PSG Institute of Medical Sciences &Research, Coimbatore

Association of Physiologists Tamil Nadu

Department of Physiology

Under the Aegis of
Association of Physiologists of Tamilnadu

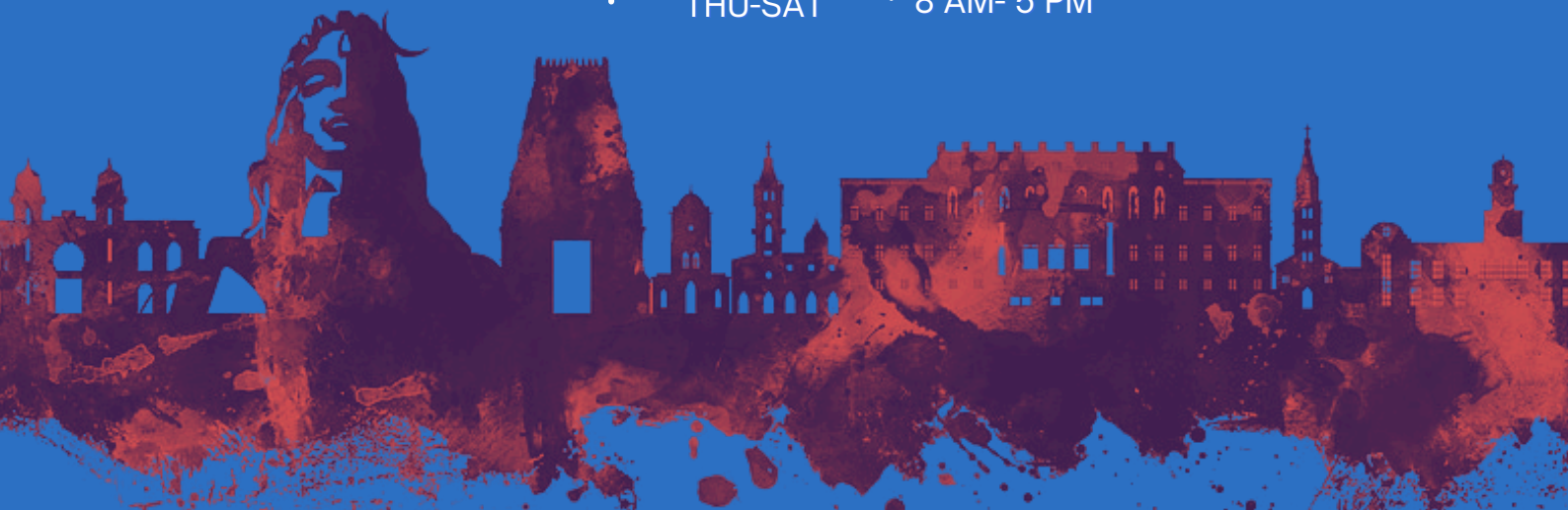
Presents

SanaVitaCon '24

Unveiling the Biopsychosocial Dimensions of Cardiovascular Physiology

OCT | 03–05 | 2024

THU-SAT | 8 AM- 5 PM



Message from the Principal

It is with great pleasure that I note the Department of Physiology at PSG Institute of Medical Sciences and Research is hosting the Tamil Nadu chapter meeting of the National Conference of the Association of Physiologists in October 2024.

The timely theme, "Unveiling the Biopsychosocial Dimensions of Cardiovascular Physiology," addresses the critical intersection of lifestyle medicine and cardiovascular health.

This conference promises to be an enriching experience for postgraduates, senior physiologists, and faculty members alike. The diverse lineup of specialists from cardiovascular sciences ensures a comprehensive exploration of the field.

The pre-conference workshop on Metabolic Syndrome is a standout opportunity for in-depth understanding.

I extend my best wishes for a highly successful conference!

Dr. T M SubbaRao
Principal, PSG IMS&R

From the Desk of Organising secretary

Dear delegates,

It is with great pleasure and excitement we, Department of Physiology, PSG Institute of Medical Sciences and Research, Coimbatore is organizing the Annual National Conference of Association of Physiologists, Tamilnadu which will be held from 3 rd -5 th October 2024. This year's conference is focused on lifestyle medicine and cardiovascular health We are thrilled to bring together distinguished speakers, researchers and professionals across the country to share their insights, innovations and research experiences.

Our organizing committee has worked tirelessly to create a program that encompasses a wide range of topics, which includes the six pillars of lifestyle medicine namely nutrition, physical activity, stress management, avoidance of risky substances, restorative sleep and social connections. Lifestyle medicine is an evidence-based approach that focuses on the lifestyle interventions which will prevent, treat, and often reverse chronic diseases, mainly cardiovascular diseases (CVDs). Cardiovascular health is greatly influenced by lifestyle factors, and adopting healthy habits can significantly reduce the risk of heart disease and related conditions.

We are confident that this conference will provide a platform for thought-provoking discussions, networking opportunities and the exchange of knowledge that will contribute to advancements in our respective fields.We have curated a diverse program, including keynote presentations, panel discussions, workshop and interactive sessions, to provide an engaging learning platform.

I am confident that the knowledge shared and the discussions sparked here will not only contribute to the evolution of clinical practices but also inspire new pathways for research and collaboration. I am deeply grateful to our esteemed speakers, sponsors and my colleagues for their dedication and hard work in making this event possible. We invite you to explore this e-brochure, which contains all the information about the conference, including the schedule, synopsis of the talks, and abstracts of faculty, postgraduates and undergraduates paper presentations

Thank you

Dr. K.Deepalakshmi
Organising secretary
Sanvitancon- 24
Professor and Head
Department of physiology
PSGIMS&R
Coimbatore

Message from the President of Association of Physiologist of Tamilnadu

Dear Delegates

I am immensely pleased and privileged to share my thoughts on Sana Vitacon'24, the annual

conference of the Association of Physiologists of Tamilnadu. At the outset I would like to thank and congratulate, Dr.K.Deepalakshmi and the department of Physiology, PSGMSR, for the meticulous planning and execution of the conference under the APT banner. The APT has made rapid strides in academics with the conduct of conferences, UG & PG quizzes, innovative teaching learning programs and CME's since its inception.

The theme of Sana Vitacon'24 – unveiling the Biopsychosocial Dimensions of Cardiovascular Physiology assumes significance in today's Competency based medical education and holistic patient care. The theme rings well with both UG and PG medical education which is focused on context and outcomes. Current medical practice necessitates the decoding of multiple diverse factors that operate in the manifestation of disease apart from medical causes. Lifestyle disorders, stress, environmental change, changing societal and family norms have added complex dimensions to illness and challenges to medical practice in today's world. Cardiovascular disorders being the number one cause of morbidity and mortality worldwide, it is vital to apply the biopsychosocial model for management of the same.

Physiology the mother of all medical sciences blends effortlessly with every applied aspect of medicine. The etiopathogenesis, clinical manifestations and therapeutics of any disease has a solid physiological basis and it is therefore imperative for any medical practitioner to comprehend the physiological basis to achieve satisfactory patient care outcomes. In these advanced times of inter-professional education and health care, I congratulate the organizers for bringing together various experts under the aegis of Sana Vitacon'24 to take us through a wholesome understanding on the biopsychosocial aspects of cardiovascular disorders.

I once again congratulate the organisers for their passion and commitment towards the

conduct of Sana Vitacon'24 and wish all delegates an enjoyable learning experience.

Dr Dilara.K MD,FAIMER

President, APT

From the Desk of the General Secretary

It is with immense pleasure and pride that I extend a warm welcome to each one of you at our annual conference of Association of Physiologists of Tamilnadu, Sana Vita Con '24 at PSGIMSR. As the General Secretary of our association, I am honoured to write for the e-brochure of the Conference.

This conference is themed to reflect on the intricate interplay between biological systems and cardiovascular health, emphasizing how our understanding can lead to innovative clinical practices and improved patient outcomes. The complexity of cardiovascular physiology necessitates an interdisciplinary approach. This conference poses a venue for such collaboration by having cardiologists, physiologists, endocrinologists, psychiatrists, life style medicine experts, physical medicine, and rehabilitation experts as key speakers for various integrated topics. I am sure, the scientific sessions can foster a deeper understanding of the multifaceted nature of cardiovascular health.

I wish the organizing team of Sana Vita Con '24 my hearty congratulations for conceiving, planning and conduct of this big event. I wish the delegates a memorable learning experience and Sana Vita Con '24, a roaring success.

Dr. M.Anbarasi
General Secretary, APT
Professor and Head, Department of Physiology
Chettinad Hospital and Research Institute, Kelambakkam.

PROGRAMME SCHEDULE

PROGRAMME SCHEDULE

04-Oct-2024, Friday

Time	Topic	Mode	Speaker
8.00 AM-8.30 AM	Registration		
8.30 AM-9.15 AM	Measurement of Blood Pressure Variability using our Patented Instrument CMCNIBP	Interactive Lecture	Dr. Sathya Subramani Senior Professor, Dept. of Physiology, CMC Vellore
9.15 AM– 10.00 AM	Harnessing Autonomic Modulation for Cardiovascular Fitness	Interactive Lecture	Dr. K.N Maruthy Professor & HOD Dept. of Physiology, MVJ Medical College, Bangalore
10.00 AM– 10.30AM	Inauguration		
10.30 AM- 10.45AM	Tea Break		
10.45 PM–12.30 PM	Exploring TriMethylamine N-oxide (TMAO)'s role in Cardiovascular Disease	Dialogue	Dr G Rajendiran Professor and HOD, Preventive Cardiology, PSGIMSR, Coimbatore Dr. K Suvetha Professor of Community Medicine, PSGIMSR , Coimbatore
12.30 PM – 1.30 PM	Lunch		
1.30 PM – 3.00 PM	General Body Meeting		
3.00 PM - 5.00 PM	Presentations (UG,PG & Faculty)		

7:00 PM Culturals and Gala Dinner

PROGRAMME SCHEDULE

05-Oct-2024, Saturday

Time	Topic	Mode	Speaker
8.00 AM-10.00 AM	Proactive Approach in Detecting and Managing subclinical AtheroscLerosis in early Phase	Case Presentation	Dr. Jaideep C Menon Professor, Adult Cardiology & Public Health, Associate Dean of Research, Amirtha Institute of Medical Sciences, Cochin Dr. S Vidhya Assistant Professor, Department of Physiology , PSGIMSR, Coimbatore
10.00 AM-10.45 AM	Gendered Heart Health: Unique Risks and Treatment Strategies in Women with Coronary Artery Disease	Interactive Lecture	Dr V Vanajakshamma Professor of Cardiology, Sri Venkateswara Institute of Medical Sciences, Tirupati
10.45 AM-11.00 AM	Tea Break		
11.00AM– 11.45 AM	Clinical Integration of Exercise for Cardiovascular Disease Management	Interactive Lecture	Dr. V Ramamoorthy Professor and Head , Department of Physical Medicine and Rehabilitation, PSGIMSR, Coimbatore
11.45AM- 1.00 PM	The Link Between Endothelial Function and Cardiovascular Disease	Panel Discussion	Dr. D Srinivasan Dr. V Ramamoorthy Dr. G Rajendiran Dr. K Suvetha Dr. Thiagarajan T Moderator: Dr. K Deepalakshmi
1.00 PM-1.45 PM	Lunch		
1.45 PM-2.15 PM	Stress and Adaptation in Cardiovascular Function: A Physiological Perspective	Interactive Lecture	Dr. Vijayabaskaran S Associate Professor, Dept. of Physiology, PSGIMSR , Coimbatore
2.15 PM-3.00 PM	Untangling the Nexus of Psychosocial Stress and Cardiovascular Health	Interactive Lecture	Dr. D Srinivasan Senior Psychiatrist, KMCH, Coimbatore
3.00 PM- 4.30 PM	Presentations (UG,PG & Faculty)		
4.30 PM– 5.00 PM	Valedictory Function		

Synopses of the Plenary Sessions

Pre- Conference workshop on Metabolic Syndrome and Lifestyle Modifications

Dr T THIAGARAJAN

Introduction: Metabolic Syndrome is an accumulation of several disorders that raise the risk of atherosclerotic cardiovascular disease including myocardial infarction, cerebrovascular accidents, peripheral vascular diseases, insulin resistance, and type II diabetes mellitus.

Definition: The components that define Metabolic Syndrome are central obesity – Waist circumference >100 cm in men and 90 cm in women, insulin resistance – fasting glucose of 100 mg/dl or greater, hypertension–Systolic blood pressure 130 mm Hg or higher or diastolic BP > 85 mm Hg, and atherogenic dyslipidemia (elevated triglycerides>150 mg/dl and low HDL<40 mg/dl in men or <50 mg/dl in women). Presence of three or more of these components are needed for the diagnosis.

Etiology: Metabolic Syndrome had multifactorial causes including genetic predisposition, environmental and lifestyle factors like obesity, lack of physical activity, and unhealthy dietary habits.

Epidemiology: The global rise in obesity has led to the surge in the prevalence of metabolic syndrome. The rates in India are at least similar if not more than the prevalence rate in Europe or Unites states despite having a lower rate of obesity. The prevalence in children also is increasing. Paradoxically children in low income countries such as ours have a higher prevalence of metabolic syndrome. The prevalence increases with age and there are sex differences in certain ethnicities.

Pathophysiology: The main underlying problem is the accumulation of adipose tissue in the visceral compartments leading to insulin resistance. Calorie excess with underlying insulin resistance leads to ectopic adipose tissue build up. Insulin resistance can be acquired or due to genetic predisposition. Besides genetic factors, epigenetic mechanisms influenced by environmental factors in fetal and early postnatal period also contribute to the development of metabolic syndrome. Maternal nutritional status, lifestyle, intrauterine and postnatal nutrition also play important role in the pathogenesis of development of metabolic syndrome.

A low level chronic inflammatory state and increased free fatty acids lead to hypertension, prothrombotic state.

Multi System Effects/consequences of metabolic syndrome – Microvascular damage, endothelial dysfunction, vascular resistance, hypertension and vessel wall inflammation. Hypertension and Dyslipidemia further lead to atherosclerosis, ischemic heart disease, peripheral arterial disease, cardiomyopathy and renal impairment.

Screening– People with family history of premature Atherosclerotic Cardiovascular Diseases, and/or found to have any one component of the metabolic syndrome should be screened
Evaluation - History, physical exam, laboratory findings. Evaluate for end organ damage.

Management
Life Style Modifications – A healthy lifestyle is an effective way of treating the risk factors and associated cardiovascular complications.
Weight loss - A 7 to 10% reduction in body weight over 12 months is recommended.
Behavioral Changes - Avoid tobacco, good sleep hygiene, and reduce alcohol consumption.
Social support and management of psychosocial stressors. CPAP for sleep apnea.
Diet – Rich in vegetables, fruits, legumes, whole grains, and nuts is recommended. Avoid processed foods, refined carbohydrates, saturated fat and high sodium food.
Exercise – 150 minutes of moderate intensity or 70 minutes of high intensity physical exercise
Pharmacotherapy – For Hypertension, Dyslipidemia and Insulin resistance.
Emerging Research Findings – Role of Leptin resistance, mitochondrial stress, reactive oxygen species, hyperhomocysteinemia, vascular stiffening and microalbuminuria.
Conclusions – Metabolic Syndrome adversely affects the health of an individual and needs an interprofessional team of dieticians, physical therapists, social workers, clinical psychologists, and physicians of various specialties such as Cardiology and Endocrinology to manage it effectively.

Comparison of Blood pressure ranges estimated using CMCNIBP with simultaneous estimates from intra-arterial pressure recording

Dr. Sathya Subramani
Senior Professor, Dept. of Physiology, CMC Vellore

Comparison of Blood pressure ranges estimated using CMCNIBP with simultaneous estimates from intra-arterial pressure recording

Dr. Sathya Subramani

We have developed a non-invasive instrument (CMCNIBP) to record the whole range of systolic and diastolic pressures in an individual over a few minutes. We have acquired Indian, US, and European patents for the same [1].

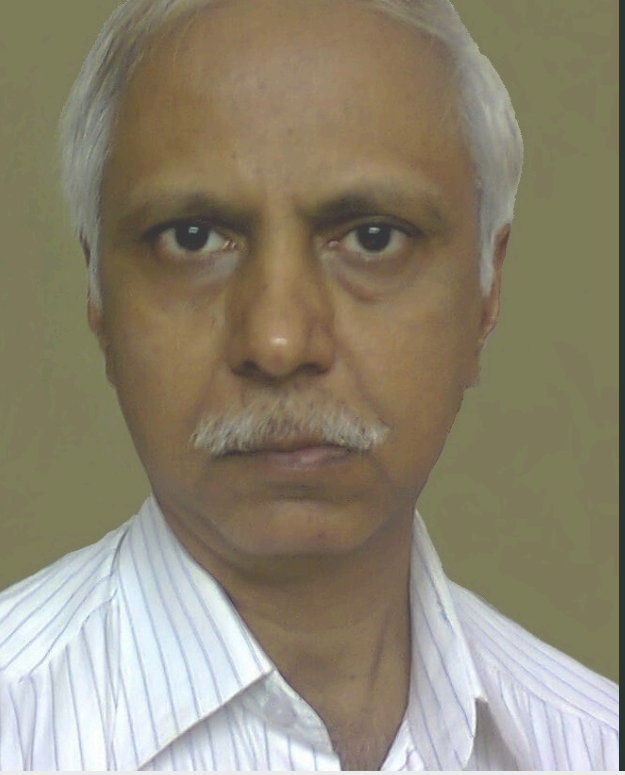
BPV is gaining importance as a risk predictor [3,4]. A review by Mena et al, [5] stresses the importance of BPV per se as an independent risk predictor for target organ damage (TOD), after adjusting for absolute systolic pressures. Though 24-hour variability is suggested to be an independent risk factor for TOD and many practitioners use 24-hour Ambulatory Blood Pressure Variability (ABPV) for treatment decisions, it has been opined that more evidence is required regarding the usefulness of BPV in predicting organ damage. More evidence is also required to associate the reduction in BPV (with certain drugs) with reversal of organ damage [7]. The paucity of evidence in relation to BPV and TOD, in our opinion, is due to a lack of reliable methods to estimate BPV. The lack of instrumentation for measuring BPV quickly in a non-invasive manner has precluded the use of BPV in the management of hypertension. Also, there is insufficient evidence to show if BPV can be reduced with drugs, lifestyle changes, etc., and if such reduction of BPV will reduce morbidity and mortality. This again is attributable to a lack of instrumentation to measure BPV reliably and quickly.

Current cuff-based methods of BP measurement employed in the clinic, both sphygmomanometry and Oscillometry, provide only single-point estimates of systolic and diastolic pressures and not the whole range.

We have developed a non-invasive instrument (CMCNIBP) to record the whole range of systolic and diastolic pressures in an individual over a few minutes (i.e., US-BPV).

We hypothesize that US-BPV estimated with CMCNIBP may be a better predictor of risk than 24-hour ABPV which is the current norm for measuring BPV (Clinical studies to test this hypothesis have just begun). The invention can open up wide avenues of research leading to incorporation of the concept of BPV into routine clinical work.

In my presentation, I shall discuss the methodology of BP estimation with CMCNIBP. I will also present the results of a study done on 26 subjects in ICU, (who had intra-arterial catheters for direct BP recording) in whom Blood pressure ranges were also estimated with CMCNIBP. The ranges for systolic and diastolic pressures obtained with CMCNIBP were compared with data from intra-arterial pressure recordings done over the same period. The comparison will enable you to judge if the variability that is estimated by CMCNIBP corresponds to intra-arterial measurements.



Harnessing Autonomic Modulation for Cardiovascular Fitness.

Dr K N Maruthy
Professor & HOD
Dept. of Physiology,
MVJ Medical College, Bangalore

Autonomic function was assessed to predict cardiovascular fitness using some of the standardised test like heart rate response to supine and standing posture, deep breathing, valsalva manoeuvre, cold pressor test and blood pressure response to hand grip as per Ewings battery of tests.

This was declaredin1988, by the American Diabetes Associationand the American Academy of Neurology. Presently all this has been replaced by short or long term recording of ECG toanalyze Heart rate variability spectral analysis (HRV)by considersing RR interval of the ECG.

Heart rate recovery was another method which was used to check sympatho-vagal balanceinrespose to exercise, there were conflicting results

Though HRV is used world wide as a gold standard test for autonomic function evaluation in various conditions like diabetic neuropathy, cardiovascular autonomic neuropathy we will not be able to get pure sympathetic and parasympathetic balance of autonomic function. In this regard DynamicPupillometry using Infra Red videography, a novel non-invasive technique is widely used to assess the balanceof both branches of the autonomic nervoussystem (ANS),based on the fact that the size andreaction of the human pupil are under the antagonisticaction of the parasympathetic nervous system(ParN) and the sympathetic nervous system(SNS). Time taken to perform the Dynamic pupillometry is less than a minute which makes it suitable as a screening tool for large number of people for cardiac autonomic dysfunction.

Key words: HRV, Sympatho vagal balance, Dynamic pupillometry

Exploring TriMethylamineN-oxide(TMAO)'s role in Cardiovascular disease

Dr. G. Rajendiran MD,DM
Professor and HOD,
Preventive Cardiology,
PSGIMSR, Coimbatore

Dr. K. Suvetha MD, MHPE
Professor of Community Medicine,
PSGIMSR , Coimbatore

Cardiovascular disease(CVD) continues to evade modern methods of controlling it and remain as a predominant cause of mortality globally. More than 50% of CVD patients do not have identifiable or conventional risk factor .The search for additional and addressable risk factors is ever on. The axiom "we are what we eat" is gaining weightage in this background. Dietary habits have been garnering attention again, but for a different reason. Our food has been shown to alter gut microbiota and microbe generated metabolites have started attracting attention all over as etiology and treatment options in atherosclerotic diseases and some chronic diseases. TMAO is the commonly studied metabolite. Literature review suggests a significant correlation between CV risk and mortality with increasing plasma levels of TMAO . Trimethylamine N-oxide (TMAO) is a tiny organic compound with a molecular weight of 75.10966 g/mol .TMAO precursors are mainly choline, phosphatidyl choline, carnitine, betaine, creatinine and lecithin , all of them are predominantly from animal sources .

Generation of TMAO is a two -step process. a) Food rich in choline and carnitine are acted upon by TMA lyase , an enzyme generated by gut microbes to form TMA. b) Part of the circulating TMA is oxidized to TMAO by hepatic FMOs, especially FMO3. Diet plays a critical role in the TMAO levels by two routes .First mechanism is by reducing the FMO3 activity (eg, cruciferous vegetables). The other mechanism is by altering the gut microbiota. Western diet consumers produce around 50 mg of TMA per day, 95 % of this is converted to TMAO.

In normal healthy individuals , plasma TMAO level is in the range of 0.5-5 mmol/L . Quest diagnostics laboratory which forms the base of the Cleveland heart lab classifies the levels into low (<6.2 mmol/L) ,moderate (6.2-9.9 mmol/L) and high (>10 mmol/L)

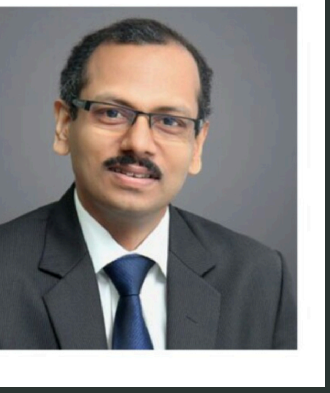
Common methods to estimate TMAO are liquid chromatography mass spectrometry (LC-MS),(mainly stable isotope dilution high performance liquid chromatography with electrospray ionization tandem mass spectrometry (DIS-HPLC-SM/SM), proton nuclear magnetic resonance spectrometry (1H-NMR), headspace gas chromatography (GC) and matrix-assisted desorption/ionization time-of-flight mass spectrometry (MALDI-TOF-MS).

TMAO plays a role in vascular diseases , malignancies and a series of other chronic diseases through multiple pathways.1 TMAO promotes atherosclerosis mainly by modulating cholesterol and sterol metabolism. TMAO and its precursors suppress reverse cholesterol transport .(RCT).2) TMAO promotes vascular inflammation and oxidative stress as exemplified by the increase in proinflammatory monocytes with increasing TMAO levels.3) TMAO promotes thrombosis by multiple mechanisms like angiotensin II , increasing platelet reactivity .4) TMAO has a role to play in endothelial dysfunction too by inhibitingeNOS expression and activity and bringing down nitric oxide production.

In human clinical studies, elevated TMAO levels were associated with increased risk of atherosclerosis and CVD as well as with increased risk of all cause mortality and MACCE . Framingham cohort with increased TMAO levels and normal renal function showed increased risk of CKD at followup. Elevated plasma TMAO levels were reported in patients with poor prognosis who hadcoronary angioplasty due to acute coronary syndromes. Elevated TMAO predicted stroke over a 3- year period apart from CVD. These prognostic effects were also observed in subsets of patients with a history of HF , diabetes mellitus , peripheral artery disease , chronic kidney disease (CKD) , high atherosclerotic burden , acute coronary syndrome or myocardial infarction and even non-CVD patients , all independent of traditional risk factors.

Various probiotics , synbiotics and natural products like resveratrol , berberine are shown to alter TMAO levels favorably . Various treatment modalities to alter gut bacteria and TMAO levels are being explored .

TMAO provides an exciting approach to risk stratification ,prevention and treatment of atherosclerotic disorders .Given the paucity of conventional risk factors in nearly 50% of the CAD patients , TMAO is a promising prospect. Further studies are needed to explore this tiny wonder.



Proactive Approach in Detecting and Managing Subclinical Atherosclerosis in Early phase

Dr Jaideep C Menon
Professor,
Adult Cardiology & Public Health,
Associate Dean of Research, Amirtha Institute of Medical Sciences, Cochin

Dr Vidhya
Assistant Professor,
Department of Physiology ,
PSGIMSR, Coimbatore

Background:Cardiovascular diseases are the leading cause of mortality worldwide as so in India. The epidemiologic transition in India has led to a significant increase in the burden of non-communicable diseases, mainly ischaemic heart disease, hypertension, stroke, diabetes and cancers. NCDs, including heart disease, stroke and cancer cause 63% of all deaths in India.

Introduction:Atherosclerotic cardiovascular disease (ASCVD) is characterized by a long gestation period progressing from fatty streaks to atheromatous plaques and further to obstructive lesions. If individuals at risk are identified and necessary steps towards lifestyle change and risk factor modification are achieved, progression of disease would be decelerated greatly. Therefore, risk assessment of developing a cardiovascular disease is crucial in the current scenario where there is an increase in prevalence of non-communicable diseases due to changes in lifestyle along with other factors.

Asymptomatic atherosclerosis is widely termed subclinical atherosclerosis, and this has been defined at the histological level. There is a large variety of tests purporting to either directly assess or be surrogate markers of subclinical atherosclerosis. These measures seem to significantly predict future atherosclerotic events such as myocardial infarction (MI), stroke, andchronic limb threatening ischaemia.

Many of the commonly used physiological or imaging assessments of subclinical atherosclerosis do not predict future atherosclerotic events.

Carotid plaque burden, coronary artery calcium, and low ankle/brachial pressure index were the only 3 tests that robustly predicted future atherosclerotic events in people of middle age or older. Accordingly, carotid plaque, coronary artery calcium, and low ankle/brachial pressure index can be considered as valid indicators of subclinical atherosclerosis in biomarker and Mendelian randomization studies of middle-aged or older people.

There is an absence of evidence about useful measurements to predict future atherosclerotic events in younger populations.

Modality	Advantages	Disadvantages
Ultrasound	Well suited to assess superficially placed carotid arteries; low cost; no radiation	Standardization of imaging findings more difficult; resolution less than CT/MRI
MRI	High resolution; no radiation exposure	Higher cost; not as widely available as ultrasound
CT	High resolution; can allow multiple assessment of different arteries rapidly	Radiation exposure; higher cost

Recommendation	Class	Level	Supporting References
The presence of coronary artery calcium should be considered to indicate the presence of subclinical atherosclerosis in diverse populations of middle-aged or older men and women.	I	B	

Recommendation	Class	Level	Supporting References
Abnormally low (<0.9) ankle/brachial index in asymptomatic middle-aged to elderly White and Hispanic men and women should be considered to indicate the presence of subclinical atherosclerosis.	I	B	

Gendered Heart Health; unique risks and treatment strategies in women with CAD

Dr. V.Vanajakshamma
Professor of Cardiology,
Sri Venkateswara Institute of Medical Sciences, Tirupati

The World Health Organization defines gender medicine as the study of how (sex-based) biological and (gender-based) socioeconomic and cultural differences influence an individual's health.

Female-specific CVD risk factors includePolycystic Ovarian Syndrome ,pregnancy complications, breast cancer therapy, autoimmune and rheumatic diseases, depression, and household-related stress in addition to the conventional risk factors. There was recent increase in the incidence of diabetes mellitus and obesity among women.

Coronary artery disease remains a leading cause of mortality in women, necessitating innovative primary prevention strategies.Contemporary guidelines on primary prevention of CVD highlight the increasing prevalence of CVD risk factors and emphasize the significance of female-specific risk enhancers that substantially augment the future risk of CVD.These risk factors occur throughout a woman's life cycle, such as hormonal contraception, hypertensive disorders of pregnancy, and menopause, all of which confer an added layer of risk in women beyond the conventional risk factors.. Despite this, current methods may not fully capture the nuanced vulnerabilities in women that increase their risk of CVD.Despite the importance of primary prevention in mitigating future CVD risk, women are underrepresented in trials of preventive therapies.

Women receive less therapy for their CVD risk factors than men and their cardiovascular protection is incomplete. In womenLDL-cholesterol levels are poorly controlled anddiabetes was undertreated. Ischemic heart disease (IHD), is the leading cause of morbidity and mortality in both genders but outcomes for IHD show that young women fare the worst.

Women with polycystic ovarian syndrome encounter a spectrum of metabolic anomalies such as insulin resistance, obesity, and an unfavourable cardiovascular risk profile, predisposing them to an elevated risk of CAD and premature atherosclerosis.Hormonal contraceptive use is associated with an elevated risk of thrombotic stroke or myocardial infarction.Fertility therapylead to prothrombotic state and promote endothelial injury.Hypertensive disorders of pregnancy and CAD share similar risk factors.Postmenopausal hormone replacement therapy is associated with increased risk of stroke, venous thromboembolism and pulmonary embolism.

CAD among Indian women is often under recognized, underdiagnosed, and eventually undertreated. This can be attributed to a complex interplay of various social, cultural, economic, and healthcare-related factors.Women often present with atypical symptoms compared to men.The lack of knowledge and awareness about CVD and their symptoms, results in delayed diagnosis and treatment. Female-specific CVD risk factors have to be implemented into the most frequently applied CVD risk calculators. Lifestyle modifications, including a well-balanced diet, regular physical activity, stress management by yoga /meditation, avoiding substance abuse and good sleep can help in restoring cardiovascular health.

Clinical Integration of Exercise for Cardiovascular Disease Management

Dr V Ramamoorthy MD
Professor and Head ,
Department of Physical Medicine and Rehabilitation,
PSGIMSR, Coimbatore

Regular physical activity is beneficial for cardiovascular health. Frequent exercise is robustly associated with a decrease in cardiovascular mortality as well as the risk of developing cardiovascular disease. Physically active individuals have lower blood pressure, higher insulin sensitivity, and a more favorable plasma lipoprotein profile.

Among the many risk factors that predispose to CVD development and progression, a sedentary lifestyle, characterized by consistently low levels of physical activity, is now recognized as a leading contributor to poor cardiovascular health. Cardiovascular disease (CVD) is the leading cause of morbidity and mortality worldwide.

The definition of exercise is “a subset of physical activity that is planned, structured, and repetitive and has as a final or an intermediate objective the improvement or maintenance of physical fitness”

1. PLASMA LIPIDS AND ATHEROGENESIS

Given the centrality of plasma lipids as key determinants of CVD risk, many studies have tested whether regular engagement in physical activity may lower CVD risk by affecting the levels of circulating lipoproteins. These studies have found that endurance training is associated with elevated levels of circulating high density lipoprotein (HDL) and, to a lesser extent, a reduction in triglyceride levels.

In addition to changes in plasma lipids, exercise could directly impact the homeostasis of the arterial wall to antagonize the progression of atherosclerotic disease and thereby contribute to the well-documented reduction in coronary artery disease in people with active lifestyles, when compared with sedentary individuals.

2. INSULIN SENSITIVITY

The association between blood lipids and cardiovascular health is highly influenced by systemic insulin sensitivity, and resistance to insulin signaling is known to promote the development of heart disease, in part by altering the blood lipid profile. A number of studies have shown that individuals with insulin-dependent and non-insulin-dependent diabetes mellitus have improved sensitivity to insulin and improved glycemic control after exercise training.

3. BLOOD PRESSURE

During exercise, increases in cardiac stroke volume and heart rate raise cardiac output, which coupled with a transient increase in systemic vascular resistance, elevate mean arterial blood pressure. However, long-term exercise can promote a net reduction in blood pressure at rest. A meta-analysis of randomized controlled interventional studies found that regular moderate to intense exercise performed 3–5 times per week lowers blood pressure by an average of 3.4/2.4 mmHg. While this change may appear small, recent work shows that even a 1 mmHg reduction

in systolic BP is associated with 20.3 fewer (blacks) or 13.3 fewer (whites) heart failure events per 100,000 person-years. Thus, reductions in blood pressure observed when exercise is included as a behavioral intervention along with dietary modification and weight loss could have a significant impact on CVD incidence.

1.CARDIAC ADAPTATIONS

During exercise, the heart is subjected to intermittent hemodynamic stresses of pressure overload, volume overload, or both. To normalize such stress and to meet the systemic demand for an increased blood supply, the heart undergoes morphological adaptation to recurrent exercise by increasing its mass, primarily through an increase in ventricular chamber wall thickness. This augmentation of heart size is primarily the result of an increase in the size of individual terminally differentiated cardiac myocytes. Adaptive remodeling of the heart in response to exercise typically occurs with preservation or enhancement of contractile function.

2.BLOOD AND VASCULATURE

The oxygen carrying capacity of blood, determined by the number of circulating erythrocytes and their associated intracellular hemoglobin concentration, is an important determinant of exercise performance and resistance to fatigue. The resistance arterial vascular network also undergoes functional and structural adaptation to exercise . During acute exercise, small arteries and pre-capillary arterioles that supply blood to the skeletal muscles must dilate to increase blood flow through the release of vasodilatory signals (e.g.,adenosine, lactate, K^+, H^+, CO_2) from active surrounding muscle. Repeated exercise leads to an adaptive response in skeletal muscle arterioles that includes increased vascular density coupled with greater vasodilatory capacity such that enhanced perfusion can occur after conditioning . This may be partly due to adaptation of the endothelium to the complex interplay of recurrent variations in hemodynamic stresses and vasodilatory stimuli of exercise.

Regular physical exercise is often recommended as a means of primary and secondary ASCVD prevention.

The Link between Endothelial Dysfunction and Cardiovascular Disease – Panel Discussion

Moderator: Dr K.DEEPALAKSHMI
Professor & HOD
Physiology, PSGIMSR

Endothelial cells are important constituents of blood vessels that play critical role in cardiovascular homeostasis by regulating blood fluidity and fibrinolysis, vascular tone, angiogenesis, monocyte/leukocyte adhesion, and platelet aggregation. The endothelium is the single-cell monolayer that lines the entire vasculature. The endothelium has a barrier function to separate blood from organs and tissues but also has an increasingly appreciated role in anti-coagulation, vascular senescence, endocrine secretion, suppression of inflammation and beyond.

The normal vascular endothelium acts as a sentinel for cardiovascular health, endothelial cell inflammation is responsible for various cardiovascular diseases, such as hypertension, atherosclerosis, aging, stroke, heart disease, diabetes, obesity, venous thrombosis, and intimal hyperplasia. Activated endothelial cells release various cytokines, chemokines, and growth factors that promote the proliferation, migration, and permeability of endothelial cells

The endothelial cells with inflammatory phenotype cause inflammation in the blood vessels, resulting in endothelial dysfunction and following progression of cardiovascular diseases. Endothelial dysfunction is characterized by imbalanced vasodilation and vasoconstriction, elevated reactive oxygen species (ROS), and proinflammatory factors, as well as deficiency of nitric oxide (NO) bioavailability. The occurrence of endothelial dysfunction disrupts the endothelial barrier permeability that is a part of inflammatory response in the development of cardiovascular diseases. hus the inflammation is known to have its influence on various organ systems like enodocrine, musculo skeletaal and nervous system

The progression of endothelial dysfunction is related to the intensity and duration of proven risk factors, and to the total risk of the individual subjects. The role of the endothelium can be conveniently conceptualized. Continued investigations of the mechanism of endothelial dysfunction will lead to novel therapies for cardiovascular disease.

Physiology of stress and adaptation

Dr Vijayabaskaran S
Associate Professor,
Dept. of Physiology, PSGIMSR ,
Coimbatore

Stress and adaptation are pivotal concepts in cardiovascular physiology, influencing how the heart, blood vessels, and associated systems respond to various stimuli and maintain optimal function over time. Understanding these mechanisms is crucial for comprehending both the immediate responses and long-term adaptations that shape cardiovascular health.

Immediate Responses to Stress

When the body encounters stress, whether physical (like exercise) or psychological (like anxiety or fear), the sympathetic nervous system initiates a rapid response known as the "fight or flight" response. This activation releases catecholamines (epinephrine and norepinephrine) from the adrenal glands into the bloodstream. These hormones bind to adrenergic receptors on the heart and blood vessels, eliciting several immediate physiological changes:

1. Increase in Heart Rate: Epinephrine stimulates beta-1 adrenergic receptors in the sinoatrial node of the heart, increasing heart rate (chronotropic effect) to enhance cardiac output.
2. Increase in Contractility: Both epinephrine and norepinephrine increase myocardial contractility (inotropic effect), allowing the heart to pump more forcefully.
3. Vasoconstriction: Norepinephrine causes vasoconstriction in peripheral blood vessels, directing blood flow to vital organs such as the heart, lungs, and brain.

These responses ensure that essential tissues receive adequate oxygen and nutrients during times of heightened demand, preparing the body for action.

Adaptation to Exercise:

Exercise represents a beneficial form of stress that induces specific adaptations within the cardiovascular system. The cardiovascular response to exercise includes:

1.Increase in Cardiac Output: Both heart rate and stroke volume increase to meet the heightened demand for oxygen delivery to muscles and other tissues.

2.Cardiac Hypertrophy: Regular aerobic exercise leads to adaptive changes in the heart known as cardiac hypertrophy. This involves an increase in the size of cardiac

Long-Term Adaptations and Homeostasis:

The cardiovascular system maintains homeostasis through intricate regulatory mechanisms that adapt to chronic stressors and maintain stability:

·Baroreceptor Reflex:

·Renin-Angiotensin-Aldosterone System (RAAS):

·Endothelial Function:.

Clinical Relevance:

Understanding stress and adaptation in cardiovascular physiology is essential in clinical practice and disease management. Dysfunctional responses to stress or maladaptive adaptations can contribute to various cardiovascular disorders, including hypertension, coronary artery disease, and heart failure. Healthcare providers assess cardiovascular responses through monitoring parameters such as blood pressure, heart rate variability, and cardiac function tests. Treatment strategies often include:

1.Lifestyle Modifications: Encouraging regular physical activity, stress management techniques, and a healthy diet to promote adaptive cardiovascular responses and reduce disease risk.

2.Medications: Targeting specific pathways like the RAAS or sympathetic nervous system to control blood pressure, improve heart function, and mitigate adverse cardiovascular outcomes.

3.Interventional Procedures: In cases of severe cardiovascular disease, surgical interventions such as angioplasty or coronary artery bypass grafting may be necessary to restore blood flow and cardiac function.

Conclusion:

In conclusion, stress and adaptation are integral components of cardiovascular physiology, influencing both immediate responses and long-term adaptations essential for maintaining optimal cardiovascular function. The body's ability to respond effectively to stressors through mechanisms like sympathetic activation, cardiac hypertrophy, and vascular adaptation ensures adequate oxygen delivery and tissue perfusion. Regular exercise exemplifies a positive stressor that enhances cardiovascular health by promoting adaptive changes in the heart and blood vessels. Conversely, chronic stress or maladaptive responses can contribute to cardiovascular diseases. Understanding these physiological mechanisms informs preventive strategies and therapeutic approaches aimed at optimizing cardiovascular function and overall health. Therefore, stress and adaptation are critical considerations in managing cardiovascular health throughout life, highlighting the importance of maintaining a balanced lifestyle and appropriate medical care to support cardiovascular resilience and longevity.

Untangling the Nexus of psychosocial stress and cardiovascular health

Dr. Srinivasan
Senior Psychiatrist, KMCH,
Coimbatore

Stress and cardiovascular health are closely linked. Chronic stress can increase the risk of cardiovascular disease (CVD), including heart attacks, strokes, and high blood pressure. Here are some key points to consider:

How stress affects cardiovascular health:

1. Increased blood pressure: Stress causes blood vessels to constrict, raising blood pressure.
2. Inflammation: Stress triggers inflammation, which can damage blood vessels and increase CVD risk.
3. Poor habits: Stress can lead to unhealthy behaviors like overeating, smoking, or physical inactivity.
4. Hormonal imbalance: Chronic stress disrupts hormonal balances, including cortisol, which can harm cardiovascular health.
5. Cardiac rhythm disturbances: Stress can lead to arrhythmias and other cardiac rhythm problems.

Managing stress for heart health:

1. Exercise regularly: Physical activity reduces stress and improves cardiovascular health.
2. Meditate and practice mindfulness: These techniques help manage stress and anxiety.
3. Practice Sleep Hygiene: Aim for 7-8 hours of sleep per night to help regulate stress hormones.
4. Connect with others: Social support from friends, family, or support groups can help mitigate stress.
5. Take breaks and relax: Engage in activities that bring you joy and help you unwind.

Remember, managing stress is crucial for maintaining good cardiovascular health.
Get Skilled at managing your Stress before you get killed by it.

Abstracts

Effect of Yoga Intervention on Cardiovascular Morbidity and Inflammation in Long COVID: A Randomized Control Trial

[1]Jothi Marie Feula A, [2]Lakshmi Jatiya, [3]RBalaji, [4]Latha R

[1]All India Institute of Medical Sciences, Madurai, Tamil Nadu
[2,4] Aarupadai Veedu Medical college and Hospital, Vinayaka Missions Research Foundation, Puducherry.
[3] School of Yoga Therapy, Institute of Salutogenesis and Complementary Medicine, Sri Balaji Vidyapeeth University.

Background: The COVID-19 pandemic has posed significant global challenge, with SARS-CoV-2 infection presenting a wide clinical spectrum, from asymptomatic cases to severe, life-threatening disease. Despite complete recovery, persistent symptoms and end-organ dysfunction even after 3 months of initial infection termed "Long COVID," have emerged, particularly affecting cardiovascular and respiratory health. This study is aimed to estimate prevalence of long-term cardiorespiratory morbidity and persistent inflammation in COVID-19 recovered patients and to evaluate impact of adjuvant yoga therapy on these complications. **Methodology:** This randomized controlled trial was conducted with 162 COVID-19 recovered patients, after three months of initial infection, aged between 18-45 years. Subjects with negative RT PCR test for COVID–19 alone were recruited into the study. Participants underwent battery of cardiac autonomic function and inflammatory markers (CRP, IL-6). Out of the 162 participants, 36 exhibited long COVID in terms of cardiac autonomic dysfunction/elevated inflammatory markers. These 36 subjects were randomized into two groups of 18. One group received 8-week yoga intervention, including Hathenas and pranayama, while other group received no intervention. **Results:** The study identified 22% prevalence of long COVID (autonomic dysfunction and persistent inflammation). Significant improvements in autonomic function and reductions in inflammation were observed in yoga intervention group. **Conclusion**: 8-week yoga intervention enhanced cardiac autonomic function and reduced inflammation in Long COVID patients, suggesting yoga as a promising non-pharmacological approach in managing long-term complications in this population.

Keywords: Long COVID, Chronic COVID, yoga in COVID, autonomic dysfunction

ASSESSMENT OF PHAGOCYTIC ACTIVITY AND SOLUBLE UROKINASE PLASMINOGEN ACTIVATOR RECEPTOR LEVELS AMONG STABLE COPD PATIENTS

Rekha D[1], Priscilla Johnson[2], Subhasis Das[3], Sathya GR[4]

[1] Associate Professor; Department of Physiology; Pondicherry Institute of Medical Sciences, Puducherry
[2]Professor & Associate Dean (pre-clinical); Department of Physiology; Sri Ramachandra Medical college & Research Institute, Chennai
[3]Professor & HOD; Department of Physiology; Pondicherry Institute of Medical Sciences, Puducherry
[4]Associate Professor; Department of Physiology; Pondicherry Institute of Medical Sciences, Puducherry

ABSTRACT

Background: Chronic obstructive pulmonary disease is a progressive disease with worsening of airflow which cannot be completely reversible with medications. COPD is more prone for exacerbation due to impaired phagocytic activity of neutrophil as well as frequent worsening of airway inflammation.

Methods: Two hundred stable COPD participants (male=148 and female =52), aged between 35-65 years, were included in the study. The participants were grouped based on FEV_1% predicted as per GOLD criteria. Blood samples were collected to measure their serum suPAR levels and to assess their phagocytic activity of neutrophils among the COPD patients.

Results: Mean ± SD serum suPAR levels were high among COPD grade IV and III (4.65 ± 0.29 ng/ml and 3.68 ± 0.34 ng/ml) compared to grade II and I (2.75 ± 0.31 ng/ml and 2.18 ± 0.44 ng/ml). One way ANOVA performed to find difference between the groups showed F = 257.41; p <0.001*. Similarly, there was a marginal decline in mean ± SD value of neutrophil phagocytic activity among different COPD grades (grade IV = 79.18 ± 0.82 %; III = 84.82 ± 1.14 %; II = 88.44 ± 1.21 %; I = 93.3 2± 0.71%). One way ANOVA demonstrated that the difference between group were F = 170.63; p <0.001*. Correlation (r) between suPAR and phagocytic activity of neutrophils among different grades were (grade I, r = - 0.132, p <0.001*; grade II, r = - 0.156, p <0.001*; grade III, r = - 0.196, p <0.001*; grade IV, r = - 0.304, p <0.001*)

Conclusion: Our study demonstrated that the serum suPAR level increases as the severity of COPD increases with decrease in phagocytic activity of neutrophil. Our study also elucidated that serum suPAR had statistically significant negative correlation with phagocytic activity of neutrophils, among severe grade COPD individuals which could be due to defect in receptor regulation. Hence, future studies are needed to monitoring serum suPAR levels and evaluating lung defence mechanism, like, phagocytic activity of neutrophils, and therefore, reduce frequent exacerbation of COPD and hospitalisation of COPD patients.

Keywords: Inflammation, COPD, neutrophil, phagocytosis, suPAR, prognosis

Cardioprotective role of Naringenin in Doxorubicin – treated AC16 Human cardiomyocyte: Oxidative stress reduction.

Priyanka Ganapathy[1], P R Devaki[2], M R Renuka Devi[3], M Chandrasekar[4]

[1]Assistant Professor, Department of Physiology, Sree Balaji Medical College & Hospital, Chromepet, Chennai.
[2]Professor & Head, Department of Physiology, Sree Balaji Medical College & Hospital, Chromepet, Chennai.
[3]Professor, Department of Physiology, Sree Balaji Medical College & Hospital, Chromepet, Chennai.
[4]Professor, Bharath Institute of Higher Education and Research, Palllikarnai, Chennai,

ORAL PRESENTATION

Abstract

Background Naringenin, a flavonoid found in grapefruits and oranges citrus fruits. It has antioxidant, anti-inflammatory, and antimicrobial properties. It also supports cardiovascular health, may inhibit cancer cell growth, and exhibits neuroprotective effects. **Methods:** The present study explored the potential protective role of Naringenin, against doxorubicin-induced cardiotoxicity by targeting oxidative stress in AC16 Human cardiomyocyte cell line model. **Results:** AC16 Human cardiomyocyte cell lines were treated with doxorubicin to cause reactive oxygen species surge, lipid peroxidation, and decreased cellular viability. Pre-treatment with different concentrations of Naringenin significantly attenuated these effects by reducing ROS levels, enhancing antioxidant defense mechanisms such as increased activity of superoxide dismutase and catalase and reduced lipid peroxidation. Naringenin also preserved mitochondrial integrity and saved the loss of mitochondrial membrane potential. Naringenin mitigates doxorubicin-induced cardiotoxicity by regulating apoptotic pathways, Bax↓ and Bcl-2↑ expressions potentially preventing cardiomyocyte apoptosis. **Conclusion:** These results indicated that Naringenin effectively mitigates the oxidative stress and cellular damage caused by doxorubicin, potentially offering a cardioprotective strategy that can enhance the therapeutic index of DOX in cancer treatment. In conclusion, this study highlights the potential of Naringenin as a protective agent against doxorubicin-induced cardiotoxicity by decreasing oxidative stress and its related mechanisms.

Keywords: Doxorubicin; Oxidative stress; Cardiomyocytes; Mitochondrial integrity; Cardiotoxicity.

A Cross sectional study on Emotional Eating patterns in response to positive & negative emotions among Undergraduate medical students in Virudhunagar

AUTHORS: Dr. Poihai.A MD.DGO[1], Dr.N.ETHIYA M.D,DCH,[2]

Assistant Professor[1], HOD& Professor[2] Department of Physiology, GMC, Virudhunagar

BACKGROUND:

Undergraduate students experience significant stress due to academics and challenges associated with transitioning to young adulthood.

These challenges jeopardize the overall well-being exposing them to the risk of mental health issues, including eating disorders.

This study aims to identify the eating behaviours of medical students and assess their awareness of mindful eating, with the goal of emphasizing the importance of emotional regulation to help mitigate the risk of obesity.

AIM:

1.To determine the prevalence of emotional eaters among undergraduate students

2. To Compare the frequency patterns of emotional eating pertaining to positive and negative emotions

3. To determine the association between Body mass index and emotional eating

4.To assess the level of knowledge about mindful eating among the medical students

METHODOLOGY:

This cross sectional study recruited Phase I,II & III Students after exclusion of eating and mood disorders. **Emotional Eater Questionnaire**, **Salzburg Emotional Eating Scale** and **Mindful Eating Questionnaire** were given to study the eating patterns and awareness about eating. **Statistical analysis** will be carried out by Pearson Correlation Coefficient and Chi square tests using SPSS Software. p value < 0.05 will be considered as statistically significant.

RESULTS :

Since the study is under process, the results are awaited

CONCLUSION:

As emotional eating could lead to obesity and in turn to metabolic disorders, knowledge about mindful eating is a must for medical students. By identifying eating behaviors, it would be easier to develop interventions to improve the physical and psychological health of the medical students. This could also pave the way for providing access to nutritional counselling,workshops on mindfulness and emotional regulation.

Title: Understanding the Effects of Drishti Bheda, The Eye Movements in Indian Classical dance, on Vision and Audition- A Cross-Sectional Study

Dr.M.Renu Meena[1], Dr.S.Anu[2]

[1]Assistant professor, [2]Professor and Head, Department of Physiology, Velammal medical college.

Background: Bharatanatyam is one of the traditional forms of Indian dance that portrays complex facial expressions, hand mudras and physical gestures. Dhristi Bheda, a vital component of Bharatanatyam dance, involves precise eye movements that are essential for enhancing visual focus, expression, and coordination. There are no studies with respect to vision in Bharatanatyam dancers and very few studies had reported on auditory memory and threshold. Hence the aim of the present study is to understand the effect of Drishti Bheda on vision and audition by measuring Critical Flicker Fusion Frequency(CFFF), and Pure Tone Audiometry (PTA) among trained dancers and non-dancers.

Methods: This cross-sectional study was conducted involving 60 participants, divided into two groups: classical dancers (n=30) with a minimum of 5 years of training in Dhristi Bheda and non-dancers (n=30) with no formal dance experience. CFFF and PTA were measured in both the groups. Statistical analysis was performed using independent t-tests.

Results: The CFFF values were found to be increased in classical dancers (42.3 ± 3.1 Hz) compared to non-dancers(38.5 ± 2.8 Hz),with p value < 0.001.Overall auditory thresholds between the groups showed no statistically significance across most frequencies. However, a significant improvement in auditory discrimination at the 2-4 kHz range was noted in the dancers (12.1 ± 2.2 dB HL) compared to non-dancers (14.5 ± 2.6 dB HL)with p value 0.03.

Conclusion: Higher CFFF thresholds and better auditory discrimination were seen in trained dancers. These findings provide novel insights into the cognitive benefits of Indian classical dance and its potential application in training for sensory processing disorders.

Abstract

Unraveling the link between Nasal mucociliary clearance and periostin among bronchial asthmatics – a longitudinal study

Dr.Sathya.G.R[1], Dr.Priscilla Johnson[2], Dr.Subhasis Das[3], Dr.Rajagopalan.B[4], Dr.Rekha.D[5],Dr.Manikandan[6].

1. Associate Professor,Department of Physiology,Pondicherry Institute of Medical Sciences,Puducherry.
2. Professor and Head, Department of Physiology, Sri Ramachandra Institute of Higher Education & Research (Deemed to be University),Porur,Chennai.
3. Professor and Head, Department of Physiology, Pondicherry Institute of Medical Sciences, Puducherry.
4. Professor, Department of Chest & TB, Sri Ramachandra Institute of Higher Education & Research (Deemed to be University), Porur,Chennai.
5. Associate Professor, Department of Physiology, Pondicherry Institute of Medical Sciences, Puducherry.
6. Associate Professor, Department of Biostatistics, Pondicherry Institute of Medical Sciences, Puducherry.

Background and Objectives:

The nasal mucociliary protective mechanism gets altered in asthmatics due to allergic airway inflammation leading to altered ciliary function and increased airway hyper-responsiveness in asthmatics. This study was carried out to identify whether nasal mucociliary clearance was affected in South Indian asthmatics using a simple and inexpensive saccharin test. The study was carried out: 1. To ascertain saccharine transit time in both the nostrils of asthmatics 2. To find the correlation between Serum Periostin with saccharine transit time.

Methodology:

The study was carried out among 150 asthmatics, aged between 18 and 60 years, on inhalational corticosteroids. After procuring informed consent, Pulmonary Function tests were done to recruit the study subjects. Blood samples were collected for the assessment of Serum Periostin and nasal mucociliary clearance was assessed using a saccharine test.

Result:

The data were analyzed to find if the nasal mucociliary clearance was affected in asthmatics and if any correlation exists between serum Periostin and NMCC. There was a weak positive correlation between serum Periostin.

Conclusion:

Nasal mucociliary clearance could possibly be studied as an index of respiratory tract ciliary activity in asthmatics and can be considered to replace conventional invasive tests.

Keywords: Asthma, Periostin, saccharine, mucociliary clearance.

KNOWLEDGE, ATTITUDE AND PREVALENCE OF COMPUTER VISION SYNDROME IN COMPUTER AND SMARTPHONE USING POPULATION AND PREVENTION BY ERGONOMICS AND EYE EXERCISES

S Sasi Kumar[1], P R Devaki[2], M R Renuka Devi[3]

[1]Associate Professor, Department of Physiology, Sree Balaji Medical College & Hospital, Chromepet, Chennai – 44

[2]Professor & Head, Department of Physiology, Sree Balaji Medical College & Hospital, Chromepet, Chennai – 44

[3]Professor, Department of Physiology, Sree Balaji Medical College & Hospital, Chromepet, Chennai - 44

POSTER PRESENTATION

Abstract

Introduction

Computer Vision Syndrome (CVS) or Digital Eye Strain refers to group of eye and vision problems caused by extended use of digital devices such as computers, smartphones, televisions, tablets, gaming consoles and E-readers. Digital academic reliance during the pandemics elevated the adolescents' eye health at risk. This study promotes the awareness on prevention strategies by exploring the risk factors and ergonomic behaviors contributing to CVS in students,. **Methodology:** This cross sectional survey based study was conducted among 203 medical graduates. CVS symptoms and its associated risk factors were assessed using a self-administered questionnaire. Questions included details about contact lenses, digital screen usage, ergonomics, Computer Vision Syndrome Questionnaire. **Results:** Common reported symptoms were head ache (11%), tearing (6.9%), moderate excessive blinking symptoms (72%), mild headaches (50%), tearing with burning symptoms (37%), of the have neck pain (27%) and felt neck stiffness seen in (12%). **Conclusion:** Findings revealed that majority of the students had CVS symptoms such as headache, dry eyes, tearing and burning sensation. In addition to that, students also reported extra ocular symptoms like neck pain and stiffness more frequently. As colleges continue to improve their educational strategies, it is important to promote student knowledge of the health risks associated with extended computer usage for studying and to explain how to avoid CVS symptoms**.**

Keywords

Computer Vision Syndrome, ergonomics, eye exercises

Handstand: A Cool Party Trick or an Essential Skill in Calisthenics?

[1]Dr. Divyalakshmi Krishnamurthy, Assistant Professor of Physiology, SRMC & RI, SRIHER, Porur, Chennai, Tamil Nadu.
[2]Dr. Padmavathi R, Professor of Physiology, SRMC & RI, SRIHER, Porur, Chennai, Tamil Nadu.
[3]Dr. Pankaj B Shan, Professor of Community Medicine, SRMC & RI, SRIHER, Porur, Chennai, Tamil Nadu.
[4]Dr. Mahesh Kumar, Assistant Medical Officer of Biochemistry & Physiology, Government Yoga and Naturopathy Medical College and Hospital, Arumbakkam, Chennai.

BACKGROUND:

The handstand is a foundational calisthenics skill that showcases strength, balance, and coordination by balancing in an inverted position on hands shoulder-width apart, with feet raised[1]. Key control strategies for achieving and maintaining a handstand include managing three reference systems of coordinates (Egocentric, Exocentric, Geocentric)[2]

Since evolution, humans have adapted to standing upright, experiencing gravity's effects on their bodies[3]. Mastering the handstand involves counteracting gravity while inverted, akin to how infants develop balance[4].Biomechanics models balancing by using the Center of Pressure (CoP) and the Center of Mass (CoM) stabilization strategies, both relevant to the handstand[4]. Mastering the handstand is crucial in calisthenics, as it develops essential strength, balance, and coordination while enhancing overall body awareness. With proper guidance and practice, one can achieve this skill in 3 months to 2 years[4].

AIM & OBJECTIVES:

To understand handstand as a fundamental skill in calisthenics, focusing on effective control strategies for achieving and maintaining the position and this concept presentation explores the role of the handstand within the broader calisthenics' framework, assessing its functional contributions to the discipline.

RATIONALE:

The handstand, a challenging skill, serves as a foundational goal that beginners aim to master, yet its necessity remains a topic of debate among practitioners. The review of this concept is to evaluate whether the handstand should be considered a fundamental skill in calisthenics or if it serves merely as a challenging feat.

METHODOLOGY: Through a review of existing literature, expert interviews, and case studies from varied calisthenics communities, differing perspectives on the handstand will be evaluated and documented.

EXPECTED OUTCOMES:
This presentation aims to provide insights and clarify the handstand's role in calisthenics, facilitating informed decisions for practitioners at all levels that can shape training regimens and coaching methodologies, ultimately fostering a more inclusive approach to calisthenics.

KEYWORDS: Calisthenics, Handstand

REFERENCES:

1. Sobera M, Serafin R, Rutkowska-Kucharska A. Stabilometric profile of handstand technique in male gymnasts. Acta Bioeng Biomech. 2019;21(1):63-71. PMID: 31197281.

Evaluating Cardiovascular and Muscular Responses to Isometric Hand Grip Exercise among Diabetics and Non-Diabetics in a Tertiary care center

Dr. B.Jaya[1], Dr. M.Nishanth[2]

[1]Professor and Head, [2]Senior Resident
[1, 2]Department of Physiology, Karpaga Vinayaga Institute of Medical Sciences, Madhurantakam, Chengalpattu

Abstract

Introduction:

Diabetes mellitus is a chronic metabolic disorder that impairs glucose metabolism, associated with cardiovascular and muscular complications. Research indicates that Diabetes may alter heart rate and Blood pressure responses, affecting recovery dynamics after physical exertion. Isometric hand grip exercises are a practical method for evaluating muscular strength and cardiovascular function. It provides valuable insights into muscle function and cardiovascular health, particularly in a controlled setting, thereby facilitating the execution of this study.

Aim:

To evaluate isometric hand grip strength and cardiovascular response after isometric hand grip exercise between Diabetic and non-Diabetic individuals.

Materials and Methodology:

This cross-sectional study involved two groups of male participants aged 30-50 years: a control group of 50 healthy volunteers and a study group of 50 individuals with type II diabetes of less than 5 years duration. Isometric strength and endurance were assessed using a hand grip dynamometer. Heart rate and Blood pressure was recorded at rest, immediately after the exercise, and at 1, 2, and 3 minutes post-exercise. Data on strength, endurance, and cardiovascular recovery parameters were compared between the groups and analyzed using SPSS software.

Results:

In Diabetic individuals baseline isometric hand grip strength was significantly decreased compared to non-Diabetics with $p<0.0001$. Both groups showed similar immediate cardiovascular responses to the exercise. However, Diabetic individuals demonstrated slower heart rate and Blood pressure recovery after exercise compared to non-Diabetics.

Conclusion:

Decrease in baseline isometric hand grip strength among Diabetics might be reflecting potential metabolic and structural changes in muscle tissue. Following exercise, the slower recovery of cardiovascular responses that occurred in diabetic individuals may be due to disturbances in autonomic system. These findings suggest that adjusting exercise prescriptions for diabetics can improve cardiovascular health management and hence the quality of life.

Key words Cardiovascular response, Isometric Handgrip strength, Type II Diabetics

Mechanism of Cleistanthin A cytotoxicity on NB4 cells (Human Promyelocytic Leukemia Cell Line)

Dr. Camilla Preethi. J, Dr. Soosai Manickam Amirtham, Dr. Sathya Subramani, Dr. Neetu Prince
Department of Physiology, Christian Medical College Vellore, CMC, Vellore

BACKGROUND: APML (Acute Promyelocytic Leukemia) is a subtype of leukemia caused by the formation of the mutant oncogene PML-RARA (Promyelocytic Leukemia-Retinoic Acid Receptor-Alpha), which arises from a reciprocal translocation of chromosomes 15 and 17. APML is treated with All-Trans-Retinoic Acid (ATRA) and Arsenic Trioxide (ATO), which induces apoptosis and differentiation in APML cells.

NB4 cells, an APML cell line, have been extensively used to study the efficacy of anticancer drugs. The proposed compound Cleistanthin A is a diphyllin glycoside of the Cleistanthus collinus. The anti-cancer property of Cleistanthin A has been demonstrated in several tumor models. Previous studies conducted in our lab have shown the cytotoxic effect of Cleistanthin A on NB4 cells in nanomolar concentrations. However, the mechanism behind the cytotoxicity was unknown, which was evaluated in this study.

The study aimed to investigate the mechanism of Cleistanthin A cytotoxicity on NB4 cells.

METHODOLOGY: Cleistanthin A was isolated from the aqueous extract of freshly collected Cleistanthus collinus leaves using preparatory HPLC.NB4 cells in culture were treated with Cleistanthin A (500 and 1000 nanomolar doses) for 24 and 48 hours. The expression of the oncogenic proteins was assessed using the Western Blot and Immunofluorescence method.

RESULTS: Analysis showed reduced RARA protein expression after Cleistanthin A treatment compared to the control group.

CONCLUSION: The finding that Cleistanthin A induces the degradation of mutant RARA protein is a significant step forward, suggesting its potential as a novel therapeutic strategy for APML. Further experiments are planned to identify the degradation pathways of PML-RARA protein.

The Psychophysiological Effects of Kunjal Kriya in Context of Mind-Body Integration on Respiratory Health Care: A Pilot Study

Authors: **Vaithiyanadane.V**, Full time Research Scholar, Department of Physiology,Vinayaka Mission's Kirupananda Variyar Medical College & Hospitals, Vinayaka Mission's Research Foundation (DU), Salem-636 308.
(Mobile:7502986063),
Dr. P.P.Sheela, Associate Professor, Department of Physiology,
Vinayaka Mission's Kirupananda Variyar Medical College & Hospitals, Vinayaka Mission's Research Foundation (DU), Salem-636 308.

Abstract

Objective: This pilot study aims to evaluate the psychophysiological effects of Kunjal Kriya, a yogic cleansing technique, in individuals with asthma, focusing on respiratory function, autonomic nervous system modulation, stress reduction, and overall well-being.

Design: A total of 12 participants were included, with six assigned to the intervention group practicing Kunjal Kriya twice a week for four weeks, and six in the control group. Baseline and post-intervention data were collected for key parameters including Forced Expiratory Volume (FEV1), Forced Vital Capacity (FVC), Peak Expiratory Flow Rate (PEFR), heart rate variability (HRV), Perceived Stress Scale (PSS), State-Trait Anxiety Inventory (STAI), Asthma Control Test (ACT), Asthma Quality of Life Questionnaire (AQLQ), and Mind-Body Integration Scale (MBIS).

Results: The intervention group demonstrated significant improvements in respiratory function, with an increase in FEV1 by 0.2 L (from 2.1 L to 2.3 L), FVC by 0.2 L (from 3.5 L to 3.7 L), and PEFR by 20 L/min (from 400 L/min to 420 L/min). Improvements in autonomic balance were observed with an increase in HRV (from 44 ms to 58.6 ms) and a reduction in respiratory rate (from 18 breaths/min to 15.5 breaths/min). Psychological well-being improved with a reduction in PSS scores (from 22 to 13), STAI scores (from 46 to 32), and an increase in MBIS scores (from 52 to 80). No significant changes were observed in the control group.

Conclusion: Kunjal Kriya demonstrated positive effects on respiratory health, autonomic regulation, and psychological well-being in individuals with asthma. These promising results warrant larger, randomized controlled trials to further validate the therapeutic potential of Kunjal Kriya in asthma management and its broader application in respiratory health.

Keywords: Kunjal Kriya, respiratory function, autonomic nervous system, asthma, stress reduction, psychophysiological well-being.

ABSTRACT

TITLE : ASSESSMENT OF HEARING IN SUBCLINICAL HYPOTHYROIDISM USING BRAINSTEM EVOKED RESPONSE AUDIOMETRY

DR.UMA MAHESWARI.D, II YEAR PG , STANLEY MEDICAL COLLEGE, CHENNAI-1.

INTRODUCTION

Low thyroid function has been found to have a detrimental effect on hearing function, as it prevents the brain from adequately sustaining the energy-consuming processes needed for neurotransmission in brain potentially leading to various types of hearing impairment including sensorineural, mixed, and conductive. Audiological function is assessed using Brainstem Evoked Response Audiometry (BERA) in Subclinical hypothyroid patients

AIM

- To Assess audiological abnormalities using BERA in Subclinical hypothyroid patients.

- To Compare the Audiological function in Subclinical hypothyroid patients and Euthyroid controls.

METHODOLOGY

- Data collection was done after obtaining clearance from the institutional ethical committee.

STUDY DESIGN

- Case-control study.

DATA COLLECTION INSTRUMENT

- BERA recordings were obtained using the RMS EMG ALERON device in the Department of Physiology at Stanley Medical College.

- The absolute wave latencies of waves I, II, III, IV, and V, and the interpeak latencies of I-III, I-V, and III-V were measured.

SAMPLE SIZE

- 25 Euthyroid controls.

- 25 Subclinical hypothyroid Cases.

(Both genders were included)

SAMPLING METHOD

- Convenience sampling.

SPSS 29 software was used to analyse the extracted data

RESULTS: Mean ± SD of BERA in right ear waves II, III, IV, V and interpeak latencies I-III, III-V, I-V are highly significant (p valve- <0.05) and Mean ± SD of BERA in left ear waves I,II, III, IV, V and interpeak latencies III-V, I-V are highly significant (p valve- <0.05) in subclinical hypothyroid patients in comparison with euthyroid controls

CONCLUSION: This study shows that Brainstem evoked response audiometry helps in early detection of central neuropathy and abnormalities of Auditory pathway. Early intervention with Thyroxine treatment can thus prevent disease progression and morbidity in subclinical hypothyroid patients.

"Effect of moderate exercise on cardiovascular responses among sedentary and physically active young adults- A comparative study"

Dr.M. Vaitheeswari[1], Dr.D. Celine[2], Dr.S. Suguna[3]
Post graduate [1], Professor [2], Assistant Professor [3], Department of Physiology,
ChengalpattuMedical College, Chengalpattu, Tamil Nadu.
Email id: *vaitheeswari260198@gmail.com* **Mobile:** *9843904439*

Background: In young adults there is an upsurge in the prevalence of hypertension and prehypertension due to sedentary lifestyle. Regular physical activity increases the exercise capacity and prevents cardiovascular disease. Exaggeration of cardiovascular responses to exercise is a predictor for development of hypertension. This study was done to compare cardiovascular responses in sedentary and physically active young adults to moderate exercise.

Methodology: After institutional ethical committee clearance, 100 young adults of age 18 to 25 years of both genders were enrolled for the study. Study group was classified into two groups based on WHO-Global physical activity questionnaire as sedentary and physically active. Pulse rate, Systolic blood pressure (SBP), Diastolic blood pressure (DBP) was recorded with Omron digital BP apparatus in sitting posture after 5 mins of rest. For moderate exercise, the subjects were instructed to pedal the Bicycle ergometer for 5 mins. Pulse rate and Blood pressure (SBP & DBP) was recorded immediately after exercise, 2mins & 5mins after exercise. The parameters were tabulated and analyzed by using Graph pad.

Results: The resting SBP and DBP was high in sedentary when compared to physically active individuals ($p < 0.0001$). Immediately after exercise, there was an exaggerated rise in SBP and DBP in sedentary when compared to physically active individuals. ($p < 0.0001$).

Conclusion: From this study we observed an exaggerated BP response to moderate exercise in sedentary compared to physically active young adults. So, it's important to have a physically active lifestyle practices early in life to reduce the risk of hypertension in future.

Title Correlation of Stress & Heart Rate Variability (HRV) in Healthy Adults in Tribal and Urban Areas of Salem.

Authors:
Dr. Jinko K. Abraham
Postgraduate, Department of Physiology (Mobile:8589818155),
Dr. V. SUGANTHI, Professor and HOD
Department of Physiology,
Vinayaka Mission's Kirupananda Variyar Medical College & Hospitals,
Vinayaka Mission's Research Foundation (DU), Salem-636 308.

Background
Heart Rate Variability (HRV) measures the variation in time between heartbeats, reflecting the autonomic nervous system's (ANS) balance. Stress, which disrupts ANS regulation, can lower HRV and increase cardiovascular risks. Tribal and urban populations differ in lifestyle factors such as diet, physical activity, and environmental stressors, potentially influencing Stress and HRV levels.

Objective

- To compare HRV in healthy adults from tribal and urban groups.
- To compare Stress levels in healthy adults from tribal and urban groups.
- To correlate Stress and HRV in tribal and urban populations.

Methods

- **Participants**: 20 healthy adults, aged 20-60 years, with equal representation from tribal and urban areas who have signed the informed consent form.
- **Data Collection**:
    - **Stress**: Assessed using the Perceived Stress Scale (PSS-10).
    - **HRV**: Recorded using a chest strap ECG belt for 30 minutes in a quiet room without distractions, and participants were asked to maintain a relaxed, consistent posture.
    - **Demographics**: Collected via a structured questionnaire on physical activity, food habits, financial status etc.
- **Procedure**: Participants completed the PSS-10 and Questionnaire, followed by a 30-minute HRV recording session.
- **Analysis**: Correlation analysis was conducted to assess relationships between PSS-10 scores and HRV, comparing both tribal and urban groups.

Result

- Urban participants show an overall lower HRV.
- Tribal adult participants show a lower Stress level.
- Tribal population had high HRV and low Stress

Conclusion
This study correlates Stress and HRV in different population settings. These findings may help us improve cardiovascular health and may guide future interventions and Studies.

Abstract

Title - Comparison of Liver function tests in Hypothyroid and Euthyroid females attending a tertiary care hospital - A cross-sectional study.

Author's affiliation: Dr.K.Niveditha, Third year PG, MD Physiology, MMC
Associate Prof Dr.R.Shanthimalar D.G.O, M.D,
Director & Professor Dr.P. Sathya D.G.O, M.D,

Background:

Thyroid dysfunction, particularly hypothyroidism, is a highly prevalent endocrine disorder that disproportionately affects females. Hypothyroidism has been linked to alterations in liver function, given the critical interplay between thyroid hormones and hepatic metabolism. Hypothyroidism associated myopathy and cholestasis can cause alteration in the liver enzymes. With this background, our study aims to assess and compare liver function tests (LFTs) in hypothyroid and euthyroid females attending a tertiary care hospital.

Methods:

This cross-sectional study involved 94 participants, divided into two groups: 47 hypothyroid and 47 euthyroid females. Females between 18-50 years were included in the study. The patients were selected through a convenient sampling method. Thyroid profile and Liver function tests were done in both groups and they were compared. Statistical analysis was done by "unpaired t-test".

Results:

Our study revealed that hypothyroid females had significantly higher levels of ALT, AST, ALP and total serum protein compared to the euthyroid group, while albumin levels were lower. We found statistical significance for ALT (0.0001), AST (0.0001), ALP (0.0001) and total serum protein (0.0001). These findings suggest that liver function is altered in hypothyroidism, reflecting potential subclinical hepatic involvement.

Conclusion:

Hypothyroid females exhibit significant alterations in liver function tests compared to euthyroid females. This underscores the importance of regular LFT monitoring in hypothyroid patients for early detection and management of potential liver dysfunction. A multisystem approach while treating patients with liver and thyroid disease would prove pivotal to avoid missing subtle but clinically relevant abnormalities.

Keywords: Euthyroid vs Hypothyroid, LFT, Thyroid profile

Abstract

Title - COMPARISON OF VISUAL EVOKED POTENTIAL CHANGES AMONG NORMOTENSIVE AND HYPERTENSIVE INDIVIDUALS - A CROSS-SECTIONAL STUDY.

Author's affiliation: Dr.S.Anand, Third year PG, MD Physiology, MMC
Director & Professor Dr.P. Sathya D.G.O, M.D,
Assistant Professor V.Sumathi D.G.O, M.D,

Background:

Visual evoked potential (VEP) testing has been one of the most exciting clinical tools to be developed from neurophysiologic research in recent years and has provided us with an objective method of identifying abnormalities of the afferent visual pathways in hypertensive patients. This can be helpful to diagnose early risk of retinal damage before ophthalmic complications occur.

Methods:

This cross-sectional study involved 40 participants, divided into two groups: 20 normotensive and 20 hypertensive individuals. Individuals between 40-60 years were included in the study. The patients were selected through a convenient sampling method. Pattern reversal VEP test was performed for each participant and measurements were recorded. Differences in latencies in both groups were assessed using unpaired t-test for continuous variables. Statistical analysis was done by SPSS software.

Results:

Our study revealed that among normotensive and hypertensive individuals the mean values of latencies of waves N75 and P100 were found to be prolonged in the hypertensive group. There was a positive correlation ($P < 0.05$) in unpaired t-test. It was found that as the value of blood pressure (mm of Hg) increases, latencies of VEP also increase.

Conclusion:

Results of our study conclude that there is statistically significant association between increase in latencies of VEP and hypertension. Thus, VEP can be suggested as means of early screening method for the primary hypertensive patients to detect early visual pathway changes and to means to provide early intervention.

Keywords: Visual Evoked Potential, Hypertension vs Normotension

Title: Profiling the electrophysiological properties of NB4 cells

Steny S Sarto, Neetu Prince, Anand Bhaskar, Sathya Subramani, Vinay Timothy Oommen

Department of Physiology,

Christian Medical College, Vellore.

Introduction:

The NB4 cell line is an acute promyelocytic leukemic cell line widely used in cancer research. The properties of these cells such as morphology, surface markers, and cytogenetics have been described. However, there is a lack of knowledge about the electrophysiological properties of this cell line.

This study aimed to characterize the types of ion channels present in the NB4 cell line.

Methodology

NB4 cells were cultured using standard protocols. Voltage clamp experiments in the whole cell configuration were performed. Capacitance tracings were obtained at the beginning of the experiments. The cells (N=6 for each intervention) were subjected to a depolarising pulse protocol from -80mV to +80mV with a holding potential of -80mV. The effects of TEACl (10mM) and $ZnCl_2$ (1mM) were studied.

Results:

The capacitance of the cells recorded was 19$\pm$10pF (mean$\pm$SD, n=33). Small currents, similar to leak currents (without any voltage dependence) were seen, with a peak value of 658$\pm$270 pA (mean$\pm$SD, n=21) at +80mV. Current densities varied from -12 to 100pA/pF, reversing at -40.4$\pm$20mV (mean+SD, n=21).

The addition of 10mM TEACl (a K^+ channel blocker) did not cause a significant reduction in the currents (n=6, p= 0.26). Adding 1mM $ZnCl_2$ caused a significant decrease (33%) in the currents recorded (n=6, p= 0.028).

Conclusion:

Preliminary results show the presence of small leak currents reversing at -40.4$\pm$20mV, insensitive to TEACl and showing a decrease with $ZnCl_2$. This pattern of currents is suggestive of K2P channels. Further experiments are planned to confirm the presence of K2P channels on the membrane of NB4 cells.

Abstract

Title: Effects Of Smoking E-Cigarettes and Tobacco Cigarettes on Pulmonary Function Tests in Young Adult- A Comparative Study: A pilot study

Authors: **Dr. AJAY KUMAR .M**, Postgraduate, Department of Physiology (Mobile:+919585867971), **Dr. V. SUGANTHI,** Professor and HOD of Department of Physiology, Vinayaka Mission's Kirupananda Variyar Medical College & Hospitals, Vinayaka Mission's Research Foundation (DU), Salem-636 308.

Background: The use of e-cigarettes has surged in recent years, particularly among young adults. While marketed as a safer alternative to traditional tobacco cigarettes, the long-term effects on pulmonary function remain unclear. This study aims to compare the impact of e-cigarettes and tobacco cigarettes on pulmonary function in young adults.

Objective: To evaluate and compare the effects of smoking e-cigarettes and tobacco cigarettes on pulmonary function tests (PFTs) in young adults.

Methods: A pilot study was conducted with 30 young adults aged 18-45 years, who were categorized into three groups: e-cigarette smokers (n=10), tobacco cigarette smokers (n=10), and non-smokers (control group, n=10). Participants underwent a series of standardized pulmonary function tests including spirometry (FEV1, FVC, FEV1/FVC ratio). Data were analysed using appropriate statistical methods, adjusting for potential confounders such as age, gender, and duration of smoking.

Results: Preliminary results indicate that both e-cigarette and tobacco cigarette smokers exhibited reduced pulmonary function compared to non-smokers. Tobacco cigarette smokers had a significant reduction in FEV1 and FVC values compared to e-cigarette smokers. However, e-cigarette smokers also showed notable impairment in their PFTs, suggesting potential early lung damage. The FEV1/FVC ratio was more affected in tobacco smokers, indicating obstructive patterns, while e-cigarette users exhibited a mixed pattern of restriction and obstruction.

Conclusion: The findings of this pilot study suggest that both e-cigarettes and tobacco cigarettes negatively impact pulmonary function in young adults, with tobacco cigarettes having a more pronounced effect. However, the observed impairments in e-cigarette users highlight the potential risks associated with their use. Larger studies are warranted to confirm these findings and further explore the long-term pulmonary consequences of e-cigarette smoking.

Correlation between umbilical cord blood neutrophil lymphocyte ratio and vitamin D deficiency in term AGA neonates

Dr. Anagha.P [1] , Dr. Saraswathy.L [1] , Dr. Suja Gopalakrishnan [1] , Dr. Chithra.R [2]

[1] Department of Physiology,[2] Department of OBGY, Amrita School of Medicine, Kochi

Background: The active form of Vitamin D, 1,25-dihydroxyvitamin D_3, affects both innate and adaptive immunity, and its deficiency may increase infection risk. Neutrophil-Lymphocyte Ratio (NLR) is a cost-effective, easily calculable marker of systemic inflammation. Studies show an inverse relationship between NLR and Vitamin D levels. Understanding this relationship could make NLR a useful indirect marker for assessing Vitamin D deficiency in newborns. **Objective:** To investigate the correlation between NLR and Vit-D levels in cord blood in term AGA (Adequate for gestational age) newborns. **Materials and methods**: A cross-sectional study, includes 47 term AGA neonates delivered in AIMS, Kochi during January 2023 to July 2024. Study excluded preterm babies, IUGR, Babies with congenital anomaly. Study sample includes 47 neonates irrespective of mode of delivery. After obtaining informed consent, 2ml of umbilical cord blood was collected in an EDTA tube immediately after delivery. The collected blood was sent to the clinical pathology department of AIMS, Kochi and complete blood count was assessed by Sysmex CBC analyser and NLR was calculated. Vit-D levels was measured using electrochemiluminescence assay. **Result**: The statistical analysis was done using Spearman's rank correlation coefficient and it revealed a statistically significant mild negative correlation between umbilical cord blood NLR and Vit-D levels ($r = -0.429$). Higher NLR values were associated with lower Vit-D levels in the neonates. **Conclusion:** Higher NLRs are associated with lower Vit-D levels. Since both are biomarkers of infection, further studies need to be conducted to analyse if newborns with abnormal NLR & Vit-D level are prone to infections.

Comparison of Blood pressure ranges estimated with mercury sphygmomanometer and CMCNIBP in pregnant women.

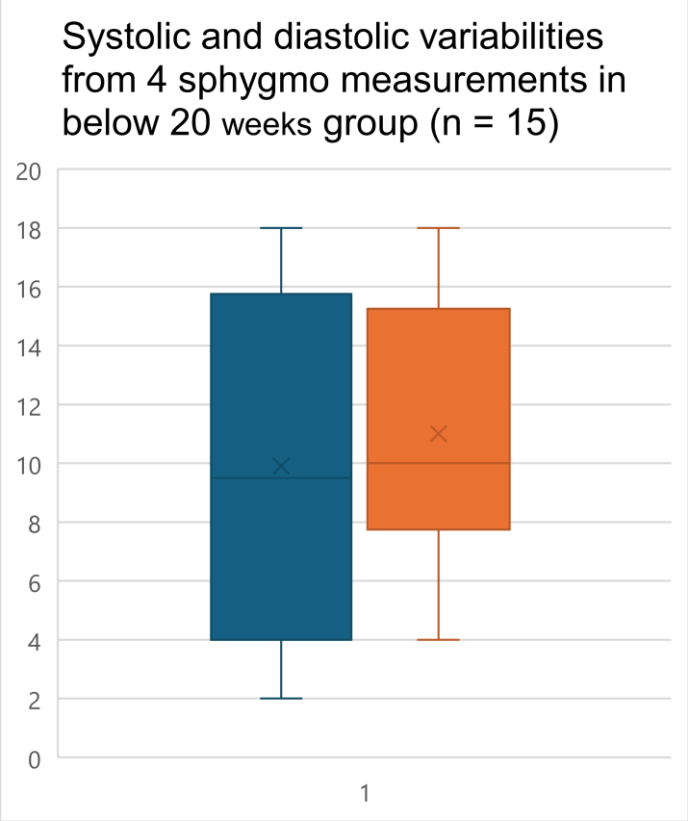
Authors: Pamela Gitanjali Joseph and Sathya Subramani

Introduction: Blood pressure is a highly varying signal and Blood Pressure Variability is gaining importance as a risk predictor. Current cuff-based methods of BP measurement provide only single-point estimates of systolic and diastolic pressures. We have developed a non-invasive instrument (CMCNIBP) that uses pulse- plethysmography to give the whole range of systolic and diastolic pressures over a few minutes (Ultra short-term BP variability). We will present the results of blood pressure estimates from 4 sphygmomanometric estimates and CMCNIBP in the following categories of pregnant women: below 20 weeks, above 20 weeks, gestational hypertension and preeclampsia.

AIM: To compare mercury sphygmomanometer BP estimates against CMCNIBP range estimates in antenatal women.

Methodology: Blood pressure was estimated 4 times with sphygmomanometry by two observers in 60 antenatal women divided into 4 groups as stated above. The measurements are numbered M0, M1, M2 and M3. Between M1 and M2, BP range was estimated with CMCNIBP.

Results: The range of BP recordings estimated with both instruments was analysed and the results compared. Analysis of one group is provided here as an example. When only the sphygmomanometric measurements were considered, systolic and diastolic pressures varied by more than 10 mmHg in half the number of subjects over 4 recordings.



CMCNIBP provides 2 sets of pressures – one central (pressure proximal to the cuff) and one peripheral (pressure distal to the cuff. In a validation study from our lab, it is shown that the peripheral pressures reported by CMCNIBP match the intra-arterial values).

When the lowest and highest systolic and diastolic estimates from 4 sphygmomanometric measurements were compared with peripheral BP estimates from CMCNIBP, it was found

that sphygmomanometry under reports systolic pressures in antenatal women below 20 weeks of pregnancy, while diastolic pressure estimates were either higher or lower than CMCNIBP. Analysis of all 4 groups will be presented.

Conclusion: BP estimated as a single point value with the current non-invasive BP equipment will not suffice. Estimating the US-BP variability accurately with a cost-effective instrument will go a long way in early diagnosis and may even call for a revision in blood pressure cut-off protocols.

THE EFFECTS OF SKIPPING BREAKFAST ON SLEEP, COGNITIVE FUNCTION AND PHYSICAL PERFORMANCE IN MBBS STUDENTS

ABSTRACT

OBJECTIVES:

To evaluate the effects of skipping breakfast on MBBS students by assessing its impact on sleep quality, sleep duration, cognitive function and physical performance.

MATERIALS AND METHODS:

This observational study was conducted on 50 MBBS students aged 18 to 21 at Sree Mookambika Institute of Medical Sciences.

Participants were divided into two groups: Group A consisted of individuals who regularly skipped breakfast, and Group B included those consistently ate breakfast.

- **Sleep Quality and Duration:** Assessed using the Pittsburgh Sleep Quality Index (PSQI).
- **Cognitive Function:** Evaluated through memory recall and concentration tasks using the Stroop test.
- **Physical Performance Test:** Measured using a 2-minute walk test and flexibility exercises.

RESULTS:

Of the 50 MBBS students, 25 regularly skipped breakfast (Group A) and 25 consistently ate breakfast (Group B).

- Students who skipped breakfast had poorer sleep quality (PSQI score of 6.96), shorter sleep duration (6.50 hours), lower memory recall (4.48 words), slower reaction times in the Stroop test (37.40 seconds), and reduced physical performance (walked 1,285.20 meters, with 0.48 cm of flexibility).
- In contrast, students who ate breakfast had better sleep quality (PSQI score of 5.68), longer sleep duration (7.42 hours), higher memory recall (5.04 words), faster reaction times (34.40 seconds), and better physical performance (walked 1,313.60 meters, with 1.00 cm of flexibility).

CONCLUSION:

Skipping breakfast was associated with poorer sleep quality, diminished cognitive function, and lower physical performance in MBBS students compared to those who ate breakfast regularly. Consuming breakfast daily is linked to better sleep, improved cognitive function, and overall enhanced physical health.

AUTHORS NAME: DR. R. NAVEEN

DESIGNATION: 1ST YEAR POSTGRADUATE

BRANCH: PHYSIOLOGY

INSTITUTION: SREE MOOKAMBIKA INSTITUTE OF MEDICAL SCIENCES, PADANILAM, KULASEKHARAM, KANYAKUMARI DISTRICT – 629161 TAMILNADU.

PAPER PRESENTATION TITLE: THE EFFECTS OF SKIPPING BREAKFAST ON SLEEP, COGNITIVE FUNCTION, AND PHYSICAL PERFORMANCE IN MBBS STUDENTS

COMPARISON OF RESPIRATORY EFFICIENCY AMONG TYPE II DIABETICS AND NON DIABETICS AND ITS CORELATION WITH THE DURATION OF DISEASE

Dr. N. Jeyalakshmi[1], Vidya Anto[1], Viji Devanand[1]

Department of Physiology, Stanley Medical College, Chennai

Background: Diabetes Mellitus is a major metabolic disorder the long term effects of which includes dysfunction and failure of various organs.

Aim: To assess respiratory efficiency in Type II Diabetic patients and compare it with that of Non Diabetic controls and correlate results with the duration of disease.

Method: After getting clearance from Ethical Committee, this cross sectional study was carried out among 80 subjects, both male and female in age group of 40 to 55 years. The study group comprised of 40 Type II Diabetics selected from Diabetic OPD of Stanley Hospital and the control group of 40 Non Diabetics from general population. Based on duration of the disease, the study group was further divided into two groups with 20 subjects less than and 20 subjects more than 10years of Diabetes. Respiratory efficiency was assessed by performing the following tests: Breath holding time (BHT), Expiratory blast test (EBT), Respiratory endurance test (RET) and Peak expiratory flow rate (PEFT) and the values were recorded. Statistical analysis was done by using unpaired t-test in window stat 9.2 software

Result: Study group showed decrease in BHT, EBT, RET and PEFR values compared to control group, which were statistically significant.

Conclusions: Type II Diabetes mellitus is known to alter lung connective tissue, thicken the basal lamina of alveolar membrane and capillary endothelium, leading to loss of bronchial motor tone and weakness of respiratory muscle. All these compromise the lung function, with the severity corelating with increased duration of disease.

Keywords: Diabetes Mellitus, Breath holding test (BHT), Expiratory blast test (EBT), Respiratory endurance test (RET), Peak expiratory flow rate(PEFR).

ASSESSMENT OF PEAK EXPIRATORY FLOW RATE AMONG FIRECRACKER WORKERS RELATIVE TO THE DURATION OF EXPOSURE

Dr.E.Manimozhi, Physiology Post graduate, Madurai medical college.

Dr.N.Ethiya, Head of the department, Virudhunagar medical college.

Background: Firecracker workers are often exposed to harmful chemicals and fine dust particles, which over time may lead to smaller airway diseases like Bronchial asthma, chronic obstructive pulmonary disease. This study is aimed at PEFR measurements in firecracker workers with different periods of exposures (3-5 and > 5 years)to understand possible effects on respiratory health and to compare the results with those of unexposed groups.

Methods: A cross-sectional study was conducted on total 90 participants with 30 individuals assigned to each group. Group A(workers between 3-5 years exposure), Group B (workers with >5 years exposure) and Group C (non-exposed individuals).PEFR was recorded using Wrights peak flowmeter and the values of each groups were compared by statistical analysis using a paired T-test and ANOVA test at $p<0.05$.

Results: In males, Mean PEFR for Groups A,B, and C were 370 L/min, 340 L/min and 490 L/min, respectively. In females, Mean PEFR for Groups A,B, and C were 330 L/min, 290 L/min and 410 L/min, respectively. There was a significant difference between Group C and the exposure groups (Group A & B)($p<0.01$)in both sexes. Group B also had significantly lower PEFR than Group A ($p<0.01$)in both sexes, indicating compromised lung function among those with prolonged exposure.

Conclusion: Previous studies have shown that firecracker chemicals significantly damage pulmonary function. My research too confirms that long-term exposure to these chemicals leads to diminished lung function compared to those who are not exposed. Regular health screenings, improved workplace safety procedures and routine breathing exercises play a crucial role in reducing the impact of inhalational exposure for firecracker workers.

Impact of Smoking on Heart Rate Variability: A Cross – Sectional Study of Healthy Individuals in a Tertiary Care Center

Dr. B. Jaya[1], Dr. S. Sumitra[2], Dr. S. Prasath[3]

[1]Professor and Head, [2]Professor, [3]Post Graduate

[1,2,3]Department of Physiology, Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Madhurantakam, Chengalpattu District.

Background: Heart rate variability (HRV) is a well-established, non-invasive tool used to assess autonomic nervous system functions and cardiovascular health. It reflects the balance between sympathetic and parasympathetic activity, providing insight into the body's adaptability to physiological and environmental stressors. Smoking, a major modifiable risk factor for cardiovascular disease, has been shown to negatively influence autonomic regulation. However, the specific effects of smoking on HRV in otherwise healthy individuals remain a subject of interest.

Aim: The aim of our study is to evaluate the impact of smoking on HRV by comparing healthy smokers and non-smokers in a tertiary care center.

Materials and Methods: This cross-sectional study was conducted at KIMS Medical College following approval from the Institutional Ethical Committee. After obtaining written informed consent, a total of 100 healthy individuals aged 20-40 years were enrolled, comprising 50 smokers and 50 non-smokers. A detailed medical history and thorough systemic examination were performed for each participant. HRV measurements were recorded using the Physiopac 8-channel system (Medicaid). The collected data were analyzed using SPSS software (version 25).

Result: Our study showed that smokers exhibited significantly increased low frequency LF/HF ratio with p value <0.0001. They also shows significantly decreased Standard deviations of normal to normal intervals (SDNN) with p value <0.0001. The above results indicate impaired autonomic regulation with a shift towards sympathetic dominance in smokers compared to non-smokers.

Conclusion: Smoking significantly reduces heart rate variability in healthy individuals, indicating altered autonomic function. These findings emphasize the need for smoking cessation to prevent long-term cardiovascular risks.

Keywords: Heart Rate Variability, Parasympathetic activity, Smokers, Sympathetic activity.

TITLE: A COMPARATIVE STUDY OF NEUTROPHIL LYMPHOCYTE RATIO AND PLATELET LYMPHOCYTE RATIO IN HYPERTENSIVE PATIENT AND NORMOTENSIVE PERSON.

PRESENTOR: M. Birunthavathi[1], Second year postgraduate.

GUIDE: Dr. S. Sudha[2], Associate professor.

Department of Physiology, Thanjavur Medical College and Hospital, Thanjavur.

Email id: birunthavathi35@gmail.com

Phone no:9486994398

Medical Council Registration:118597

ABSTRAT

INTRODUCTION:

Hypertension is a worldwide global burden. Long term hypertension progress to development of atherothrombotic disease. Neutrophil and platelet play an important role in cardiovascular events and development of atherothrombotic disease reflects inflammation and physiological stress reflects platelet and clotting system activation, local vessel wall inflammation and endothelial dysfunction

AIM: Our study is required to explore the association between NLR and PLR with hypertension and as an indicator of cardiovascular risk.

METHODOLOGY:

Study was approved by the institutional ethical committee of Government medical college of Thanjavur. Written informed consent was obtained. Cross sectional study was done at department of general medicine OPD duration between July 2024 to august 2024 and I selected 40-to-60-year male and females' patient for 50 hypertensive patient and 50 normotensive patients. The criteria for selected hypertensive patient are systolic BP > 140 and diastolic BP >90.normotensive patient blood pressure was systolic blood <140 and diastolic bp <90. Blood pressure were measured by using sphygmomanometer. Under aseptic precaution 3ml of venous blood taken and sent for complete blood count analysis at department of pathology. Data were collected and entered in MS -EXCELL and statistical analysis were done at SPSS version 16.

RESULT:

Normal NLR ratio for healthy adult is **between 0.78 and 3.53**. Neutrophil to lymphocyte ratio (NLR) was significantly higher **5.3010±2.00406(P<0.001)** in study group. Normal PLR ratio **is between 90 to 210.** Platelet to lymphocyte ratio(PLR) was also higher in study group but statistically not significant **156.8717±58.48950 (P<0.440)**

CONCULSION:

Hypertension with higher NLR have greater risk for development of a clot in the coronary or cerebral circulation causes acute myocardial infraction, ischemic stroke, Atherothrombotic events

KEY WORD: Hypertension, Neutrophil, Lymphocyte, Platelet, Blood Pressure.

Title: A CROSS-SECTIONAL STUDY ON EFFECT OF WORKING HOURS ON NERVE CONDUCTION IN COMPUTER OPERATORS

Authors: Dr.M.Shabiha, Dr.M.Anita, Dr.H.R.Haribabu
Presenting Author: Dr.M.Shabiha
Official Address: Department of Physiology, Tirunelveli Medical College.
Mobile: 6369794823
Email: mshabiha98@gmail.com

Background:

Information Technology has undergone a greater revolution in past decades. People spending long hours in computer are particularly at risk of developing nerve related issues. Work related musculoskeletal disorder of upper extremities, defined as injuries/disorders of muscles, joints, nerves, tendons, cartilage, spinal discs associated with exposure to risk factor in workplace. Features are pain, paraesthesia, subjective weakness with regular computer use.

Nerve conduction is affected by extended working hours. Relationship between working hours&nerve conduction is not well documented. This study is aimed at studying effects of working hours on nerve conduction in chronic computer users.

Aim:

To study nerve conduction velocity of median, ulnar nerves in mouse – operating limb. To investigate WRMSD in relation to hours of computer use per day.

Methodology:

50 subjects (20-40 years) were included. Both sexes.

Divided into two groups depending on working hours.

Group A (≥6hrs/day at computer) – 25

Group B (<2 hrs/day at computer) – 25

Nerve conduction study was conducted. Conduction velocity of motor&sensory components of Median&Ulnar nerve were compared between 2 groups. **p value<0.01** was significant.

Result:

Conduction velocity in motor&sensory components of Median&Ulnar nerve was significantly decreased in group A than B

Discussion:

Due to repetitive movements, friction produced leads to inflammatory changes&nerve compression. This compression leads to mechanical disruption of blood nerve barrier compromising neural function. Increased intraneural pressure leads to oedema, further compresses nerves&leads to axonal&myelin sheath disruption, increasing distance between nodes of Ranvier, interferes with impulse transmission, decreasing conduction velocity.

Conclusion:

Computer operators who work long hours are at risk for repetitive stress injury. Decreased conduction velocities confirm peripheral neural involvement in these individuals.

IMPACT OF WAIST-HIP RATIO ON PEAK EXPIRATORY FLOW RATE IN YOUNG ADULTS

Dr. Fhirdhouse.M.A
Ph: 8778055808 Email: fhirdhouse@gmail.com
Dr R. Shanmughavadivu MD, Professor and HOD, Department of Physiology,
Coimbatore Medical College, Coimbatore.

Introduction:

Obesity - excessive fat accumulation causes adverse effects. Waist-hip ratio (WHR) is a measure of abdominal obesity. Increase in abdominal fat is associated with respiratory malfunction. PEFR is a convenient tool to measure lung functions using peak flow meter. This study is proposed to investigate relationship between PEFR with biomarker of abdominal obesity- WHR in young adults.

Aim:

To study the impact of waist-hip ratio(WHR) on peak expiratory flow rate(PEFR) in young adults.

Methodology:

Cross-sectional study of 100 Ist year MBBS students (18-25 years). Waist circumference and hip circumference measured using measuring tape. Waist-to-Hip Ratio (WHR) was calculated as Waist Circumference (WC) divided by hip circumference (HC). PEFR recorded using Mini Wright's Peak Flow Meter. Readings were tabulated and compared.

Results:

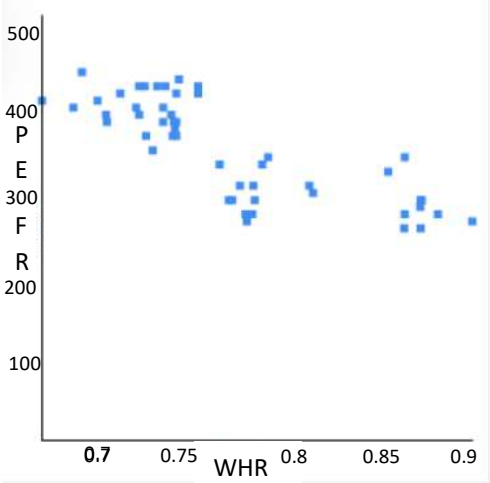
Table 1:

Variables	Male (n = 50) (Mean± SD)	Female (n = 50) (Mean± SD)
WC (cm)	68 ± 2.8	64 ± 2.8
HC (cm)	82.5 ± 0.7	79.5 ± 2.1
WHR	0.82 ± 0.02	0.80 ± 0.01
PEFR (L/min)	465 ± 21.21	355 ± 7.07

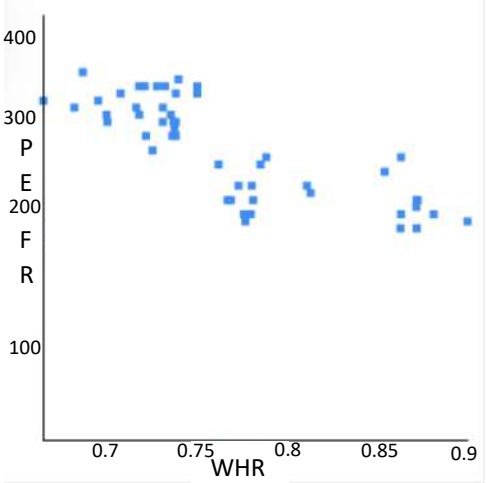
Table 2:

WHR and PEFR correlation	'r' value	'P' value
Male	-0.825	P<0.001
Female	-0.789	P<0.001

MALE



FEMALE



Conclusion:

This study shows a significant negative correlation between WHR and PEFR in young adult. Advice and counselling should be provided regarding adverse effect of high WHR and to practice regular exercise and suitable diet.

Keywords:

Waist – Hip Ratio (WHR), Peak Expiratory Flow Rate (PEFR).

EFFECT OF SUDARSHAN KRIYA YOGA ON STRESS REDUCTION IN MEDICAL STUDENTS

DrJAI CHANDANI R.P.C.-FINAL YEAR PHYSIOLOGY PG

Under the guidance of Dr.R.Shanmughavadivu.M.D.,Professor &HOD, Department of physiology, Coimbatore Medical College

BACKGROUND:

Stress, depression and anxiety have a yearly prevalence of 10 to 20% in the general population.Sympathetic nervous system gets activated during stress. Sudarshan Kriya (SK) is said to have wide and varied effects on human body in different aspects. SK stimulates vagal response and counterbalances the effects of stress. Medical students are experiencing stress due to various reasons like academic pressure,exams,relationship problems,peer pressure,family expectations and lack of time management.This study aims to study the effect of **SUDARSHAN KRIYA YOGA ON STRESS REDUCTION IN MEDICAL STUDENTS.**

METHODOLOGY :

An interventional study was conducted for three months.100 medical students of age group 17 to 21 years were included in this study of which 50 were males and 50 were females. Students involved in sports activities,practising yoga and having major medical illness like tuberculosis and diabetes were excluded from the study.With the help of questionnaire stress scores were measured using Perceived stress scale and severity of stress noted. Subjects were asked to do **SUDARSHAN KRIYA YOGA,** for15 minutes thrice in a week for three months. Stress scores were measured again after 3 months of yoga practice using Perceived stress scale and severity of stress noted. The pre and post-intervention values was tabulated and compared.

RESULTS:

The mean stress score pre and post yoga were found to be 20.73 and 12.41respectively using paired t-test. Statistical significance with a p value of < 0.001 was obtained.

CONCLUSION:

Significant reduction in perceived stress levels was observed following **SUDARSHAN KRIYA YOGA**.This yoga has a positive effect on physical and mental health of the individuals.It can be recommended as a highly beneficial and non-invasive tool to relieve stress.

COMPARISON OF MENTAL STRESS BEFORE AND AFTER AEROBIC EXERCISE TRAINING IN YOUNG ADULTS

DR.N.TAMILSELVAN UNDER THE GUIDANCE OF

DR.S.KAVITHA .,M.D ASSOCIATE PROFESSOR , DEPARTMENT OF PHYSIOLOGY

COIMBATORE MEDICAL COLLEGE

INTRODUCTION

Lowered mental well being of students is a growing health and social problem .Experiencing high levels of stress for a longer period of time has been associated with increased risk of mental health promblems .So this study done to analyse the importance of regular exercise on mental stress

METHODOLOGY

A cross sectional study done in 60 young male medical students in age group of 18 to 20 years in Coimbatore medical college were selected for the study .Male medical students between age group of 18 to 20 years without any h/o medical illness ,without h/o alcohol intake and smoking were included in the study . Pre exercise stress score were assessed .Regular aerobic exercise training were given for 2 months to the study group .Post exercise stress score were assessed by using stress questionnaire.

RESULT

In this study pre exercise stress score was 20±2 , Post exercise stress score was (14±2) .The mean score was P value < 0.0001 was found to be statistically significant

CONCLUSION

The study results shows that regular aerobic exercise training are effective in reducing stress among young adults . The study emphasizes the concept of regular exercise for the well being of the student population

TITLE OF THE STUDY: Study on the mechanism by which high magnesium causes intestinal smooth muscle relaxation

AUTHORS: Prashanthi Ravikumar, Neetu Prince, Vinay Oommen and Anand Bhaskar

Introduction:

Hypermagnesemia is known to cause paralytic ileus in adults as well as in newborns, whose mothers are treated with magnesium sulphate for pre-eclampsia or neuroprotection. Divalent cations like magnesium can screen the negative surface charge of intestinal smooth muscle to cause hyperpolarization and relaxation. The present study investigated whether the high magnesium-induced intestinal relaxation is due to screening of the surface negative charges by studying the effect of other divalent cations on the basal tension of the intestinal smooth muscle.

MATERIALS AND METHODS:

Duodenal strips of chicken were obtained from the slaughterhouse and suspended in an organ bath with oxygenated physiological salt solution (PSS), maintained at 37^{o}C. One end of the strip was connected to an isometric force transducer connected to PowerLab data acquisition system (AD Instruments, Australia) after force calibration. A preload of 0.05 N was applied and after stabilization of basal tension with PSS, magnesium chloride (5mM/L) was added to the organ bath to study its effect on the basal tension of the intestine. In other sets of experiments, after stabilization of basal tension with PSS, nickel chloride (5mM/L) or copper chloride (5 mM/L) was added to the organ bath to study their effect on the basal tension of the intestine. A total of six experiments were done with each intervention.

RESULTS

The addition of magnesium chloride (5 mM/L) caused a reduction in the basal tension of the intestine which was significant. There was also a significant reduction in the basal tension with the addition of nickel chloride (5 mM/L). The addition of copper chloride (5 mM/L) also caused a significant reduction in the basal tension.

CONCLUSION

High magnesium-induced relaxation of the intestinal smooth muscle was like the relaxation induced by other divalent cations like nickel and copper. Thus, magnesium could be screening the negative charges on the surface of the smooth muscle membrane to cause intestinal relaxation. Further experiments with other divalent and trivalent cations need to be done in the future to confirm this hypothesis.

The relationship between obesity and cognition function based on BMI in type 2 diabetes mellitus attending Goa medical college.

By
Dr. Rekha Upparatla
Junior Resident
Guide: Dr. Sanjay S. Pandarbale
Associate professor
Department of physiology
Goa medical college

Abstract

Background

In the modern world, the prevalence of obesity and type 2 diabetes is on rise day by day. The relationship between obesity and type 2 diabetes is well known, but the impact of obesity on cognition function is yet to be understood or remains controversial. This study aims at understanding whether obesity based on BMI causes cognitive impairment if any and the role played by obesity in causing the impairment.

Research design and methods

The study design is cross-sectional study, cognition was tested in patients suffering with type2 diabetes mellitus using Modified MMSE. Height and weight were measured using standard weighing machine and stadiometer and BMI was calculated using Quelete's index

BMI = Height (kg)/weight (m^2).

Results

The study consists of 250 participants of age 30-60 years. Study subjects were distributed according to WHO classification of BMI (44.8% - over-weight and 14.8% - obese and 2% - overt obese). Then correlation between BMI and Modified MMSE scores showed significant with p value of 0.002* (df=5, F=1.593).

Conclusions

Obesity causes cognitive impairment in type2 diabetes mellitus based on BMI and the obesity induced effects on cognitive decline are insulin resistance, oxidative stress and neuroinflammation.

ANALYSIS OF VISUAL REACTION TIME IN TYPE 2 DIABETES MELLITUS.

N. Anbuselvi[1], Lovie Beneta T[1], Viji Devanand[1]

[1]Department of Physiology, Stanley Medical College, Chennai

INTRODUCTION: -

Diabetes mellitus is a common endocrine disorder leading to neuropathy affecting somatosensory and motor system. The severity of neuropathy may be related to duration and degree of glycemic control. Visual Reaction time (VRT) is a simple, noninvasive, ideal tool for evaluating the processing speed of central nervous system and the co-ordination between sensory and motor system. Neurological deficit in patients with diabetes can be diagnosed earlier by measurement of reaction time before it is clinically evident.

OBJECTIVES: -
To assess VRT for normal controls and patients with type 2 Diabetes Mellitus.
To correlate VRT with the HbA1C level in patients with type 2 diabetes mellitus.

MATERIALS AND METHODS: -
45 patients with type 2 diabetes mellitus in 30-50 years age group, on oral hypoglycemic drugs for >5years and 45 age matched controls were selected as study groups. Patients with hypertension, visual disturbances, smokers, alcoholics and neuro vascular complications were excluded. Inco Reaction Time Test Apparatus model 651 was used to measure the visual reaction time for Red and green colour light. VRT values were correlated with HbA1C levels. Mann-Whitney U test and Pearson's correlation were employed. p value <0.05 was considered as significant.

RESULTS: -
Visual reaction time for red ($p < 0.001$) and green ($p < 0.001$) color was significantly prolonged in type 2 diabetes mellitus patients than controls.
There was weak positive correlation noted between visual reaction time and HbA1C level.

CONCLUSION: -

This study concludes that Visual Reaction time is significantly prolonged in type 2 diabetes mellitus patients. It can be used as simple cost-effective method in the early diagnosis and management of neuropathy.

Title: Construction and validation of a low-cost piezoelectric finger pulse sensor

Authors: Pamela Gitanjali Joseph and Anand Bhaskar

Background:

We describe the construction and validation of a low-cost piezoelectric finger pulse sensor.

Methods

A low-cost piezoelectric finger pulse sensor was constructed using piezoelectric discs purchased from electronic shops. The recording of the pulse waveforms was done with the low-cost piezoelectric finger pulse sensor attached to the volunteers' right index finger and the commercial AD Instruments (Australia) finger pulse sensor to the right ring finger and vice versa. Similarly, pulse-wave forms were recorded in the left index finger with the low-cost piezoelectric finger pulse sensor and commercial AD Instrument finger pulse sensor on the left ring finger and vice versa. The pulse waveforms from both sensors were recorded for 1 minute at 1 KHz sampling frequency using LabChart software. A total of 44 pulse recordings were done from 11 volunteers after informed consent. The mean heart rate, mean inter-pulse interval and mean pulse frequency of recorded pulse waveforms were analyzed and then compared using the Bland-Altman plot.

Results

The R-value obtained for pulse rate, inter-pulse interval and pulse frequency was close to 1 with p value less than 0.001 showing a high degree of correlation in the pulse parameters obtained using the low-cost piezoelectric finger pulse sensor and AD Instruments piezoelectric finger pulse sensor. Bland-Altman plots for the above three parameters also showed a high degree of agreement between the low-cost piezoelectric finger pulse sensor and the AD Instruments piezoelectric finger pulse sensor.

Conclusion

The pulse parameters obtained from the two sensors showed a high degree of correlation and agreement showing that the low-cost piezoelectric finger pulse sensor is as good as the commercial piezoelectric finger pulse sensor.

Keywords: piezoelectric, pulse, pulse rate, inter-pulse interval, pulse frequency

Mechanism of Cleistanthin A cytotoxicity on NB4 cells (Human Promyelocytic Leukemia Cell Line)

Dr. Camilla Preethi. J, Dr. Soosai Manickam Amirtham, Dr. Sathya Subramani, Dr. Neetu Prince
Department of Physiology, Christian Medical College Vellore, CMC, Vellore

BACKGROUND: APML (Acute Promyelocytic Leukemia) is a subtype of leukemia caused by the formation of the mutant oncogene PML-RARA (Promyelocytic Leukemia-Retinoic Acid Receptor-Alpha), which arises from a reciprocal translocation of chromosomes 15 and 17. APML is treated with All-Trans-Retinoic Acid (ATRA) and Arsenic Trioxide (ATO), which induces apoptosis and differentiation in APML cells.

NB4 cells, an APML cell line, have been extensively used to study the efficacy of anticancer drugs. The proposed compound Cleistanthin A is a diphyllin glycoside of the Cleistanthus collinus. The anti-cancer property of Cleistanthin A has been demonstrated in several tumor models. Previous studies conducted in our lab have shown the cytotoxic effect of Cleistanthin A on NB4 cells in nanomolar concentrations. However, the mechanism behind the cytotoxicity was unknown, which was evaluated in this study.

The study aimed to investigate the mechanism of Cleistanthin A cytotoxicity on NB4 cells.

METHODOLOGY: Cleistanthin A was isolated from the aqueous extract of freshly collected Cleistanthus collinus leaves using preparatory HPLC.NB4 cells in culture were treated with Cleistanthin A (500 and 1000 nanomolar doses) for 24 and 48 hours. The expression of the oncogenic proteins was assessed using the Western Blot and Immunofluorescence method.

RESULTS: Analysis showed reduced RARA protein expression after Cleistanthin A treatment compared to the control group.

CONCLUSION: The finding that Cleistanthin A induces the degradation of mutant RARA protein is a significant step forward, suggesting its potential as a novel therapeutic strategy for APML. Further experiments are planned to identify the degradation pathways of PML-RARA protein.

Title

HARNESSING ROLE PLAY TO FOSTER EMPATHY IN MEDICAL EDUCATION

Authors

1. **Dr. Thoufeeq Nahas Yoosuf. T**
   Post Graduate Student, Physiology
   JMMC&RI, Thrissur
2. **Dr. Biju Bahuleyan**
   Professor & HOD, Physiology
   JMMC&RI, Thrissur
3. **Dr. Rose Babu**
   Associate professor, Physiology
   JMMC&RI, Thrissur

Abstract

Background: Empathy is considered as the cornerstone of exemplary patient care and training medical students to develop this skill presents a significant challenge for educators. The traditional teaching method often fall short in effectively instilling empathy. This study aims to explore role play as a pedagogical strategy to provide an immersive learning experience for medical students to capture empathetic principles.

Methods: This observational study involves 100 phase I M.B.B.S students. Jefferson scale of empathy was used to quantify empathy level among the participants. The participants were divide into 20 groups each consisting of 5 students and engaged in role plays depicting various clinical scenarios. Post role play session, feedback was taken from both the participants and the faculty. The empathy scores and the components were compared among male and females using an independent sample t test and ANOVA respectively.

Results: The mean empathy score of the participants were above the cut off points (119.42 ± 9.768). There was no significant difference in total or component wise empathy score among genders. However, the component “putting yourself into patient shoes” received lower scores compared to other empathy components. Feedback taken was supportive of role play as a effective method for learning empathy.

Conclusion: The methodology employed in the role play session offered each student an immersive learning experience, facilitating the development of soft skills such as empathy. The positive feedback underscores the potential of role play as a valuable pedagogical strategy in medical education.

ALTERATION OF PULMONARY FUNCTION PARAMETERS OF MODERATE POST COVID PATIENTS AFTER ONE YEAR FOLLOWUP ATTENDING A TERTIARY CARE CENTRE

Dr.Silpa T G[1] , Dr.Evelyn Thomas[2]

[1]Junior Resident,Department of Physiology,Government Medical College Kottayam

[2]Dr Evelyn Thomas,Associate Professor, Department of Physiology,Government Medical Collge ,Kottayam:

Correspondence to Dr Silpa T G, 8129991374, E-mail:tgsilpa639@gmail.com

ABSTRACT

BACKGROUND

The COVID-19 pandemic, caused by SARS-CoV-2, has led to significant global issues. Individuals with SARS-CoV-2 infection may experience persistent symptoms beyond the acute phase, lasting weeks or months. This study aims to assess the improvement in pulmonary function in moderate post-COVID patients after a one-year follow-up, compared to values recorded three months post-infection.

AIM

To compare the Pulmonary function parameters FEV_1,FVC and FEV_1/FVC of moderate covid patients after 1 year with the values of 3 months of covid infection.

METHODOLOGY

A descriptive study was conducted over one year among 120 moderate post-COVID patients at Government Medical College, Kottayam, Kerala. Pulmonary function parameters were assessed one year post-infection and compared to those taken three months after infection to evaluate any improvement. According to the 2005 ATS/ERS guidelines for airway obstruction, normal values are FEV1 >80%, FVC >80%, and FEV1/FVC >70%. Values below these indicate impaired pulmonary function and airway obstruction.

RESULT

FEV1, the forced expiratory volume in the first second, was decreased in moderate COVID patients. After one year, values were significantly higher (SD=77.92±15.63) than at three months (SD=76.49±15.47, $p<0.05$), but still below the normal range. FVC also improved after one year (SD=79.43±14.42) compared to three months (SD=78.01±13.64, $p<0.05$). The FEV1/FVC ratio remained normal at three months (SD=97.43±9.06) and one year (SD=98.87±9.05), indicating a restrictive lung pattern. Restrictive lung involvement persisted in all 120 patients after one year.

CONCLUSION

Pulmonary function tests after three months of moderate COVID infection showed a restrictive lung pattern (FEV1 <80%, FVC <80%, normal FEV1/FVC). While all parameters improved after one year, the restrictive pattern persisted.

KEY WORDS

Sars-cov -2,FEV_1 –Forced expiratory volume in first second, FVC-Forced vital capacity, Post covid patients, Pulmonary function parameters.

Title: Effect of lusitropic drugs on *Cleistanthus collinus* poisoning-induced myocardial inhibition

Steny S Sarto, Nivethitha JK, Soosai Manickam Amirtham, Kawin Padmaja, Neetu Prince, Sathya Subramani

Department of Physiology, CMC, Vellore.

Introduction:

Suicidal poisoning with *Cleistanthus collinus* is common in southern India. It causes death due to shock. Intraventricular pressure recording in isolated rat heart model perfused with the toxic principle (Cleistanthoside A) showed a rising diastolic pressure and diminishing pulse pressure, suggesting failure of ventricular relaxation. This study was done to assess the reversibility of relaxation failure, using known lusitropic agents in an isolated rat heart model.

Materials and methods:

- ✓ Cleistanthoside A was extracted from the boiled extract of fresh leaves using High-Performance Liquid Chromatography (HPLC)
- ✓ **Isolated rat heart experiment:** Wistar rats were Anaesthetized and the inferior vena cava (IVC) was cannulated through an abdominal incision. Heparinized ECF was infused through IVC cannula. Thoracic cavity was then opened, and thoracic aorta cannulated. The heart was freed of attachments. Coronaries were perfused with an oxygenated isotonic solution through the aortic cannula. Cleistanthoside A(500uM) and the lusitropic agent (Dobutamine) were infused along with the perfusate. Pressure recordings were made with a Millar catheter introduced into the left ventricle and data were collected using Power lab (AD instruments).

Results:

In the first set of experiments with Dobutamine (6uM) given after Cleistanthoside A, we observed that early intervention caused improvement in pulse pressure, whereas late intervention with Dobutamine did not.

We then investigated whether the improvement in pulse pressure during early intervention was really the effect of Dobutamine or if it was due to wash of toxin with just ECF. Early intervention with plain ECF caused a significant increase in pulse pressure even without a lusitropic agent (n=4).

Conclusion:

Case reports of suicidal poisoning with *Cleitanthus collinus* say that patients are hemodynamically stable for the first three days, after which they develop hypotension and cardiac arrest, and most patients succumb to the toxicity.

Our experiments suggest that clearing off the toxin (dialysis or diuresis) early during the illness without waiting for the manifestation of cardiac symptoms, can be life-saving.

ASSOCIATION BETWEEN BODY MASS INDEX AND GOLD STAGING OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)PATIENTS IN TERTIARY CARE CENTRE – A CROSS SECTIONAL STUDY

VIJAYALAKSHMI V[1] ,SUDHA S[2]

[1] SECOND YEAR POSTGRADUATE, [2]ASSOCIATE PROFESSOR

DEPARTMENT OF PHYSIOLOGY, THANJAVUR MEDICAL COLLEGE, THANJAVUR

MOBILE NUMBER: 9043909523, MAIL ID: drvijayalakshmistalin@gmail.com

INTRODUCTION:

COPD is a non communicable disease and major health problem globally. Nutritional depletion and weight loss are features of COPD. BMI is an independent risk factor for mortality in COPD patients

AIM:

To find out association between BMI and severity of obstruction (Global Initiative for Chronic Obstructive Lung Disease (GOLD) staging) of COPD

METHODOLOGY:

This study was hospital based cross sectional study. 66 study participants were selected by convenient sampling in thoracic medicine opd at a tertiary care centre. COPD cases of age 25 to 75 years both genders were selected. Ethical committee approval was obtained from institutional ethical committee,Thanjavur medical college,Thanjavur.Pulmonary function test (GOLD Staging FEV1> 80% - Mild, >50 to <80% -Moderate, >30 to <50%-Severe, <30%-very severe) and BMI(by Quetelet index) were recorded for all participants after getting informed written consent. Collected data were entered in MS excel file and appropriate statistical analysis were done by using SPSS version 16.

RESULTS:

In this study 33.3% participants were females and 66.7% were males.According to BMI, 28 participants were normal weight and 38 were underweight. According to Gold criteria 7 participants were in mild category,25 in moderate,27 in severe, 7 in very severe category. The association between BMI and GOLD staging was significant with p value<0.000

CONCLUSION:

COPD is a systemic disease. The association between BMI and poor prognosis of patients with COPD is a common clinical observation and it varies with different stages of COPD. Patients with low BMI(underweight), exhibited increase in severity of obstruction as per GOLD criteria.

KEYWORDS: Body mass index, bronchodilator, chronic obstructive pulmonary disease, global initiative for chronic obstructive lung disease, spirometry

TITLE: "A COMPARATIVE STUDY OF HEMOGLOBIN, TOTAL LEUCOCYTE COUNT AND SPO2 SATURATION OF HEMOGLOBIN CHANGES IN TOBACCO SMOKER AND NON-SMOKER"

Presenter:Dr.S.Deepika[1], First Year Postgraduate.
Guide : Dr S. Sudha[2], Associate Professor,
Department of Physiology, Thanjavur Medical College and Hospital, Thanjavur ,
Email id: deeps.vimal1@gmail.com
Phone no: 8056768463
Medical Council Registration No: 94753

ABSTRACT

BACKGROUND:

Smoking is the most important public health problem. Smokers have elevated risk of all varieties cardiovascular disease, peripheral vascular disease and strokes.

AIM:

This study aim is to evaluate the changes associated with the extent of adverse effects of tobacco smoking in value of concentration of Hemoglobin, Total Leukocyte count and SPO2 saturation of Hemoglobin in tobacco smokers and non-smokers in males.

METHODOLOGY:

A cross sectional comparative study done among 30 tobacco smoker and 30 non smoker males age group 20 to 70 years. All study groups were examined in department of medicine OPD,Thanjavur medical college and hospital, between July 2024 to September 2024.Convenient sampling method used to collect sample after getting informed consent from study group. Blood sample for hematological parameters taken and oxygen saturation of hemoglobin was done using fingertip pulse oximeter. . Data were entered in MS – excel and analyzed to use SPSS software version 16

.

RESULT:

In smokers Hemoglobin **was 17.7±1.92g/dl** and non smokers hemoglobin was **15.4.64±1.87g/dl (p<0.001)**, In smokers Total leukocyte count was **13.1±8.22cells /cu mm** and non smokers total leukocyte count **8.93±3.76cells/cu mm (p<0.014)** both are increased. Spo2 saturation of hemoglobin in smokers **97.5±1.67%** and in non smokers **99.5±0.50 (p<0.001)%** level slightly reduced. In smokers there was increased Hemoglobin, increased Total leukocyte count level and spo2 saturation of hemoglobin level slightly reduced.

CONCLUSION:

Smoking increases Hemoglobin, Total leukocyte count and reduces oxygen saturation of hemoglobin.Smoking cessation can improve changes in the hematological parameters Monitor these hematological markers regularly in smokers to detect early alterations and avert future catastrophes.

KEYWORD:

Smokers, SPO2, Hemoglobin, Total leucocyte count,

STUDY OF CORRELATION BETWEEN COGNITION AND QUALITY OF LIFE IN TYPE 2 DIABETES PATIENTS

MOHAMED AZAARUDEEN S[(1)], SUDHA S[(2)]

[(1)]FINAL YEAR POSTGRADUATE, [(2)]ASSOCIATE PROFESSOR

Name of the presenting author: MOHAMED AZAARUDEEN S, FINAL YEAR POSTGRADUATE, Department of Physiology, Thanjavur Medical College, Thanjavur.

Mobile no:9688625625, e-mail:vhsmazaar@gmail.com

Introduction: Diabetes mellitus is a complex metabolic disease in which both Cognition and Quality of life is affected. This study highlights the need for cognitive and quality of life assessment amongst the diabetics.

Aim: To study the correlation between cognition and quality of life in Type 2 Diabetes patients.

Methodology: 80 subjects of age 35 to 50 years of both sexes were included in this study. 40 cases and 40 controls. Cases were patients with Fasting Blood Sugar(FBS) >140mg/dl and Postprandial Blood Sugar(PPBS)>200mg/dl and controls were patients with FBS ≤110mg/dl and PPBS ≤140mg/dl. Patients with known thyroid disorders, diabetic complications, known underlying Cardiovascular, Renal, Hepatic Disorders, smokers, alcoholics, any medications that affect cognition, pregnant and lactating women, women during menstruation were excluded. For assessing the Cognition functions, Spatial memory test via Corsi Block tapping test and Verbal memory test via Five word test(FWT) were used. Quality of life were assessed by using WHOQOL-BREF questionnaire in native language. The results were statistically analysed by independent sample t test and Pearson's correlation coefficient(r) using SPSS 2021 software (p value: <0.05 were considered statistically significant).

Results: When compared to healthy persons, spatial memory scores in diabetics significantly decreased (P<0.000, r= -0.7). When compared to those in healthy individuals, the verbal memory scores of diabetics were significantly lower (P<0.01, r= -0.8). When comparing diabetics to healthy individuals, the diabetics' scores in the four dimensions of quality of life—physical health, psychological, social relationships, and environment—were significantly lower (P<0.000, r= -0.8).

Conclusion: There is a negative correlation between the blood sugar values and both cognitive and quality of life assessment indicating there was a significant decrease in the cognitive functions and quality of life in the diabetics when compared with healthy individuals.

Keywords: cognition, quality of life, type 2 diabetes.

TITLE : ASSOCIATION BETWEEN MEDICATION ADHERENCE AND QUALITY OF LIFE IN PATIENTS WITH ANXIETY DISORDERS

S.Vilva Bharathi , Pg ,Stanley Medical College, Chennai -1

INTRODUCTION: Prevalence of anxiety disorders in India is 3.3%. Anxiety disorders are characterized by excessive, uncontrollable and often irrational worry about everyday things that is disproportionate to the actual source of worry. Studies have shown that about a fifth patients with anxiety disorders do not adhere to treatment due to various factors like social, environmental , psychological and medication related problems.

Non adherence to medication can worsen the individual's condition, diminish the effectiveness of treatment, decrease their responsiveness to future interventions, rehospitalization and negatively impacts quality of life.

AIM AND OBJECTIVE:

To evaluate medication adherence status and its association with quality of life index in patients with anxiety disorders.

METHODOLOGY:

STUDY DESIGN: Descriptive cross sectional study

SAMPLE SIZE : 35

INCLUSION CRITERIA: Patients with anxiety disorders on treatment for at least past 3 months.

Age group -18 to 50 years.

EXCLUSION CRITERIA; Past H/O Systemic illness, substance abuse, Psychosis or other neurological disease,

DATA COLLECTION TOOL: Morisky Medication Adherence Scale and WHOQOL-BREF Questionnare.

SAMPLING METHOD: Convenience sampling.

After obtaining institutional ethical committee approval and written informed consent ,data was collected regarding medication adherence and quality of life from patients with anxiety disoders .Pearsons corelation and Student's -t test were used for data analysis.

RESULTS: The study group showed a strong positive corelation between physical domain ($r = 0.62$) . psychological domain ($r = 0.791$) , social domain (0.779) and environmental domain ($r = 0.676$) in quality of life and medication adherence score .

CONCLUSION: The present study showed that medication non adherent patients with anxiety disorder had low quality of life as compared to that of medication adherent patients with anxiety disorder.

PREVALENCE OF DRY EYE SYMPTOMS AMONG YOUNG INDIVIDUALS AND ITS CORRELATION WITH QUALITY OF SLEEP AND SCREEN TIME"

Dr.N.Vidya[1], Dr. D. Celine[2], Dr. K.Subharevathi[3]

Postgraduate [1], Professor [2], Associate Professor [3],

Department of Physiology,

ChengalpattuMedical College, Chengalpattu, Tamil Nadu.

Email id: drvidhyaa@gmail.com

Mobile: 6381450490

Introduction: Dry eye, a multifactorial chronic disease of ocular surface, raises significant public health concerns worldwide. It is attributed to change in lifestyle of the present generation with extended hours of digital devices usage and altered sleep pattern. Hence this study was done to assess the association of dry eye with sleep quality and screen time in young individuals.

Methodology: After obtaining institutional ethical clearance, 200 young adults of age 16 to 26 years of both genders were enrolled for the study. Subjects were asked to fill questionnaire for screen time addiction, Mini sleep questionnaire, and (SPEED) questionnaire (standard patient evaluation of eye dryness). The questionnaires were scored for screen time, sleep quality and eye dryness. Statistical analysis was done to assess the prevalence of dry eye symptoms and its correlation with quality of sleep and screentime.

Results: In the study population individuals with poor sleep quality experienced dry eye symptoms which is statistically significant (P = 0.003). Individuals with more than 2 hours of screen time had symptoms of dry eye but the result was not statistically significant. (P =0.16)

Conclusion: It is concluded that poor sleep quality and increased screen time can lead to eye dryness. Better sleep hygiene practices and limited use of technological gadgets could avert the onset of eye dryness.

ASSESSMENT OF DISEASE ACTIVITY IN PATIENTS WITH RHEUMATOID ARTHRITIS USING RAID QUESTIONNAIRE

Dr.S.Azhagu shyam - Postgraduate, Dr.S.Kavitha - Associate Professor, Dr.Viji Devanand - Professor and HOD, Stanley Medical College

INTRODUCTION

Rheumatoid arthritis (RA) is a chronic inflammatory disease of unknown etiology characterized by symmetric polyarthritis. Incidence is 2 % globally, and it is more common in women aged 25 – 45 years. Joints of the hands and feet are commonly affected, making it difficult for patients to perform daily activities without treatment. The Rheumatoid Arthritis Impact of Disease (RAID) score is a patient-reported outcome measure (PROM) for evaluating the impact of rheumatoid arthritis (RA) on patient quality of life; it also indicates disease activity from a patient's perspective.

AIM

To Assess the disease activity in patients with rheumatoid arthritis (RA) using the Rheumatoid Arthritis Impact of Disease (RAID) questionnaire and to find its correlation with quality of life.

METHODS

30 patients (Males and Females) with RA who are on treatment for less than 5 years and aged between 30 – 50 years were included. Quality of life and disease activity were assessed using Flanagan's quality of life (QOL) scale and RAID questionnaire.

RESULTS

Mann-Whitney U test was used to determine whether there is a difference in RAID scores between males and females, and the score was found to be significant(P=0.029), showing more disease morbidity in the female population. Despite treatment, physical well-being and functional status are moderately affected in 96.7 % of patients. There is no significant positive correlation between RAID scores and quality of life (P= 0.495)

CONCLUSION

The prevalence and study results show that the disease severity is higher in females which interferes with their day-to-day life, emphasizing the need for proper screening and monitoring the treatment. We can assess the severity by using the RAID questionnaire, which can be used as a tool for knowing the response of the patients to the treatment. This helps to improve the functional disability and physical well-being of the patients.

Title:PREVALENCE OF GLUTEN INTOLERANCE AMONG PARA MEDICAL STUDENTS

Dr.Chitra.S, (1st year Postgraduate, Sree Balaji Medical College And Hospital),
Dr.Devaki P.R (Professor & HOD, Sree Balaji Medical College and Hospital)

Background: The prevalence of gluten intolerance is increasing due to change in the pattern of dietary consumption among general population. Previously, in South India gluten intolerance was less, as they were predominantly rice consumers & studies related to gluten intolerance was widely done on North Indian population, because they are basically wheat consumers. However, with change in food culture the consumption of refined wheat and its by-products has increased, which in turn hikes the prevalence of Gluten Intolerance in South Indians also. Since, there are very fewer studies available to estimate the prevalence and awareness about gluten intolerance among South Indian population, the **Aim of our study** is to estimate the prevalence of gluten intolerance among paramedical students and to evaluate the knowledge and awareness among the students.

Methods: A cross-sectional study with convenient sampling of healthy 195 paramedical students participated with proper consent and a questionnaire about gluten intolerance and awareness was projected. Their recorded response was collected, and data analysis was done using Microsoft Excel.

Result: Out of 200 participants, 43.1% were aware of gluten intolerance, while 56.9% were unaware. The ratio of males to females among the participants is 2:5. The common symptoms experienced by male participants include depression and unexplained skin rashes/problems, while female participants commonly reported difficulty in gaining weight, allergies, weight gain, and migraine-like headaches. Based on the Gluten Intolerance Questionnaire, 3.2% of the students are more likely to have gluten intolerance, 12.9% are suspected of having gluten intolerance, and 83.9% are less likely to have it.

Conclusion: The prevalence of Gluten Intolerance among paramedical students is 3.2% and awareness among student is 43.1%.

A COMPARATIVE STUDY OF QT INTERVAL IN STUDENTS PRACTICING YOGA AND NOT PRACTICING YOGA

Dr. R.Divya priya[1], Dr. K.Subharevathi[2], Dr.D.Celine [3]

Post graduate [1], Associate Professor[2], Professor[3], Department of Physiology, Chengalpattu Medical College, Chengalpattu ,Tamilnadu.

Email id: dpriya46@gmail.com Mobile: 9551984353

Background: Yoga an ancient Indian art, bringing harmony with mind and body is now an important lifestyle intervention in most non-communicable diseases. It influences physiological processes mainly cardiovascular system by its action on autonomic nervous system. ECG is a noninvasive test to assess the function of heart. QT interval is an indicator for dysarrythmia and sympathetic function of an individual. Hence, this study was done to compare the QT interval in students practicing yoga and in students non practicing yoga.

Methodology: After obtaining Institutional ethical clearance and informed consent, 100 students regularly practicing yoga and 100 students not practicing yoga were enrolled in the study. After obtaining a detailed history, general and systemic examination were done. 12 channel ECG with long strip of Lead II was recorded using Bionet ECG machine. QT, RR interval and QTc was noted. QTc was calculated using Bazette formula $QTc = QT / \sqrt{RR}$. The data collected were analyzed using SPSS 22.

Results: In this study, corrected QT interval (QTc) was decreased in yoga practicing students (386ms ± 33.06ms) when compared with not practicing students(416.50ms ± 45.08ms) and it is found to be statistically significant (p value-0.00018).

Conclusion: From the present study, it could be concluded that regular yoga practice causes a decrease in QT interval which could be due to decrease in sympathetic activity. Yoga as a lifestyle modification can improve the cardiovascular function and well being as a whole.

Title - The Association of Sleep Duration and Quality with Heart Rate Variability and Blood Pressure - A Cross-Sectional Study

Authors – Dr Subha S; Guide- Dr P. Sathya

Abstract

Background:

Heart rate variability (HRV) and blood pressure (BP) are well-established markers of autonomic nervous system function and cardiovascular health. Sleep, particularly its duration and quality, has been shown to impact HRV and BP, but the specific relationships remain underexplored. This cross-sectional study aims to assess the association between sleep duration, sleep quality, and HRV and BP in a diverse population.

Methodology:

In this cross-sectional study, data were collected from a sample of 60 adults. The participants were selected through a multistage sampling method. Sleep quality and duration were assessed using the Pittsburg Sleep Quality Index (PSQI). HRV parameters like SDNN, RMSSD, SNN50, and PNN50 were measured using heart rate monitors. Blood pressure (both systolic and diastolic) was measured using a calibrated sphygmomanometer. Statistical analyses were performed to assess correlations between sleep quality, HRV parameters, and BP were done.

Results:

Our study revealed Higher PSQI scores correlated with lower SDANN (-0.12), RMSSD (-0.04), SNN50 (-0.05), and PNN50 (-0.01). Poor sleep quality was also associated with elevated systolic and diastolic blood pressure. All parameters showed statistical significance correlations.

Conclusion:

This study demonstrates a significant association between both sleep duration and quality with heart rate variability and blood pressure, highlighting the broader cardiovascular impact of inadequate or poor-quality sleep. Individuals with inadequate sleep duration, as well as poor sleep quality, are at higher risk of reduced HRV, potentially increasing their cardiovascular risk. Further, longitudinal studies are recommended to explore the causal relationships and potential interventions.

Keywords: HRV parameters, BP, Sleep and PSQI

Title: PULMONARY FUNCTION TEST IN TYPE 2 DIABETES MELLITUS INDIVIDUALS.

Authors: Dr.R.Vijayalakshmi, Dr.M.Anita, Dr.H.R.Haribabu
Presenting Author: Dr.R.Vijayalakshmi
Official Address: Department of Physiology, Tirunelveli Medical College.
Mobile: 9943755200
Email: vgramarajan**@gmail.com**

Background

Diabetes Mellitus is a metabolic disorder, precipitating micro-vascular ,macro-vascular complications and peripheral vascular disease. The alveolar capillary network in lung is a large micro-vascular unit and may be affected by microangiopathy. Due to large reserve, substantial loss of microvascular bed can be tolerated without developing dyspnoea. This study was conducted to measure PFT in Type 2 DM.

Aim:

To find out the effect of Diabetes Mellitus on pulmonary functions in type 2 DM. To compare the pulmonary function test findings of type 2 DM individuals with normal individuals.

Methodology:

60 subjects(20-40 years) were included. Both sexes.
cases – 30 DM individual
controls – 30 normal individuals.
PFT was performed with computerized spirometer: RMS Helios 401. Following parameters were recorded and studied: FVC, FEV 1, FEV 1/ FVC, PEFR, FEF_{25-75} in both groups.

Result:

Patients with type2 DM have underlying subclinical restrictive patterns of lung functions even though they did not have any respiratory symptoms.

Discussion

DM being a systemic disease, also affects lungs causing restrictive type of ventilatory changes because of glycosylation of connective tissue, reduced pulmonary elastic recoil&inflammatory changes in lungs.
All the pulmonary parameters, that is FVC,FEV1, PEFR and FEF_{25-75} were significantly reduced except FEV1/FVC in patients with type 2 DM as compared with the healthy controls.($p<0.05$)
The ratio FEV1/FVC is greater in diabetic patients.

Conclusion:

Pulmonary diabetic micro-angiopathy usually remains under recognized clinically.
Diabetic individuals should be routinely screened for pulmonary function to reduce morbidities.
There is a need for periodically assessing the pulmonary function in type 2 DM and spirometry remains a cost effective, a simple non-invasive diagnostic tool and its judicious use can give warning signal for patients to take early preventive measures.

.

ABSTRACT

TITLE "CORRELATION BETWEEN SERUM IGE LEVEL AND SEVERITY OF ATOPIC DERMATITIS"

PRESENTER - DR. H.R. SUBA, PG, GUIDE – DR. S. SUBATHRA, ASSISTANT PROFESSOR,

DEPARTMENT OF PHYSIOLOGY, STANLEY MEDICAL COLLEGE, CHENNAI - 1

Introduction:

Atopic Dermatitis (AD) is a chronic inflammatory skin condition characterized by pruritic, erythematous and eczematous lesions. It is one of the most common dermatological disorders worldwide, affecting individuals of all ages with a significant burden on both patients and healthcare systems. IgE is a key mediator in the pathogenesis of AD, orchestrating allergic sensitization, hypersensitivity reactions and reflecting heightened allergic responses to environmental triggers and allergens. This study helps to evaluate the correlation between the serum IgE level and the severity of Atopic Dermatitis.

Aim**:**

- To assess the severity of barrier disruption of Skin in AD.
- To understand the role of the IgE immune system for maintaining the barrier function of the Skin
- To elucidate the correlation between the severity of AD and serum IgE level.

Methodology:

- 30 Atopic Dermatitis patients (new and known cases) of both the gender (18 to 40 years) were selected.
- Seum IgE level was screened for all.
- SCORAD score Assessment card was used to assess the severity of barrier disruption.
- Digital moisture monitor was used for moisture level assessment of skin
- Digital Dermoscopic examination was done for assessing the severity of the involved skin.

Results & Analysis**:**

- The major factor of severity in Atopic Dermatitis is the dryness of skin (Xerosis) and it explains the statistically significant association between serum IgE and its severity.
- In this prospective study comprising of 30 patients, Serum IgE level was elevated in patients with moderate to severe dermatitis**,** which induces the atopic march of reactions in patients.

Conclusion**:**

Serum IgE level is useful in monitoring the severity and to manage the disease manifestation. Thereby it helps to improve the Quality of life in Atopic Dermatitis patients.

CYTOTOXIC EFFECT OF A PLANT-DERIVED COMPOUND ON HEP G2 CELLS (Human hepatoma-derived cell line)

Dr. Betsy P S, Postgraduate, Contact No.: +919786343951

e-mail: santhoshbetsy@gmail.com

Dr. Neetu Prince, Associate Professor

Dr. Sathya Subramani, Senior Professor

Dr. Soosai Manickam Amritham, Associate Research Officer

Department of Physiology, CMC Vellore.

Background: The HepG2 cells, are a human hepatoma-derived cell line, used to study the cytotoxic effects of various drugs in vitro. The HepG2 cells were the first to express the key characteristics of hepatocytes in the hepatic cell line. The objective of this study was to investigate the cytotoxic effects of Cleistanthin A on Hep G2 cells. Cleistanthin A is a dyphylline glycoside isolated from the toxic shrub, Cleistanthus collinus which has shown preferential cytotoxicity in several solid tumor cell lines.

Methods: Cleistanthin A was isolated with prep-HPLC. The HepG2 cells were treated with logarithmic doses of Cleistanthin A to determine the IC50 of cells. The cancer cells were treated with either Cleistanthin A or DMSO (vehicle control) for a defined period prior to cytotoxic assays. Different doses of the compound in micro and nanomolar concentrations were used to study the cytotoxicity.

Results: Cytotoxic assays demonstrated the cytotoxic effect of Cleistanthin A on Hep G2 cells in a dose and time-dependent manner.

Conclusion: The current study reported the cytotoxic activity of Cleistanthin A in HepG2 cells in vitro. The generated data warrants further elucidations by in vivo study.

SERENE SLUBER VERSUS SPEEDY SNOOZES: A MIXED METHOD STUDY ON COGNITIVE PERFORMANCE AND WELL-BEING AMONG COLLEGE STUDENTS ASSOCIATED WITH SLEEP STRATEGIES

Authors: Harini V[1], Dr Vidhya K[2] M.D.(Physiology)
2nd year M.B.B.S. student[1], Associate professor, Dept of Physiology, GMC VNR[2].

Background: The traditional "early to bed and early to rise" slogan has given way to "early to rise yet late to bed" among youngsters. Despite the recommended 8 hours of sleep, many opt for power naps. Indeed, the cognitive and mental health effects of Power naps (Stage 2 NREM sleep) differ from those of long deep sleep (REM sleep). This study investigates how different sleep strategies impact cognitive function and memory in students.

Aim:
To compare the effects of power naps and long sleep on cognitive function, memory, and sleep quality in college students.

Methodology: A sequential explanatory mixed-method approach is used, combining quantitative questionnaires and qualitative semi-structured interviews.

Study population - College students (18-28 years) from Govt. Medical College, Virudhunagar.

Sample size - 60 students (30 power nappers, 30 non-power nappers).

Purposive opportunistic sampling using a questionnaire to select participants from 450 students.

Standard measures like the Stanford sleepiness scale, N-Back task, PVT-B, and IDA scale are employed to assess cognitive power, sleep inertia, memory, vigilance, and irritability.

Statistical analysis of quantitative data employs T-test, while qualitative data analysis involves thematic analysis and quote analysis.

Results: Outcomes to be determined upon completion of the study.

Conclusion: This study will contribute to understanding the effects of power naps versus long sleep on cognitive function and sleep quality in college students, providing insights for optimizing sleep strategies to improve academic performance and overall well-being.

Correlation between HbA1C levels and Neutrophil Lymphocyte Ratio in Diabetic patients with and without foot ulcer in a tertiary care hospital– a Cross Sectional Study

Authors: Tonia Kumari R[1], Dr.Poihai A M.D.,DGO[2]

IInd year MBBS student[1], Assistant Professor of Physiology, GMC, Virudhunagar[2].

Background:

Diabetes mellitus is a syndrome of impaired carbohydrate, fat, and protein metabolism caused by either lack of insulin secretion or decreased sensitivity of the tissues to insulin.

Diabetic Foot Ulcer is the most common complication of diabetes which can lead to amputation of leg.

This study attempts to correlate the HbA1C levels and Neutrophil Lymphocyte Ratio in Diabetic patients with and without foot ulcers in predicting the prognosis of the disease.

Aim:

To compare HbA1C levels with NLR values in diabetic patients with and without foot ulcer to determine the prognosis of diabetic foot ulcer.

Methodology:

It is a cross-sectional study conducted in surgery and medicine departments of a Government Medical College, Virudhunagar. 30 Diabetic patients > 40 years of age with diabetic foot ulcer of size < 30 cm^2 & grade 1 and grade 2 by Meggitt Wagner Classification are recruited as cases. 30 diabetic patients without foot ulcers are recruited as controls. Anthropometric measurements, vitals, General and systemic examinations, and examination of the foot ulcer are done. After 12 hours of fasting, early morning blood samples are taken for CBC, plasma glucose, and HbA1C levels. The values of HbA1C and NLR will be tabulated and compared in both groups. Statistical analysis will be carried out by Pearson Correlation Coefficient using SPSS Version 20 Software.

Result:

This study is still underway and the results are awaited.

Conclusion:

This research underscores the importance of integrating HbA1C and NLR assessments into routine diabetic care, for patients at high risk of developing Diabetic Foot Ulcers.

Title:

Urinary Megalin - Potential Biomarker for Early Detection of Kidney Damage in Diabetic Nephropathy

Author's affiliation with presenter underlined:

PSG Institute of Medical Sciences and Research

Sujatha Rajaragupathy

Sumathi S

Saju Denishya

Aathira Sunilkumar

Dharshika

Introduction:

Diabetic nephropathy (DN) is identified clinically by persistently high urinary albumin-to-creatinine ratio and/or sustained reduction in eGFR. However, these measures do not assess renal tissue injury. Tubular injury is a critical component in the early course of DN. This study aimed to explore the utility of megalin in assessing kidney damage in diabetic nephropathy.

Methods:

A cross-sectional study was conducted at a tertiary care teaching hospital in South India. Study subjects were divided into three groups based on their albuminuria levels. The urinary albumin-creatinine ratio was estimated using dedicated kits, and a quantitative human LRP-2 ELISA kit was used to estimate urinary megalin.

Results:

83 diabetic patients were included in the study (73.5% males, 26.5% females), with 46 normoalbuminuric, 32 microalbuminuric, and 5 macroalbuminuric.The mean urine megalin levels in the three groups were $14.88 \pm 9.12, 9.60 \pm 5.64, 6.93 \pm 1.03$ pg/mL (p-value – 0.04). Urine megalin levels decrease with an increase in the albumin creatinine ratio. The ROC curve was constructed to determine cut-off levels and the area under the curve was 0.684

Discussion:

Urinary megalin may serve as an early biomarker for kidney damage in diabetic nephropathy (DN). The decrease in megalin levels with increasing albuminuria indicates its role in detecting tubular injury before albumin appears in the urine. ROC analysis, with an AUC of supports its moderate discriminative ability across DN stages.The study's small sample size and cross-sectional design limit its conclusions. Further research is needed to validate megalin’s utility in predicting DN progression, potentially improving early detection and management in diabetic patients.

ABSTRACT

IMPACT OF ACADEMIC AND SOCIOLOGY IN CHILDREN SUFFERING FROM ATTENDION DEFICIT HYPERACTIVE DISORDER IN INDIA.

R. KAVIYASHREE (VELAMMAL MEDICAL COLLEGE, MADURAI)

BACKGROUND:

Attention deficit hyperactive disorder refers to a psychiatric condition show patterns of developmentally inappropriate levels of inattentiveness, hyperactivity, or impulsivity. The symptoms begin at a young age and usually include lack of attention, lack of concentration, disorganization, difficulty completing tasks, being forgetful, and losing things. It can have large consequences, including social interactions, increased risky behaviours, loss of jobs, and difficulty achieving in school. It is considered a dysfunction of executive functioning, predominantly a frontal lobe activity ADHD could be genetic, prematurity, brain dysfunction, low birth weight. The most common reason could be poor scholastic performance, impact of Parenthood.

AIM AND OBJECTIVE TO STUDY THE IMPACT OF ACADEMIC ACTIVITIES ON CHILDREN BELOW 18YEARS WHO IS SUFFERING FROM ATTENTION DEFECIENT HYPERACTIVE DISORDER

METHODOLOGY

1. STUDY TYPE: OBSERVATIONAL STUDY
2. STUDY DESIGN: CROSS SECTIONAL STUDY
3. STUDY POPULATION: All STUDENTS under the age of 18 were examined in this study.
4. STUDY SETTING: Madurai
5. STUDY DURATION: 3 months

RATIONALE: In particular, research could inform clinical practice by identifying methods like direct assessment of academic or social skills, parent and teacher rating scales) that provide reliable and valid measurement of impairment that can be attributable to inattention and/or hyperactivity-impulsivity symptoms, or at least offer the opportunity to isolate the impact of ADHD symptoms on academic and social functioning.

LITERATURE REVIEW: The review of literature done show us that there are very few studies on correlation between the effect of academic on children with ADHD. Hence I would like to conduct a study among school going children on their performance on academic, sports and extra-curricular activities for 3 months.

REFERENCE:

https://www.researchgate.net/publication/352228497_A_Literature_Review_of_Underst
anding_and_Supporting_Students_with_Attention_Deficit_Hyperactivity_Disorder_in_ the Classroom

https://www.webmd.com/add-adhd/attention-deficit-hyperactivity-disorder-adhd

https://pubmed.ncbi.nlm.nih.gov/28722868/

QUANTIFYING EMOTIONAL RESPONSES USING ELECTROCARDIOGRAM

Ms. Keren F, UG Scholar**,** Department of Biotechnology, Dr. MGR Educational and Research Institute, Chennai.
Dr. Vanitha L, Professor/ECE, S.A. Engineering College, Chennai.
Dr. Punita P, Professor / Physiology, Meenakshi Medical College Hospital and Research Institute, Kancheepuram.
Dr. Chandrasekar M, Curriculum officer & CoE, Bharath Institute of Higher Education & Research (Medical University), Chennai

Background: Emotions are psychophysiological processes that affect many aspects of our daily lives. Emotional characteristics have a substantial impact on social intelligence, including decision-making, communication comprehension, and understanding human behavior. Emotions encompass feelings, physical changes, mental responses, behavior, and thoughts. Emotion-induced affective experiences include arousal and valence.

Objective: The purpose of this effort is to develop an automated system capable of distinguishing between different emotional states. This technology could be used in a multitude of applications, including entertainment, safety, medicine, and education.

Methods: The analysis includes data on normal and healthy Heart Rate Variability (HRV) from 100 subjects. The proposed method retrieves the subject's ECG by playing videos that generate four unique emotional states: pleasure, joy, sad and anger. The video has a time limit of ten minutes. Using Kubios software, the time domain and frequency domain parameters of the HRV are determined, and the impact of various videos on different emotional states is investigated. To compare the attributes of each state, the SPSS statistical t-test is used.

Results: Based on the data, HRV parameters can be considered as emotional state indicators because they are all responsive to emotions. The results indicate that mHR, SDNN, LF, HF, and LF/HF are responsive to emotions. The average heart rate increases from pleasure (80.54±2.53) to joy (83.91±1.21) to sad (85.34±2.72) to anxiety (89.34±2.72). The state of pleasure has the highest SDNN value, whereas joy, sad and for anxiety emotional states, the SDNN value decreases. The anxiety state has a greater LF/HF value (3.76±0.62) compared to sad (2.65±0.34), joy (2.21±0.71) and pleasure (1.91±0.89)

Conclusion: Due to the videos that are displayed, there is a noticeable change in the HRV between the three emotional levels. This method can be used to efficiently conduct laboratory tests and construct an emotion measurement system that can effectively discriminate between the various emotion levels because of the noticeable changes in the characteristics of the various emotional states.

Research Proposal

Study Title :

"Gambling addiction and its effect on Serum Melatonin, Electroencephalogram and Cognition among young adults"

Principal Investigator:

Ms.Varjithaa
First year MBBS
Velammal Medical College Hospital & Research Institute,Anuppanadi,
Madurai

Email ID: varjithaasingh@gmail.com

Mobile No: 7010761754

Name of the guide :

Dr. Ajit Kumar J T
Assistant Professor
Department of Physiology
Velammal Medical College Hospital & Research Institute,Anuppanadi,
Madurai

Email ID: ajit.madurai@live.com

Mobile No: 9629523123

Signature of Principal Investigator :

Signature of the Guide :

Introduction

Gambling is an act of wagering money or something of value on an event with an uncertain outcome. This increasingly prevalent habit in today's modern world is controversially portrayed as a socially acceptable leisure activity[1]. The accessibility and popularity of gambling are growing in tandem with the rise of social media usage with a click away. Gambling exists on a spectrum of severity from social or non-problem gambling to problem gambling, and ultimately to gambling addiction or gambling disorder. Gambling disorder (GD) is a psychiatric condition characterized by recurrent, maladaptive gambling behaviours that result in clinically significant distress. Recently, GD was reclassified into the "Substance-Related and Addictive Disorders" category in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)[2].In India, regional studies indicate that the lifetime prevalence of gambling is approximately 46%, with problem gambling affecting about 7.4% of the population[3].

Gambling disorder alters the plasticity of cognitive mapping for decision making, impulsivity and poor self-control and such shortcomings are termed as gambler's fallacy, chasing, learning from losses, hindsight bias, temporal telescoping, selective memory and so on[4]. These neurophysiological complexities involved with gambling could be validated by Electroencephalography (EEG) and Functional Magnetic Resonance Imaging (fMRI). While EEG can provide insights into the timing and dynamics of cognitive processes and impulsive responses during gambling tasks, fMRI can localize the specific brain regions involved and reveal the neural circuitry underlying gambling behaviors. Among the two, on a cost effective lane, EEG is preferred and also due to its easy availability[5,6].

Melatonin, a hormone which regularizes sleep-wake cycle and maintains the circadian rhythm endogenously, has pharmaceutical implications in improving the quality of sleep and has been tried in in treating mood disorders. So far until now, Melatonin's role in substance disorder has been up for debate and found to have a mixed effect[7–9]. Having acknowledged by DSM-5, as a substance disorder, correlation of gambling and serum melatonin levels are yet to be studied, and we'd like to hypothesize our study to analyse gambling disorders from a hormonal, functional and behavioural standpoint . Hence we are planning to study the effect of gambling addiction on serum melatonin, electroencephalogram and cognition. This study is planned on young adults as there is increased incidence of gambling in adolescents and is found to be on an increasing trend in their early adulthood[10].

Objectives

- To measure the serum melatonin levels in young adult gamblers
- To record Electroencephalography in young adult gamblers
- To assess the impact of gambling on cognitive function in young adults.
- To compare and analyze the results with the control group
- To analyze the results between problem and non-problem gamblers

Methodology

Study Design : Observational study

- **Type of Study :** Analytical Cross-sectional study

Study Duration – 6 months (April to May, 2025 - 2027)

Study Population : 69

- **Inclusion Criteria:**
  - Individuals aged between 18 and 30 years.
  - Individuals who are involved in gambling activities and are having gambling disorder
- **Exclusion Criteria:**
  - Individuals with known psychiatric disorders other than gambling addiction.
  - Individuals on medications affecting melatonin levels.
  - Individuals with cognitive impairments unrelated to gambling.
  - Individuals with sleeping disorders (Pittsburgh Quality Sleep Index)

- **Sampling Technique:** Snow ball sampling
- **Sample Size:**

  Average prevalence percentage = 4.5%

  Margin of error = 5 %

  Confidence Interval = 95%

  So, the total number of samples required is 69 (23 samples per group)

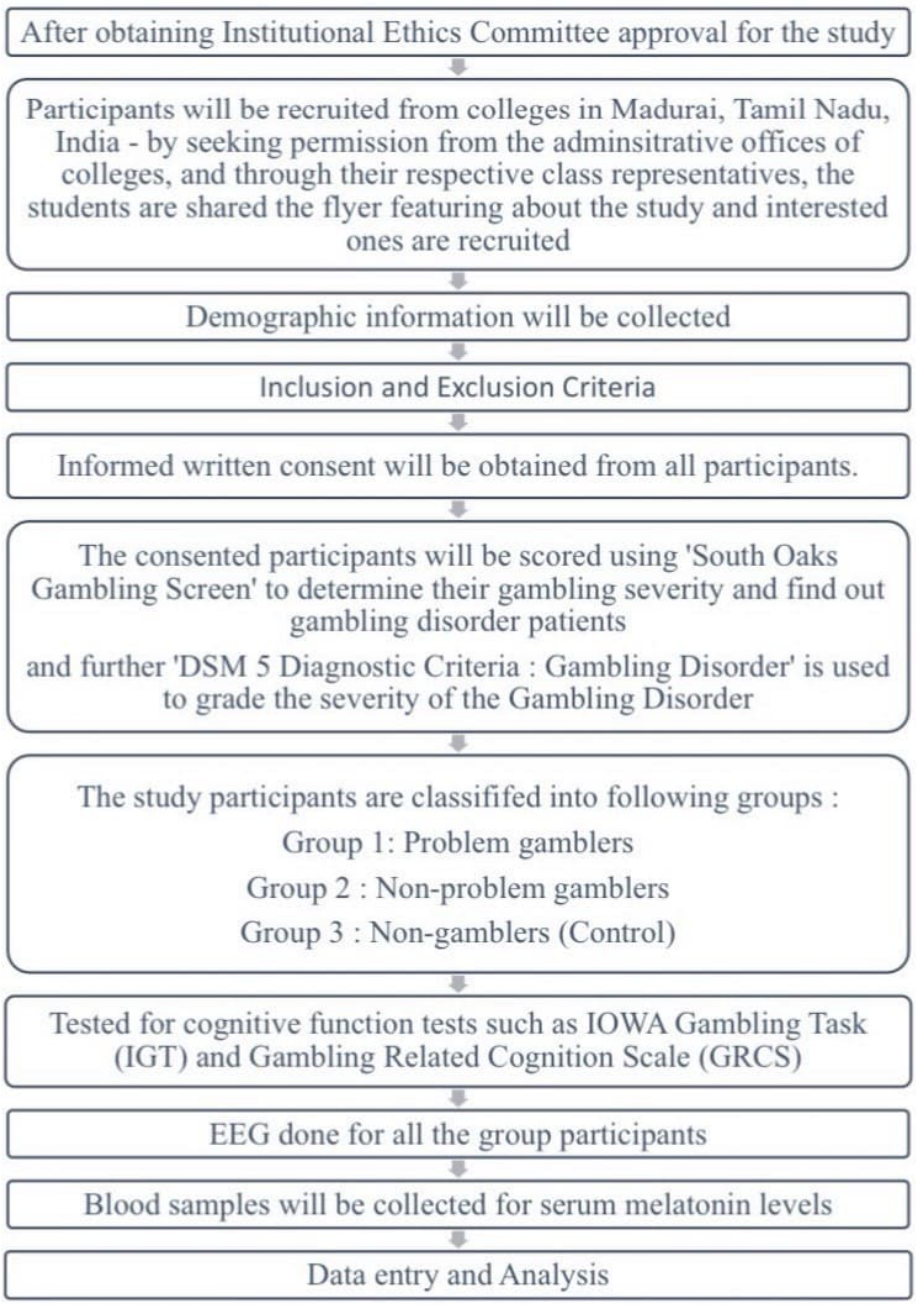
Study Groups :

- Non-Gamblers
- Non-problem Gamblers
- Problem-Gamblers

Data Collection and measurement tools

- **Basic details:**
  - Demographic information (age, gender, education, etc.)
- **Gambling addiction:**
  - South Oaks Gambling Screen (SOGS)
  - DSM V Diagnostic Criteria: Gambling Disorder
- **Cognitive Function Tests:**
  - Iowa Gambling Task (IGT) – PEBL 2.0 software
  - Gambling Related Cognition Scale (GRCS)
- **Neurophysiological functioning:**
  - **Electroencephalogram (**Model : Allengers VIRGO EEG 24 portable machine**)**
- **Biochemistry sample:**
  - Serum Melatonin (ECLIA)

Data collection and instrumentation



South Oaks Gambling Screen (SOGS): It is a questionnaire used to grade the gambling severity – non-problem gambler, problem gambler, pathological gambler. The participant is asked to fill the questionnaire and then it is scored out of 20, and participants who have a score of 0 is acknowledged as non-problem gambler, and those who have a score of 1-4 as participants having some problems with gambling, and if the participants scored 5 and above they are acknowledged as probable pathological gambling (Gambling disorder)

DSM 5 Diagnostic Criteria: Gambling Disorder: The participant will be graded out of 9 criteria's to assess the severity of gambling disorder. Also, it details about the frequency of gambling whether it is episodic or persistent and to check the status about remission.

IOWA Gambling task: The Iowa Gambling Task (IGT) is a psychological assessment tool run in The Psychology Experiment Building Language (PEBL), designed to simulate real-life decision making and evaluate the role of emotional responses in this process. Developed by Antoine Bechara and colleagues at the University of Iowa.
The participant is tasked with selecting cards from four decks (A, B, C, and D) over a series of trials, with each card yielding either a reward or a penalty. Decks A and B offer high immediate rewards but also high long-term penalties, resulting in overall loss, while decks C and D provide lower immediate rewards but also lower long-term penalties, leading to overall gain. This IGT assess decision-making abilities of the participants, for those whom it is normal, they learn to avoid the disadvantageous decks and favour the advantageous ones, whereas individuals with impaired decision-making may persist in selecting from the disadvantageous decks despite experiencing long-term losses. This task will significantly help in understanding the cognitive and emotional components of decision making of the participants.

Gambling Related Cognition Scale: This is a 23 item questionnaire where the participant is asked to answer all the given questions on a Likert scale basis from 1 (Strongly disagree) to 7 (Strongly Agree). Based on the responses, Subscales of cognitive impairments in decision making like gambling expectancies, illusion of control, predictive control, inability to stop gambling and interpretive bias.

Electroencephalogram (EEG): The participants are laid down in a semi-darkened, electrically shielded, sound-attenuated room. During the recordings, each participant Resting EEG samples were recorded after 3 min with the participant's eyes closed. EEG data were digitally recorded from 19 gold cup electrodes placed according to the international 10–20 system. The impedances were maintained below 5 kΩ, and the sampling rate was 1,000 Hz. Linked-mastoid reference and two additional bipolar electrodes are also added to measure horizontal and vertical eye movements.

Serum Melatonin levels: The participants are asked to assemble at around 7: 30 AM in the biochemistry Lab, Velammal Medical College Hospital block to give their blood sample. After applying tourniquet and using standard phlebotomy technique, 2mL of venous blood is withdrawn and at room temperature, the blood is allowed to clot and then centrifuged for 15 mins at 1500 to 2000 G. Serum separation is done.Then the serum melatonin level is determined by using ECLIA kit and Electro-Chemiluminescent Immune Assay(ECLIA) fully automated analyser.

Confidentiality

The personal information of all the participants will be maintained confidentially.

Statistical tool

Results will be analyzed using SPSS software and normality of the data is checked by Shapiro-Wilk test. Statistical tests used will be Descriptive statistics, Percentage analysis, Correlation will be checked and depending on that, Linear Regression or ANOVA will be used.

References

1. Winters KC, Chung T, Stinchfield R, Kassel JD, Conrad M. Addictions and Adolescence. In: Ramachandran VS, editor. Encyclopedia of Human Behavior (Second Edition) [Internet]. San Diego: Academic Press; 2012 [cited 2024 Jun 27]. p. 9–21.

2. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders [Internet]. Fifth Edition. American Psychiatric Association; 2013 [cited 2024 Jun 28].

3. Bhatia U, Bhat B, George S, Nadkarni A. The prevalence, patterns, and correlates of gambling behaviours in men: An exploratory study from Goa, India. Asian J Psychiatr. 2019 Jun;43:143–9.

4. Brevers D, Vögele C, Billieux J. Cognitive Processes Underlying Impaired Decision Making in Gambling Disorder. In: Zaleskiewicz T, Traczyk J, editors. Psychological Perspectives on Financial Decision Making [Internet]. Cham: Springer International Publishing; 2020 [cited 2024 Jun 28]. p. 233–65.

5. Raimo S, Cropano M, Trojano L, Santangelo G. The neural basis of gambling disorder: An activation likelihood estimation meta-analysis. Neuroscience & Biobehavioral Reviews. 2021 Jan 1;120:279–302.

6. Kim KM, Choi SW, Lee J, Kim JW. EEG correlates associated with the severity of gambling disorder and serum BDNF levels in patients with gambling disorder. J Behav Addict. 7(2):331–8.

7. Baandrup L, Lindschou J, Winkel P, Gluud C, Glenthoj BY. Prolonged-release melatonin versus placebo for benzodiazepine discontinuation in patients with schizophrenia or bipolar disorder: A randomised, placebo-controlled, blinded trial. World J Biol Psychiatry. 2016 Oct;17(7):514–24.

8. Baandrup L, Fasmer OB, Glenthøj BY, Jennum PJ. Circadian rest-activity rhythms during benzodiazepine tapering covered by melatonin versus placebo add-on: data derived from a randomized clinical trial. BMC Psychiatry. 2016 Oct 13;16(1):348.

A STUDY OF THE EFFECT OF FACIAL EXERCISES ON FACIALWRINKLES AND THEIR CORRELATION WITH FACIAL FAT INFILTRATION IN MIDDLE AGED WOMEN IN INDIA

INTRODUCTION:

Aging is the natural process of growing senescent, and it is a complex phenomenon which affects individuals at almost various levels including physical, psychological, social, and biological.[1]Facial wrinkles are the natural result of aging. The skin naturally becomes less elastic and drier, with less collagen in the deeper layers as we age. This process results in the lines and creases which are typical of wrinkling. Wrinkling is more common in people with white skin. Their main target is to improve facial flexibility, reduce wrinkles, and promote a more young appearance.[4]The review of literature done shows us that there are a very few studies on the correlation between facial fat infiltration and its association with wrinkles and they have been conducted among the Japanese populations only.

OBJECTIVES:

1.To study the correlation between facial fat infiltration using an ultrasonogram at 13 Mhz at the forehead.

2.To intervene the study group with facial exercise daily for 30 minutes and monitor the changes in facial wrinkles after 8 weeks using trained evaluators according to our 6-grade photographic evaluation criteria for fixed wrinkles.[8]

METHODOLOGY

•**Study Type** : Experimental study

• **Study design** : Interventional, comparative study.

• **Study Population :** Women with normal BMI between 40 to 65 years age group without any co-morbidities

• **Study setting** : Madurai

• **Study Duration** : 3 months.

IMPLICATIONS:

This study will help to acknowledge the amount of correlation between facial fat infiltration and facial wrinkle formation seen in women patients between the age group 40 to 65 years and to help the patient to find healthy solutions to overcome this. This data can also be used for as a factor for age determination under forensic purposes. Also this data can be used by the AI to predict the expected facial changes the facial expressions for investigation purpose. Also can be used to predict the expected facial changes after a certain age to identify people. This can mainly be targeted for women who suffer facial changes and hence can be used as a part of after treatment regimens to prevent permanent facial wrinkles or skin sagging.

REFERENCES:

1.De Winter G. Aging as Disease. Medicine, Health Care and Philosophy. 2014 Sep21;18(2):237–43.
2.Rohrich RJ. Training the Generation X Plastic Surgeon: Dispelling the Myths? Plastic and Reconstructive Surgery. 2001 Nov;108(6):1733–4.
3.Alam M, Walter AJ, Geisler A, Roongpisuthipong W, Sikorski G, Tung R, et al. Association of Facial Exercise With the Appearance of Aging. JAMA dermatology [Internet]. 2018;154(3):365–7. Available from: https://www.ncbi.nlm.nih.gov/pubmed/29299598
4.Tomonobu Ezure. Subcutaneous fat infiltration into the dermal layer induces wrinkle formation. Skin research and technology. 2023 Feb 28;29(3).

Correlation of Blood pressure levels with cognitive function in known hypertensive individuals

Dr.Deepalakshmi, Dr.Vijayabaskaran, Dr.Subhiksha

Background: Globally cognitive impairment has evolved as a major health and social issue. Hypertension, age and stroke are independent risk factors for the development of cognitive impairment. So aged people with hypertension are more prone to earlier cognitive decline. The risk is reduced by proper antihypertensive treatment. Various drug classes of antihypertensives have varied protective effect on cognition.

Aim:To correlate the blood pressure levels with the cognitive functions in hypertensive individuals.To assess the cognitive functions of hypertensive patients on different classes of antihypertensive drugs

Methods: We did a cross-sectional/observational study of 249 known hypertensive individuals between age of 35-60yrs. Anybody with any chronic systemic illness or any history of pre-existing cognitive impairment were excluded from the study.After taking a detailed history on hypertension and drug history, the patient's cognition was assessed using MoCA test.Out of a total score of 30, greater than or equal to 26 is considered normal. The hypertensive individuals were grouped into three groups namely those who are taking Angiotensin Receptor Blockers, Calcium Channel Blockers ,other antihypertensive drugs respectively. They were also grouped based on their sex, smoking/alcohol, diet, duration and family histories and the scores were assessed.

Results: Cognitive scores showed no statistically significant difference between the groups based on sex, smoking/alcohol, diet &family history**.** When the scores were correlated with Mean Arterial Blood Pressure, it showed negative correlation.Patients with more than 5year duration and or irregular treatment had lower scores and were statistically significant. Patients on Calcium Channel Blockers when compared with ARBs & other antihypertensives had lower scores and were statistically significant.

Conclusion: Our study concluded the strong association of hypertension and cognitive decline function and ARBs protective effect over other classes of antihypertensives**.**

Blood indices as predictors of DFU : insights from a tertiary hospital in South India

Introduction : Due to the alarming number of individuals diagnosed with type 2 Diabetes Mellitus(T2DM), India has been given the disapproving title 'Diabetic Capital of the World'. Complications of diabetes are grave and include nephropathy, neuropathy, retinopathy, peripheral artery disease and many more. Diabetic foot ulceration is a serious complication of diabetes mellitus worldwide and the most common cause of hospitalisation in diabetic patients .If diabetic foot ulcerations are left untreated it can lead to serious infections and even amputation. Hence early detection and management of Diabetic foot ulcer is essential. Hemogram indices have proven to be potential markers of inflammation. Hence early detection of these markers after a normal complete blood count,which is routinely done,may aid in the early detection and prediction of Diabetic foot ulcer.

Objectives: The aim of this study is to analyse the hemogram indices and ratios to aid in the early prediction of DFU and to understand and emphasise on early recommendation of foot care to patients with type 2 Diabetes Mellitus. To find the most reliable marker from the ratios taken from the blood indices values.

Amputation, cause of amputation and bacterial culture will also be analysed.

Materials and Methods: This is a retrospective study, cases of DFU admitted to General Surgery department at PSGIMSR will be analysed. Odds ratio, p values, graphs and tables will be used to analyse the data. The following hemogram indices will be evaluated- RDW to platelet ratio(RPR), Ratio of RDW and PDW, WBC, and Platelets. Confounders will be ruled out by eliminating those with a chronic inflammatory condition. Bacteria identified from the pulse culture will also be noted for. Plasma urea, creatine and BUN will also be analysed to check for their association with diabetic foot ulcer and predict the probability of development of renal impairment. The location of ulcer, cause for amputation and recurrence will also be tabulated.

Expected outcome: In this study we expect a rise in the hemogram incices ratios as Diabetic foot ulcers are associated with inflammation. Based on previous studies,we predict that the most common cause of amputation will be Infection and the most common organism will be *Staphylococcus aureus.* The most common site of amputation will most probably be the digits. We also hope to find some novel results in this study that will help us predict the occurrence of diabetic foot ulcer with a simple blood test.

This study is ongoing

ABSTRACT

Relationship of Myopia with Screen time, Family history, Sleep duration among young adults.

- Sowmya M[1] ,Swetha Balashanmugam[2]
  [1]Assistant Professor, Dept of Physiology, [2]Undergraduate,PSG institute of Medical science and Research, Coimbatore.

Presenting author – **Swetha balashanmugam**

BACKGROUND

Prevalence of wearing spectacles and contact lenses among children, adolescents and young adults is increasing in the past few decades.This study was made to find any possible underlying relationship of regular habits like screen time,sleep cycle along with family history which may contribute to myopia.

Myopia,(near sightedness), is that dioptric condition of the eye in which , with accommodation at rest, incident parallel rays come to a focus anterior to the retina.The refractive error can be neutralised by placing in front of the eye a **concave** spherical lens[1].

Screen time refers to the duration of time a person spends interacting with digital devices such as smartphones, computers,tablets,etc.

Sleep duration plays a significant role in maintaining overall eye health and proper vision. Adults generally need 7-9 hours of sleep per night for optimal health, including eye health. Children and teenagers need more sleep- 8 to 10 hours , depending on age.

AIMS & OBJECTIVE

This study aims to analyse whether screen time, sleep duration, family history can have a probable relation with myopia among the college students.

RATIONALE

To study the common refractive error observed in children, teenagers and young adults and to get a clear insight about myopia and eye health.

LITERATURE REVIEW

A study in China showed a significant association between parental myopia and genesis of myopia in the offspring[2].The study found strong association between parental history of myopia and genesis of myopia in the offspring and concluded that children with myopic parents are more likely to develop myopia compared to those with no parental myopia.

Based on study held in 2014 in Kerala among 162 medical students [3],The study showed a significant relationship between the duration of computer, television use and myopia,but no significant statistical relationship between texting with cell phone and sleeping habits of students

METHODOLOGY

150 college students in the age group 18 to 25 are asked to answer a questionnaire which consists of the questions like sleep pattern, occurrence of myopia in their family and duration of screen time

EXCLUSION CRITERIA ;

- Students who underwent any laser eye surgeries
- Students who have myopia associated with other complications like astigmatism etc.

EXPECTED OUTCOMES

The outcomes of the research held among 150 young adults would possibly show high probability of genetic influence on myopia and significant relationship between screen time and sleep duration.

REFERENCES

[1] Parsons' Disease of the Eye by Ramanjit Sihota and Radhika Tandon 23rd EDITION

[2] Lim, Lik Thai, et al. "Impact of parental history of myopia on the development of myopia in mainland China School-aged children." Ophthalmology and Eye Diseases, vol. 6, Jan. 2014, https://doi.org/10.4137/oed.s16031.

[3] George, Shiny, and Biju Baby Joseph. "Study on the prevalence and underlying factors of myopia among the students of a medical college in Kerala." International Journal of Medical Research & Health Sciences, vol. 3, no. 2, 2014, p. 330, https://doi.org/10.5958/j.2319-5886.3.2.069.