese group (36%) compared to controls (16%). Wound infection and wound dehiscence rates were higher in the obese women (10% and 4%) than the controls (2% and 2%). Mean birth weight of the neonate in the obese group was 3.16 kg and 2.87 kg in the controls which was statistically significant. **Conclusion:** Obesity during pregnancy has risk of developing hypertension, diabetes, induction of labor, LSCS, wound infection, delivering large babies and neonatal admissions. We recommend counseling of pregnant women to prevent such complication.

**Keywords:** Obesity, macrosomia, preeclampsia, gestational diabetes, wound infection, labor induction.

Obesity is fast growing problem worldwide. As per WHO data the worldwide prevalence of obesity nearly tripled between 1975 and 2016<sup>1</sup>. Previously, developed countries were facing the burden of obesity related health problems however now developing countries are also experiencing a rapid increase in non-communicable disease due to rise in obesity. According to National Family Health Survey of India in 2016, women who are overweight or obese (BMI  $\geq 25.0$  kg/m<sup>2</sup>) are 20.6% against 12.6% in 2005-06.<sup>2</sup> It becomes a major issue when it affects the women of reproductive age group, as obesity makes a pregnancy high risk by the increased incidence of gestation diabetes,

preeclampsia, labor induction, increased caesarean rates, post-operative morbidity, prolonged hospital stay, venous thromboembolism, anesthetic complications etc. Genetics, childhood obesity, PCOD (polycystic ovarian disease), previous pregnancy weight gain, ethnicity, eating habits are blamed for prepregnancy obesity. Complications can be minimized by life style modification and proper diet plan. Obese mothers are at increased risk of delivering babies with congenital anomalies, stillbirth, prematurity, macrosomia and increased risk of NICU (neonatal intensive care unit) admissions. In utero exposure to maternal obesity is associated with an increased risk of developing obesity and

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# Comparison of erector spinae plane block and local anaesthetic infiltration of the incision site for postoperative analgesia in percutaneous nephrolithotomy - A randomised parallel-group study

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## ABSTRACT

**Background and Aims:** Erector spinae plane block (ESPB) has been found effective in providing postoperative analgesia following a myriad of surgeries. This study was designed to evaluate the effectiveness of ultrasonography (USG) guided erector spinae plane block to provide postoperative analgesia following percutaneous nephrolithotomy (PCNL). **Methods:** This was a prospective, double-blinded, randomised parallel-group study conducted in patients undergoing PCNL. Patients in Group C (n = 33) received subcutaneous infiltration of 20 mL of 0.25% bupivacaine at the incision site and Group B (n = 33) received USG guided ESPB with 20 mL of 0.25% bupivacaine postoperatively. Numeric rating scale (NRS) scores were assessed at intervals of 30 min, 60 min, then hourly for six h, followed by four-hourly up to 24 h. The primary objective of the study was to compare postoperative pain relief using the NRS score between the two groups. Secondary objectives were to compare the analgesic requirement and to assess the incidence of complications. Normally distributed data were expressed as mean and standard deviation and analysed using Student's t-test. Data following non-normal distribution were expressed as median and interquartile range and analysed using Mann-Whitney U-test. For categorical data, the Chi-square test was used. **Results:** NRS scores were lower in Group B than Group C. There was significant prolongation in time for first analgesia in Group B (12 h) compared to Group C (30 min). There was a significant reduction in total tramadol consumption at 24 h postoperatively in the ESPB group. **Conclusion:** Ultrasound-guided ESPB is an efficacious analgesic technique with an opioid-sparing effect following PCNL.

**Key words:** Erector spinae plane block, interventional ultrasonography, percutaneous nephrolithotomy, postoperative pain

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## INTRODUCTION

Percutaneous nephrolithotomy (PCNL) is a minimally invasive surgical technique for treating complicated renal stones. It offers less morbidity, a shorter hospital stay and early recovery after surgery. Pain after PCNL is caused by dilatation of the renal capsule and the parenchymal tract and from the incision of the skin, subcutaneous tissue and muscle layer, and the presence of nephrostomy tube.<sup>[1]</sup> Intense postoperative pain and

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## Case Report

# A Lytic Lesion in Proximal Phalanx of Hand: A Case Report and Diagnostic Approach

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## Keywords

Aneurysmal bone cyst · Lytic lesion · Phalanx · Curettage

## Abstract

Lytic lesions arising in the hand can be confused with an enchondroma. Enchondroma is the most common tumor of the hand and can present with varied features. It often requires only observation. A dilemma arises when surgically treatable lesions like aneurysmal bone cyst (ABC) present in uncommon locations like the hand. To diagnose a lytic lesion in the hand, percutaneous biopsy is commonly done. But, percutaneous biopsy is unnecessary in enchondroma and may not be useful in conditions like simple bone cyst and ABC. In such situations, magnetic resonance imaging (MRI) can differentiate between the most frequent benign lesions of the hand thereby reducing the need for invasive procedures. We present a 25-year-old lady who presented with a painless right index finger swelling for the past 6 months. Radiographs revealed a lytic expansile lesion in the proximal phalanx of the hand. MRI showed multiple fluid-fluid levels. Curettage and autologous iliac crest bone grafting was done. Histopathology confirmed the diagnosis of an ABC. The patient was followed up for 12 months without any recurrence. We briefly review the paucity of literature on the diagnostic approach to benign lytic lesions of the hand.

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## Introduction

Tumors of the hand are mostly benign painless lesions. Enchondromas are the most common primary bone tumors of the hand, comprising up to 70–90% of cases [1, 2]. Aneurysmal bone cysts (ABCs) are commonly found in long bones [3]. Atypical presentation

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## Beaded Lips – An Atypical Presentation of Lupus Vulgaris

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### Abstract

Lupus vulgaris is the most common form of cutaneous tuberculosis in tropical countries. It can occur as a result of direct inoculation, lymphatic spread, contiguous spread from underlying focus or rarely hematogenously from infective focus. It has diverse clinical presentations. The authors present an atypical presentation of lupus vulgaris involving the lip and discuss about the differential diagnosis of persistent swelling of lips.

**Key words** – Cutaneous tuberculosis, Lupus vulgaris, Persistent lip swelling

### Case report

A 41-year-old Indian woman presented with infiltrated swelling of the lower lip and multiple small erythematous beaded papules over the lower vermilion border for 6 months (Figure 1). The patient was asymptomatic except for mild burning sensation of the lower lip. On palpation, the lesions were non-tender and soft-to-firm in consistency. Her past and family medical history was not remarkable. There was no history of injections in lips. The tuberculin test was strongly positive with a reading of 22mm \* 20 mm induration at 48 hours (Figure 2).

The tissue smear revealed a few acid fast bacillus (AFB) (Figure 3). The histopathological examination revealed multiple well-formed epithelioid granulomas containing Langhans giant cells surrounded by dense lymphocytic infiltrates, in the dermis (Figure 4). Her chest radiograph and computerized tomography (CT) scan of chest was normal, and sputum examination for AFB was negative. The AFB culture of the tissue specimen was negative. Based on the clinical features and investigations, a diagnosis of lupus vulgaris was made, and the patient was started on antituberculous



Original Research



# Design, Implementation, and Evaluation of Student-centric learning in Physiology

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## Abstract

**Background:** The quality of teaching and learning in health education determines the competency of doctors produced and ultimately the patient care. Realizing the necessity of active learning at the undergraduate level, curricular reforms are crucial to ensure that students play an active role in their learning process and absorb the prerequisite qualities of a competent health professional. The current study aimed to implement and evaluate case-based learning in a physiology curriculum.

**Methods:** The study included 150 first-year MBBS students using a mixed methods research design. A short lecture on anemia was followed by two sessions of case-based learning with a gap of one week. A structured questionnaire using a 5-point Likert scale was used to collect students' perceptions. The internal consistency of the questionnaire had a Cronbach's alpha of 0.8. Faculty feedback was collected using a Focus Group Discussion.

**Results:** Of 145 participants, 117 provided feedback. Students perceived that the case-based learning method promoted meaningful learning (83%); helped in the future application of knowledge (81%); helped to understand physiology concepts better (72%); improved student-teacher relationships (72%); was effective in understanding the anemia topic (71%); led to the development of problem-solving abilities (70%); encouraged teamwork (69%); motivated self-directed learning (66%); and improved communication skills (65%). Faculty members suggested developing an assessment plan for future case-based learning sessions.

**Conclusion:** According to student and faculty feedback, case-based learning is an effective, active teaching-learning tool that improves students' understanding of basic concepts, clinical knowledge, problem-solving abilities, teamwork, communication skills, student-teacher relationship, and self-directed learning.

## Introduction

"Progress is impossible without change, and those who cannot change their minds cannot change anything"-George Bernard Shaw.

The journey of life itself, from conception to culmination, is the best example of change. The process of education - acquiring knowledge, skills, values, morals, and how these are acquired - has also seen profound changes over the centuries in its structure, understanding, and delivery. The purpose of medical education in India and in every other country is to train skilled health professionals who would serve society diligently to prevent the development of disease, cure illnesses, and promote the well-being of humanity.<sup>1</sup> The quality of teaching and learning in health education determines the competency of doctors

produced and ultimately the patient care.

Most medical colleges in India teach basic sciences in 1st-year MBBS using traditional methods, where a curriculum decided by universities and higher governing bodies is delivered to students via lectures and practical sessions.<sup>1,2</sup> The traditional style of teaching is often not well-received by the new generation of students who feel that it is boring and less interactive and is teacher-oriented. This method of teaching and learning is teacher-centered with minimal active participation from students. There is a widespread belief among medical educators throughout the world that lecture-based teaching alone is insufficient to address the needs of all learners and is not ideal for teaching higher-order cognitive skills, such as synthesis, analysis, and application, which are critical for medical

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## Original Research Article

# Epidemiology of urinary candidiasis and antifungal susceptibility pattern of various *Candida* species at a rural tertiary health care centre of Puducherry, South India- An observational study

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## ABSTRACT

**Introduction:** Urinary tract infection (UTI) is a common health problem across the globe. Although majority of them are bacterial in origin, there has been an increasing trend in the incidence of UTI due to the yeast like fungi, *Candida*. UTI due to *Candida* species are in large proportion nosocomially acquired and of growing concern is the development of resistance to the commonly used azole group of drugs for their treatment. Since the resistance is more commonly reported among non- albicans *Candida* species, routine species identification and antifungal susceptibility testing is crucial for successful clinical outcomes.

**Aims and Objectives:** This study was conducted to analyse the distribution and risk factors associated with Urinary candidiasis and also to determine the resistance patterns of different *Candida* species to various antifungal agents using phenotypic methods.

**Materials and Methods:** A hospital based observational study was conducted from September 2016 to December 2017 on patients presenting with symptomatic UTI. *Candida* isolates were speciated using phenotypic methods like germ tube test and growth character on chromagar *candida*. Antifungal susceptibility to fluconazole, voriconazole, ketoconazole and amphotericin B were determined using disc diffusion method.

**Statistical Analysis:** All data were analyzed using EpiData Analysis software version 2.2.2.186.

**Results:** A total of 101 *Candida* species were isolated. The incidence of Urinary candidiasis was more among females (66.4%) than in males (33.6%). People above 50 years (38.6%) were commonly affected followed by people in the age group of 21-30 years (22.7%). The incidence among hospitalized patients was 86.7% and urinary catheterization (43.5%) was the most commonly associated risk factor. The most common isolates were *Candida tropicalis* (31.6%) followed by *Candida albicans* (21.7%). The overall resistance patterns among various *Candida* species were 50.5%, 32.7%, 19.9% and 2% for fluconazole, ketoconazole, voriconazole and amphotericin B respectively.

**Conclusion:** Hospitalization and urinary catheterization are the important risk factors for developing urinary candidiasis. The antifungal susceptibility varies among different *Candida* species and hence, identification of *Candida* to species level along with antifungal susceptibility testing should be practiced as a routine in all clinical mycology laboratories.

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## 1. Introduction

*Candida* is yeast like fungi consisting of more than 150 species which can cause a range of infections from

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## Case Report

## Experience of type 2 diabetes mellitus patients during COVID-19

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## ABSTRACT

Peoples with Non communicable diseases (NCD) such as diabetes mellitus (DM), hypertension (HT), cardiovascular diseases (CVD) and obesity are at higher risk of infection and mortality from COVID-19. Even though the reasons behind the increased risk of infection among type 2 DM patients have not been determined. The possible reasons could be high glucose levels, inflammation, impaired coagulation, obesity, CVD and hypertension. The pandemic has led to severe restrictions of movements of human beings and lockdown across the country. Lockdown during COVID-19 also have impact in type 2 diabetes mellitus patients requiring medication and routine physical activity. The stress, development of complications of chronic diseases, locked in experience, fear of dying and loneliness in hospital. All these issues suggest that mental health of the diabetes patient is being affected enormously. In this report, we discussed the experience of three patients with diabetes mellitus and among them two acquired COVID-19 and admitted to the COVID ward.

**Keywords:** COVID-19, Diabetes, Experiences

## INTRODUCTION

Diabetes mellitus is an important non-communicable disease causing morbidity and mortality.<sup>1</sup> One of the major morbidity in diabetes mellitus is immunosuppression and the resulting infections.<sup>2</sup> Diabetic patients have an increased risk of respiratory infections including influenza and pneumococci.<sup>3-5</sup> The prevalence of diabetes mellitus in India is 5 percentage.<sup>6</sup> Diabetes is a risk factor contributing to increased mortality and morbidity. Danger of severity of COVID 19 and mortality are more for diabetes patients which accounts for 14.5 percentage.<sup>7</sup> Since there are limited knowledge on COVID-19 in diabetes patients in our country, awareness needs to be created to combat the health situation and health system need to be strengthened to protect the mental health of the patients. This study helps us to explore the experience of diabetes mellitus patients during COVID-19.

## CASE REPORT

**Experience:** "A struggle of middle-aged women to maintain her blood sugar level"

54 years old female, a homemaker, was a known case of type 2 diabetes mellitus for past 16 years. As reported by her, she also has other co morbidities like hypertension, bronchial asthma for past 10 years. She was on regular medication for all the illness. She claims that two years ago, she had fluctuation in her blood sugar level and her HbA1c was above eight. She was prescribed pioglitazones as anti-diabetic medication. She also experienced side effects of the drugs such as vaginal itching and dryness of skin. Since her blood sugar levels was not under control and she refuses to take insulin, her only option was oral anti diabetic drugs. Then she started brisk walking and diet control and her blood sugar level were coming back to near normal. Before the start of this

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## Polymorphous Light Eruption- An Indian Scenario

### Abstract

Polymorphous light eruption (PMLE) is the most common, idiopathic, acquired photodermatosis, characterized by abnormal, recurrent, and delayed reaction to sunlight. Polymorphous light eruption is common worldwide but the morphology, distribution, and pigmentary changes are unique in Indian skin which is discussed in this review. The prevalence of PMLE is around 10–20% in the general population. It commonly occurs in females between 20 and 30 years of age. It is the most common photodermatosis in school-going children. Visible light sensitivity is an important phenomenon in PMLE. It typically presents as recurrent and chronic lesions over photoexposed sites. Initially, patchy erythema occurs with pruritus. Most of the Indians belong to type IV to type VI skin and pigmentary changes are commonly seen. The unique feature of PMLE in Indian skin is the pigmentary change which varies from hypopigmented to hyperpigmented lesions. These pigmentary changes may occur alone or in combination with erythematous or skin-colored lesions. The pigmentary lesions are seen in more than 50% of lesions. The histopathology of PMLE is characterized by the presence of hyperkeratosis, spongiosis with or without the presence of liquefactive degeneration in the epidermis. Dermal changes in the upper and mid dermis include the presence of dense perivascular lymphocytic infiltrate. The management of PMLE includes both preventive measures and medical management. Topical sunscreens, topical steroids, hydroxychloroquine and antioxidants play a very important role.

**Keywords:** Hydroxychloroquine, Indian, pigmentary changes, polymorphous light eruption

### Polymorphous light eruption- an Indian Scenario

Polymorphous light eruption (PMLE) is the most common, idiopathic, acquired photodermatosis, characterized by abnormal, recurrent, and delayed reaction to sunlight. It is an immunologically mediated disease that occurs due to delayed hypersensitivity reactions.<sup>[1-4]</sup> It is commonly known as “sunrash” and referred to as “sunallergy” by the patients even though there is no real allergy associated with its pathogenesis.<sup>[5]</sup> It was first described by Robert Willan in 1817 as “eczema solare.” The term “polymorphous light eruption” was coined by Carl Raschin in 1990 and was again described as a common term for prurigo aestivalis and eczema solare by Haxthausen in 1919.<sup>[6]</sup> It is also referred to as dermatographia photogenica, erythema perstans solare, and prurigo aestivalis.<sup>[7]</sup> Polymorphous light eruption is common worldwide but the morphology, distribution, and pigmentary changes are unique in Indian skin which is discussed

in this review. Further, the treatment modalities and the role of sunscreens in Indian context is also discussed.

### Epidemiology

The prevalence of PMLE is around 10–20% in the general population<sup>[8]</sup> with females between 20 and 30 years of age<sup>[6]</sup> and school-going children affected more commonly. PMLE frequently occurs in temperate climates due to a greater proportion of UVA to UVB in these regions. Though the disease is said to be more common in temperate regions, the prevalence of PMLE in India is similar to that reported in the world.<sup>[9]</sup> The proportion of cases varies between 2% and 13.5% across different areas in India.<sup>[10-17]</sup> Most of these studies are hospital-based and may not represent the community prevalence. This probably is an underestimate of the real prevalence.

In Indian studies, a female preponderance was noted. The disease is seen in people who indulge in outdoor activities such as farmers and laborers. In certain studies,

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Research Article

## Study on the Role of Non Penetrating Titanium Clips in Dural Repair

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### Abstract

**Study design:** A Prospective study.

clips in Dural repair surgeries.

**Objective:** Dural injuries (Durotomy) are a common complication often seen in spine surgeries. Primary repair of dura using conventional techniques with sutures (silk or prolene) is considered gold standard in management.

**Overview of Literature:** The use of Non-penetrating Titanium clips as an alternate for the sutures in Dural closure has been described in literatures. The surgical use of titanium clips alone for the primary repair of dura in spine surgeries is yet to be substantiated. Aim of this study is to assess the role of non-penetrating Titanium

**Methods:** This is a study conducted from November 2017 to July 2019 involving a total of hundred forty one spine patients. Thirty seven patients who had undergone spinal epidural steroid injections and scoliosis surgeries were excluded from the study. Of the hundred and four cases, fifteen cases had undergone Dural repair. Non-penetrating Titanium clips were applied in five of the cases.

**Results:** Among the five cases, three were female and two male patients. Three cases undergone spinal decompression and fusion, one case of microdiscectomy