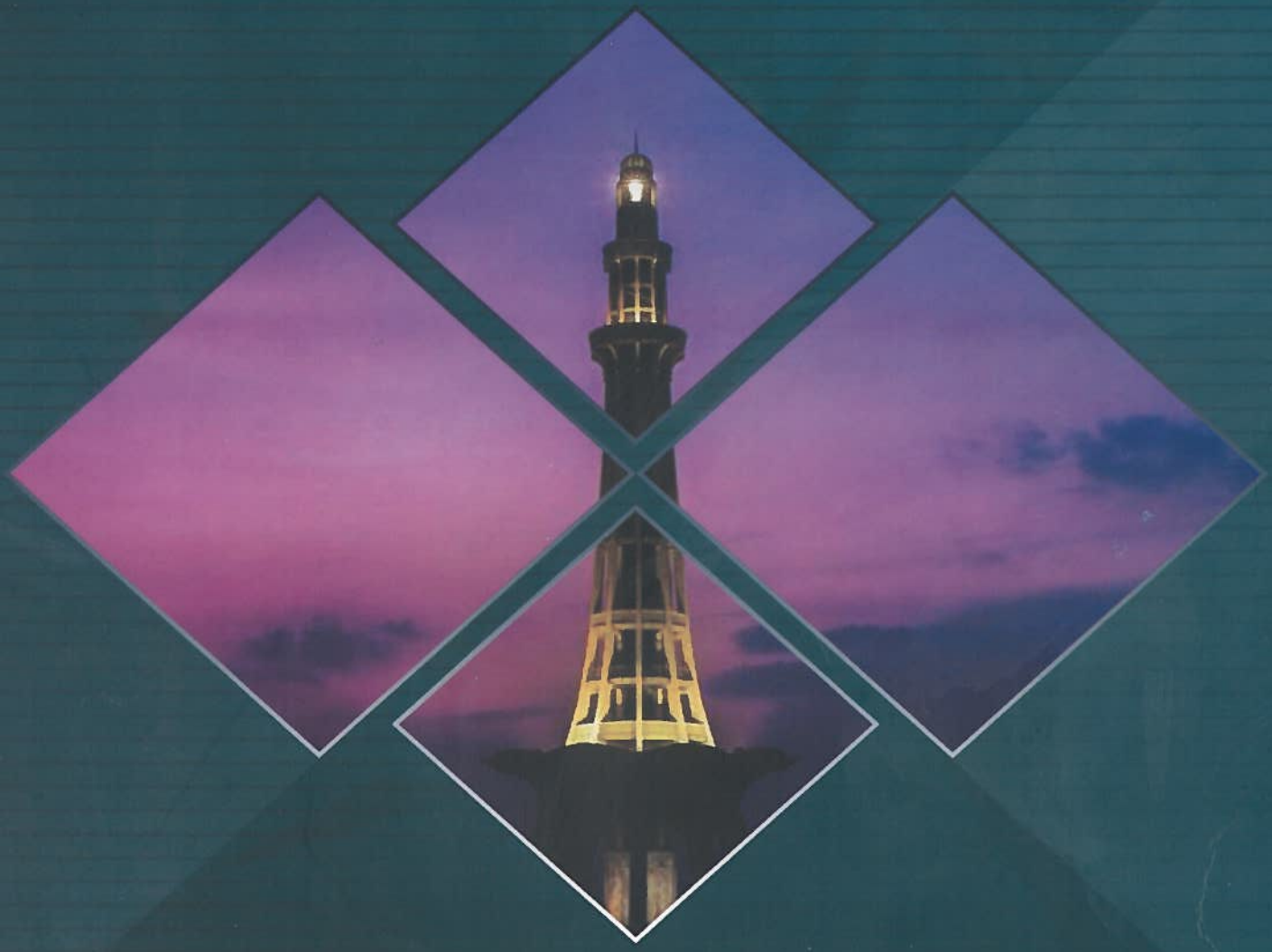
SAAP VI & PPS 16 BIENNIAL CONFERENCE 2018

ABSTRACT BOOK

Enhancing Academic and Research Collaboration in South Asia



University College of Medicine & Dentistry

THE UNIVERSITY OF LAHORE

SAAP

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SAAP-PPS CONFERENCE, 2018

6th Biennial Conference South Asian Association of Physiologists

16th Biennial Conference Pakistan Physiological Society

December 13-15, 2018

University of Lahore, Lahore, Pakistan

Enhancing Academic &Research Collaboration in SouthAsia

ABSTRACT BOOK

Organized by:

Pakistan Physiological Society

About the Institute....

The University of Lahore is the largest private sector university in Pakistan with more than 25,000 students and 7 campuses. The University was established in 1999 and has since then been offering courses in the fields of Medicine & Dentistry, Engineering, Arts, Sciences and Social Sciences. With strong emphasis on balanced progress and focus on human capital, the University has grown to 11 faculties and 35 departments.

The quality of the teaching facility and research excellence has also earned its international recognition, placing the university amongst the top 6 first Pakistani Universities to be ranked in the 2012 QS Asia ranking. The Higher Education Commission (HEC) recognizes the University of Lahore at its highest 'W4' category of universities reserved for those institutions that fulfill all criterion of an International Quality University. The University of Lahore enjoys excellent links with international universities.

University College of Medicine & Dentistry (UCMD) constitutes one of the most important & flourishing departments of University of Lahore. UCMD prides itself as a place where facilities for students and patients are at their best, students are being taught and patients are managed by highly qualified academicians and clinicians. We have an honour that we have been accredited by various post-graduate programs recognized by PMDC & CPSP.

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Co-Chairman SAAP VI

Dr. Muhammad Aslam

Principal (University College of Medicine & Dentistry) /Advisor

Dr. Farrukh Iqbal

Organizing Secretary SAAP VI

Dr. Samina Malik

Vice- Principal (University College of Medicine &Dentistry)

Dr. Mahwish Arooj

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Dr. Maimoona Nasreen

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Message by Chairman, Board of Governors

It is a matter of great pride for us that we are hosting the 6th Biennial SAAP Conference and 16th Biennial Conference of PPS where all the eminent Physiologists will gather under one roof. As an institution, University of Lahore has always extended a warm support for any such event that can lead to collaboration of scholars & scientists across the borders. SAARC Physiologists can play a leading role to promote academic friendship in the South Asian region in the face of current geo-political situation.

Due to cultural similarity, we share common goals and challenges which can be better achieved by enhancing communication and breaking the boundaries. This highlights the significance of this event which returns to Pakistan after ten years. This platform is expected to explore the emerging trends and meet the new challenges with full throttle. I appreciate the efforts put in by organizers to gather such a galaxy of learned people, who are indeed, an inspiration for young scholars.

I strongly wish that South Asia meets the international standards by virtueof SAAP-Platform. Hope you enjoy a comfortable stay, a knowledgeable experience and memories to cherish.

Mr. AwaisRaoof
Chairman, Board of Governors,
University of Lahore,
Lahore, Pakistan

Message by Patron of Conference/ Pro-Rector (University College of Medicine &Dentistry)

It gives me immense pleasure to welcome you to SAAP VI &PPS 16 Conference 2018.

Physiological sciences form the back bone of both medicine and surgery. Any good physician, surgeon or a research scientist in the field of medicine and allied sciences need to keep himself updated with the current physiological principals. I being a Cardiac Surgeon myself knowsthe true value of this science.

It is heartening to see the world at large and especially SARC countries taking up their due share and recognition in this science that it rightly deserve.

The chairman organizing committee has been successful in collecting a galaxy of the top names in this field on the platform of University of Lahore, and the University is providing all the support that this conference needs.

I am sure that you will enjoy the latest updates, scientific debates, seminars and the opportunity to meet and greet International faculty on the subject.

There will be an added opportunity to explore Lahore with its traditional and modern architecture, food, fashion and hospitality. I wish you a fabulous time whilst in Pakistan.

Prof. Dr. Shahid Malik
Pro-Rector University College of Medicine &Dentistry,
University of Lahore,
Lahore, Pakistan

Message by Principal, University College of Medicine

It gives me immense pleasure to write these few lines to welcome you all in the SAAP VI and PPS 16 Biennial conference to be held from 13-15 December 2018 in the University of Lahore, Pakistan. The main theme of this Conference is to enhance Academic and Research Collaboration in South Asia. The objectives of this conference are to share and update clinical and basic research in the discipline of Physiology. It also pleases me to write that there will be more than 300 participants, 18 International and National speakers and there have been more than 150 papers and abstracts submitted so far. I am particularly thank full to foreign speakers from different countries of South Asia and from France for sparing their precious time for this continuing medical education. We hope that you will have a productive and fun-filled time at this very special conference. This will also help the foreign speakers to visualize the social and historical heritage of our country, Pakistan.

The attendees of this conference should try to utilize each and every minute to gain knowledge as it is not easy to gather such a galaxy of stars on one platform.

Lastly I must appreciate the participants from all over Pakistan and abroad and hope they will quench their thirst by learning as much as possible and having learnt the recent advances in Physiology to disseminate knowledge to those who could not attend this International Conference.

Please enjoy the every minute of the conference and matchless hospitality of people of Lahore and take excellent memories when you go back to your homes.

Prof. Farrukh Iqbal
Principal, Professor & Head, Department of Medicine, University College of Medicine
University of Lahore, Lahore

Message by Principal, University College of Dentistry

University of Lahore is proud to host the 6th Biennial SAAP Conference and 16th Biennial Conference of PPS, in which Physiologists from several countries including ours, from various institutions are exchanging their knowledge and experience at this platform. This activity develop bridges of academic and research collaboration among SAARC physiologists to promote exchange of knowledge and professional skills among South Asian block of developing countries.

In this rapidly changing world of scientific knowledge, the challenges faced in the teaching, learning and assessment methodologies of medical and dental students are discussed among most of the attendees and an approach of collective wisdom is adopted at the institutions. The understanding of patho-physiology of disease processes predominantly seen in Asian countries is better understood through collaborative multi-center research, for better understanding in the contextualized manner. The reliance on the studies carried out at other parts of the world can thus be minimized through these platforms, if organized on regular basis.

The organizing committee deserves tremendous appreciation and I hope the registrants for the conference would enjoy the environment, culture and customs of our institution, city, country and above all the hospitability which we hope, you will enjoy in Pakistan.

Prof. Moghees A. Baig
Dean, University College of Dentistry,
University of Lahore,
Lahore

Message by Vice-Principal, University College of Medicine

Dear Conference Delegates,

As Vice Principal, UCMD and Member BOG, University of Lahore, it is my great pleasure to welcome the participants of SAAP 6 and PPS 16 conference to the University of Lahore; the largest private sector university of Pakistan.

This is a unique opportunity to attend two leading conferences in one registration. During this prestigious 4-day conference, experts from around the world have gathered to discuss, share their knowledge and expertise in the field of Physiology. The scientific committee has put in a lot of hard work to carve out an exciting and high-quality scientific program that includes pre-conference workshops, symposiums, plenaries and oral & poster presentations.

We look forward to an exciting week of insightful presentations, discussions, sharing of technical ideas, renew friendships, extend our networks and explore the current and future research directions.

We thank you for attending the conference and we hope that you will have an enjoyable and productive time in Lahore and will leave with fond memories of SAAP 2018.

Dr. Mehwish Arooj,
Vice Principal, UCMD,
University of Lahore, Lahore

Message by Chairman, SAAP VI

This is my privilege to extend sincere tributes to physiology community under the umbrella of South Asian Association of Physiologists (SAAP) and Pakistan Physiological Society for entrusting us organizing the VIth Biennial Conference of SAAP at University of Lahore, Lahore.

The theme 'Enhancing collaboration in South Asiá is such an open topic for physiological research to venture upon unlimited opportunities for young and old stream of physiologists equally.
I trust conference would make a point to deliberate interactively and stimulate young minds to come up with novel ideas and approaches to pursue original research in physiological sciences to unravel the complexities but hidden in commonalities of culture in South Asia.

Most importantly this is providing unique opportunities for physiology community in South Asia as cultural similarities there to make new friendships and explore avenues for professional growth and learning from each other's experience.

Wishing all the success with a hope to see community of physiologists in the region benefit from each other'sexperience.

Dr.Arif Siddiqui
Professor of Physiology
Chair, Organizing Committee, SAAP VI
Vice Chancellor
Barrett Hodgson University
Karachi

*Message by Co-*Chairman, SAAP VI...

It is my elated privilege to write the message for th participants of SAAP VI & PPS 16 Biennia Conference-2018 being held at the University o. Lahore, Lahore (Pakistan) from 13th -15th December, 2018. The joint conference of this South Asian Association of Physiologists and of Pakistan Physiological Society is subjected to enhancing academic and research collaboration in Physiological Sciences in the region. This diversity in seasons, topology, ecology, geology and geography of the region opens avenues for research pursuits. I believe the graceful forum of SAAP may help to promote linkage and collaboration in academia, research and healthcare. Let us kindle the fire of creativity from the flame of the joint conference of SAAP and PPS in the city of culture and education (i.e. Lahore).

Professor Muhammad Aslam
Pioneer President, South Asian Association of Physiologists (SAAP)
Co-Chairman, SAAP VI Conference
Pro-Vice Chancellor, National University of Medical Sciences
E-Mail: professormaslam@yahoo.com

Message of Secretary General, SAAP...

It gives me great pleasure as the Secretary General of South Asian Association of Physiologists (SAAP) (2016-2018), to heartily welcome all the delegates to this 6thBiennial SAAP and 16th Annual Conference of Pakistan Physiological Society (PPS) being held in Lahore, Pakistan. We are particularly honoured that for the second time PPS has kindly consented to organize this biennial conference within a period of ten years, and are deeply indebted to this.

The focal theme of the 6th Biennial Conference is 'Enhancing Academic & Research Collaboration in South Asia' which is a perfect match of the objective of SAAP. During the last ten years, we witnessed a massive explosion of science and technology in this region. Physiologists belongs to the discipline that translates science to society, it again has unique position in medicine. To maintain this uniqueness, we the physiologists should inspire the younger physiologists to be imaginative and to be innovative: this is the prime focus of this gathering of senior and junior physiologists in the South Asian Region and beyond.

In this conference scientists from different South Asian countries and abroad would remain present as keynote and plenary speakers. In addition there are other lectures, oral and poster presentations. There will be a Teaching in Physiology workshop. This well organized scientific programme will be accompanied by a tour of the historic city of Lahore.

My sincere gratitude to Professor Arif Siddiqui, Chairman, Prof. Muhammad Aslam, Co-Chairman and Prof. Samina Malik, Organizing Secretary and her team for their leadership in organizing the 6th SAAP Conference. Last but not the least I must acknowledge the sponsors and exhibitors without whose financial support all the events in this conference would not have happened.

I look forward to see you in Lahore.

Professor Amar K Chandra
Secretary General, SAAP

Message of President, SAAP...

I am delighted to write this message on the eve of 6th Biennial Conference of South Asian Association of Physiologists (SAAP VI) and 16th Biennial Conference of Pakistan Physiological Society (PPS 16) to be held at the University College of Medicine and Dentistry, University of Lahore, Lahore, Pakistan on Dec 13-15, 2018. South Asian Association of Physiologists (SAAP), is a non-profit organization established by a group of Physiologists from SAARC countries working in the diverse field from basic/molecular research to clinical research. Its main aim is the advancement of both physiology teaching and research in the region.

On behalf of the members of SAAP, I would like to extend my sincere gratitude to the organizing committee of SAAP VI for hosting the conference and wish them a grand success of the conference. It is a matter of pleasure for all of us that since, its inception to till date, 2008 to 2018, Biennial conferences of SAAP are being organized regularly starting from SAAP I Biennial conference held in Islamabad, Pakistan on Nov 14-16, 2008, SAAP II in Bangalore, India in 2010, SAAP III in Sri Lanka in 2012, SAAP IV in Dhaka, Bangladesh in 2014, and SAAP V in Kathmandu, Nepal. Again the cycle has been started from Pakistan. The next SAAP VII conference is going to be held in India in 2020. I would like to congratulate in advance the proposed organizing team for accepting the proposal. These conferences are giving unique platform for interaction and sharing knowledge and skills among national and international scientists/physiologists/ educationists and helping the advancement of physiological research and medical education in the region, along with it, is helping share about the knowledge of culture and bringing all SAAP members very close as family members.

The organizers of SAAP VI conference have worked hard for the success of this conference from every aspect. This conference consists of several plenary lectures, preconference workshop, oral and poster presentations. The preconference workshop on "Enhancing Physiology Teaching and Learning for better Healthcare Professionals" will be an excellent opportunity for the researchers and the educationists to update their knowledge and skills and bring it in practical in the region. The theme of the conference is Enhancing research collaboration in South Asia It is very important. Several national and international collaborative research projects are being conducted by several physiologists in the region. SAAP plans to foster it more. This SAAP conference will be very good platform to discuss for how to foster collaborative research. I hope the participants of SAAP VI conference will gain exclusive knowledge and get opportunity to meet with expert researchers of various fields. The interactive sessions, free paper sessions and poster presentations will create an opportunity for the young scientists to exchange knowledge and technology with the scientists of various fields.

I would like to welcome and congratulate all the participants and sponsoring body of the conference. We believe this conference will be very fruitful and enjoyable for all the participants. We expect participants of this conference will experience a cordial reception, warm hospitality and enjoyable, moment by visiting the historical city of Pakistan.

Sincerely,

Dr. Rita Khadka
President,
South Asian Association of Physiologists (SAAP)

Message by Chairman (PPS)...

It is a matter of immense honour and pride for me to be writing this message for an august audience of scholars and learners of Physiology from South Asia gathered here to exchange their expertise for a better way of imparting knowledge of Physiology in the learning process.South Asia is a very fertile land which has produced many scientists who earned big names through their hard work, research, and its application on human life. Yet we have many gems in stock in the shape of our students who have to be wisely polished to shine and prove their worth to the world in this era of advanced computer technology.

Incorporation of modern teaching and learning techniques in our education process is the need of the hour. Traditional teaching and learning technologies are obsolete now and invention of computer and the internet has revolutionised the world changing it to a global village where we can share the information with the rest of the world and make use of each other's experience and progress futher in the field.

As Physiology teachers we have to renovate the existing curricula taught since centuries and we have to step into the new time with all our old knowledge transformed into a new shape and updated to latest concepts. This is only possible when we revisit the whole system of medical education, especially the basic medical sciences, for making it the foundation for a newer, modern building of medical sciences.

A big number of abstracts has been received from SAARC countries and beyond for presentation in this Conference and have passed through a rigorous process of scrutiny, review and editing to be seen here in the final shape. It is expected that we return home from here with a treasure of new learning methodology implemented through the changed concept of medical education in general and physiology in particular. The organizing team has worked day and night and put their all efforts to make the event a memorable time for the participants. Not only that our existing knowledge gets enriched, but we shall also have golden opportunities to see the historic city of Lahore and will rewind the clock for and feel to be in the old Mughal era of the subcontinent. We wish your stay here with us is comfortable and quite informative and ever memorable.We wish you a Great Reading and wish this event a great success!

Prof. Muhammad Ayub
Chairman Organizing Committee,
PPS-16

Message by Organizing Secretary (SAAP-PPS CON 18)....

If I look back, 10 years ago, I was presenting my first ever paper and poster in the first PPS SAAP conference, Pakistan. At the end of that presentation, people from South Asia stood up to offer collaboration in academic research. I recited a verse before leaving the stage in applause, which meant: "I started my journey alone towards the destination, but people started pouring in and it became a caravan! I remember my mentor Prof. Shahid Hasan saying: "You were 200% confident". I remember the courtesy of Prof. M. Aslam, in terms of accommodating on-campus, a senior demonstrator (me). Did not know his facilitation will continue in SAAP VI in arranging accommodation for participants and as Co-chair. SAAP and PPS emerged as my family and I got addicted to attend the family functions actively. At the end of my presentation on leadership and emotional intelligence in Bangladesh (SAAP IV), I received standing ovation when I projected an emotional picture of a Pakistani cricket player, hugging a player from Bangladesh with tears in his eyes to congratulate him on his victory! That was the beginning of conquering South-Asian borders with love and friendship! Later in SAAP V, Nepal, my mentor Prof. Arif Siddiqui (Chair SAAP VI) trusted me to be workshop organizer and to compile workshop abstract book, design certificate & feedback form, present 2 plenary talks; one on behalf of my friend Sheila Pinjani (RIP) and conduct workshop on emotional intelligence. There I remember inviting you all to the most welcoming institute of Pakistan "The University of Lahore" to host SAAP VI. I acknowledge the love of Prof. Rita, Prof. Noorzahan and Prof. Fatima, the vision of Prof. Amar Chandra, Robert Carroll and Barbara Goodman about me, guidance of my friends Prof. Sharaine& Prof. Savi and bonding with my friend Mei-Ling Tsai. Also remember the moral support of Prof. Tehseen and Prof. Ali Soomro (RIP) in SAAP V. My deepest thanks to Prof. Rehana (Chair Scientific Committee) and her able team, with whom I planned SAAP VI at the top of Himalayas, while taking the low flight together, for bringing up research from South Asia without compromising on quality standards. I am speechless to see the whole-hearted participation of Physiologists and clinicians from PPS, SAAP and beyond to promote Physiology teaching and research, especially in South Asia. I appreciate Prof. Ayub (Chair PPS 16) for blending it with SAAP VI.

I have reserved an African word for my biggest support team, the host department and administration of UOL: "UBUNTU", whi ch means: "I am because WE ARE"!

With warm wishes,

Prof. Samina Malik

Head, Department of Physiology, University College of Medicine & Dentistry,

The University of Lahore, Lahore

Abstracts for Inaugural Session

Keynote Lecture 01

Ethical Teaching: A Needed Emphasis for a Physiology Educator

Arif Siddiqui[1], KusalK Das[2], Robert G Carroll[3]
[1]Barrett Hodgson University, Karachi, [2]BLDE University, Vijayapur, [3]University of East Carolina, Greenville, North Carolina
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The ethical underpinnings of professional activities appropriately cover many faculty activities i.e. research ethics, publication ethics and clinical ethics. An equivalent emphasis on incorporating sound ethical approaches in teaching has yet to be established. Teaching sessions` in physiology education generally focus on the mechanics and philosophy of teaching, but hardly ever discuss the issues of Ethical Teaching.

Teachers are the greatest assets of any education system. They stand in the interface of the transmission of knowledge, skills and values. It is not that easy to become an 'ethical medical teacher' as there are very few guidelines or rules that are available which may be followed as principles on ethical teaching. Certain issues pertaining to ethical teaching are based on laws, such as sexual harassment and discrimination. Beyond these, there are many issues which medical faculty members may face as teachers which are quite different by nature as compared clinical ethics or research ethics.

The session is intended to be a resource for educators to help discuss, recognize and analyse situations that could result in public and professional harm.

Keynote Lecture 02

Healthcare System in South Asia: Challenges and Prospects

Muhammad Aslam, Arshad Ahmed Saeed, Mudassir AneesBaig,
National University of Medical Sciences, Rawalpindi
Email:professormaslam@yahoo.com

Healthcare is considered one of the fundamental rights of every individual. In South Asian countries all the healthcare services are delivered through a proper channel/healthcare system but due to some loopholes, people fail to get the proper healthcare facilities. In South Asia healthcare system is beset by preventable and curable diseases such as maternal mortality, diabetes, high blood pressure, and other controllable diseases have been shockingly high. In terms of a health condition, it has been ranked second, next to Africa, due to worst life expectancy, infant mortality, malnutrition and incidence of tuberculosis and HIV in the world. The subject presentation comprises of current healthcare status of the region, best healthcare system of the world and the criteria on the basis of which healthcare system are ranked best. To provide a better understanding of the South Asian Healthcare system a comparison of South Asian and best healthcare system carrying countries will be provided. This comparison is based on the procedure that Bloomberg follow to rank the country's healthcare system efficiency. Each country is ranked on three criteria: life expectancy, relative per capita cost of healthcare and absolute per capita cost of healthcare. The current healthcare system is unable to serve the population needs in an effective, efficient and equitable manner. It does not have the capability to tackle persisting issues i.e. Low Government Spending, Poor / Depleting Infrastructure, Limited Affordability, Low Awareness of Disease and Possible Treatment, Fastest growing population, Changing disease profile and Re-emerging diseases, Paucity of Manpower (Doctors, Nurses, Paramedics). The South Asian region faced with low life expectancy, relative per capita cost and absolute per capita cost on healthcare due to which it has been placed below in the best healthcare system's list. To tackle the persisting challenges and worse healthcare conditions, South Asian members' countries should formalize a plate form to enhance the standard of health. Only enhancing the healthcare finance will not help the healthcare system but the policies made on the ground realities can make the required change.

Keynote Lecture 03

Environmental pollution, Human Reproduction and the Physiologists

Sharaine Fernando
Faculty of Medical Sciences
University of Sri Jayewardenepura, Nugegoda
Email:sharainefer@yahoo.com

Environmental pollution and the resultant toxicants have many harmful effects on health. Among the many deleterious health effects, human reproduction is affected significantly. This presentation aims to discuss the effects of environmental toxicants on selected aspects of reproduction and the possible sources of exposure to toxicants and to outline the role of physiologists in the South Asian region to mitigate the effects of environment pollution on human reproduction. The negative effects of environmental toxicants on different aspects of human reproduction and the offspring have been shown by many investigators. The research carried out by us on infertile males and females add to this extensive body of evidence. Under the Theme "Enhancing research collaboration in South Asia" I propose that a center for research on Environmental pollution on human reproduction to be established with initiation of SAAP. The Physiologists can take the lead in conducting research on epidemiology, health impact, disease/economic burden of exposure to toxins. To ensure healthy food system for all methods of healthy food production, preservation and promotion needs to be innovated. Research on traditional food/herbs/plants which can neutralize/chelate toxins will be invaluable. Cutting edge research to synthesize biomolecules to detoxify /remove metals will help to alleviate at least some of the harmful effects. To educate the public on, sources of exposure to chemicals, potential harms, vulnerability and prevention is another role to be undertaken by the Physiologists. The public should be encouraged to report hazards to relevant authorities. Health care providers and institutions should advocate "health care without harm" by adhering to clean energy, proper Waste disposal & waste management procedures. The physiologists in the region should champion environmental justice meaning fair treatment and meaningful involvement of all in, development implementation and enforcement of laws, regulations and policies related to exposure to toxicants.

Keynote Lecture 04

Translational Physiology Research, Clinical Practice and Public Health: A Continuum

Umar Ali Khan
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It is way back in 1938 when JS Weiner in his article Physiology and Public Health wrote that there should be application of physiology in practice of hygiene. In that time courses of Applied Physiology were taught to students of public health to deal the practical entities like maternal & child health, school health, personal, occupational and industrial hygiene. Currently public health has become of utmost important. Public Health deals with physical, mental and environmental impact on community. Public Health is now a multidisciplinary subject. It helps improve the quality of life of population in an interdisciplinary manner. These days there is an ongoing debate on future of physiology. Although physiological research has contributed to the clinical and Public Health levels. But in 1993 National Cancer Institute in America used a term translational research. Nowadays this term is used to explain the process through which basic science research is translated in to clinical practice and Public health. A latest mini review concludes that non-communicable diseases are among the leading causes of death globally, deeper understanding of the interactions between physiology of sleep and nutrition are required to investigate the implications for both public health and clinical practice. Translation physiology is a platform to investigate physiological events from molecular to population levels. This improves clinical practice and Public health, which proves the competence of physiologist in impacting societal needs.

Abstracts for Scientific Session I

Cell Biology / Genetics

Plenary Lecture 01

Obesity- In retrospect and prospect

Muhammad Arslan
University of Lahore, Lahore
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Obesity is generally defined as an increase in fat mass that adversely affects health and poses a risk to other metabolic disease. Although cases of obesity have been documented since early human history, the phenomenal increase in prevalence of this disease has occurred in the last 3 decades. The present pandemic of obesity has emerged as a serious global health concern. The rise in prevalence of obesity in recent times has mainly been attributed to lifestyle changes and the development of an 'obesogenic' environment, in parallel and consequent to technological advancements and urbanization. Apart from these environmental influences obesity has a large genetic component that accounts for the marked variation in BMI observed in individuals living under more or less the same environmental conditions. Various studies demonstrate that 50-80% of the variation in body weight in individuals sharing the same environment, is genetically attributable. From a genetic perspective obesity is classified as common or polygenic, monogenic and syndromic types. Although the common obesity is the most prevalent type and responsible for the main burden of the disease, study of monogenic form of obesity has provided us the crucial insights into molecular and physiological mechanisms regulating energy balance, body weight and appetite. Concerted efforts during the last 20 years have led to the concept of the central control of energy balance by way of the melancortin pathway driven by the adipocyte secreted hormone, leptin. Pathogenic mutations in genes coding for ligands and receptors of the leptin-melanocortin pathway result in the most extreme type of obesity at an early age. With discovery of some new genes associated with obesity, in recent years, other leptin independent molecular mechanisms have been indicated that modulate the melanocortin signaling. In spite of the voluminous research on obesity spurred by the alarming increase in its prevalence, genetic causality in as many as >90% cases still remains elusive. It is to be expected that a strategic use of advanced technologies for next generation sequencing including GWAS, WGS and WES shall aid in unravelling the missing heritability of obesity and hence of new molecular pathways affecting energy homeostasis. Such efforts should result in a more objective and detailed classification of obesity types and lead to novel and more efficient target oriented precision medicine for management of obesity, in the foreseeable years.

Cell Biology / Genetics

Plenary Lecture 02

Unravelling genetics of obesity - Lessons from a Pakistani consanguineous population

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Single gene mutations leading to obesity though rare, have provided critical insights into the molecular and physiological mechanisms underlying control of energy homeostasis and body weight. Thus far, loss-of-function mutations in six genes coding for ligands, receptors and enzymes involved in the leptin signalling pathway have been identified in only 4–6% of cases of severe obesity. No systematic studies have so far been carried out to assess the genetic spectrum of extremely obese cases (BMI SDS>3) in a predominantly consanguineous population. In the present study we searched for obesity-associated mutations by adopting a multi-layered sequencing strategy in a cohort of 240 unrelated subjects with early onset severe obesity and their family members, from a Pakistani consanguineous population. All subjects were first screened for mutations in the leptin (LEP) and melanocortin 4 receptor (MC4R) genes by direct sequencing. Subjects found negative for these two genes, were subsequently screened for other known obesity genes using microdroplet PCR-enrichment (RainDance) combined with NGS. Lastly, in our quest to identify novel genes, whole exome sequencing was performed on 138 severely obese subjects and family members. These efforts resulted in identification of rare and novel mutations in known genes in as many as 30% of cases with severe obesity. WES revealed potentially pathogenic mutations in two new susceptibility genes, Rho-associated protein kinase 1 (ROCK1) and adenylyl cyclase 3 (ADCY3). That these genes explain obesity in these subjects is also supported by previous GWA studies and/or in animal models. A high prevalence of obesity associated pathogenic mutations in this population compared to 3-5% reported in outbred populations, underscores the importance of comprehensive genetic screening of inbred populations to unravel new genes and signalling pathways modulating energy balance and thus providing leads to innovative pharmacologic targets for precision medicine in context of obesity pathogenesis.

Cell Biology / Genetics

Plenary Lecture 03

Genome-Wide Association Studies (GWAS) Reveals Novel Colorectal Cancer Genes Expressed By Immune Cells

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Gene expression analysis was performed on sporadic colorectal cancer (CRC) patients along with controls and two novel genes were identified. "Colorectal Cancer Associated 1 and 2" genes exhibited related etio-pathology of CRC. Novel SNPs were also identified and validated in the region of 11q23. The two genes were found to co-express and were identified in the secretory vesicles of eosinophils, mast cells, neutrophils, macrophages, and dendritic cells. GWAS, transcript levels, protein levels and histological studies revealed that both "Colorectal Cancer Associated 1" and "Colorectal Cancer Associated 2" genes are involved in pathways related to immune system. This research was based on GWAS on specific 11q23 loci and identifies two genes associated with high risk of CRC. Both genes were expressed through opposite strands on the same loci and correlated well with the SNPs that were either novel or reported earlier. The expression of these genes also correlated well with immune cell infiltration and in particularly expression in colon tissue, lamina propria. This study hopes to help diagnosis of cancer and can be used as CRC specific biomarker and to design therapeutic drugs based on these novel molecules.

Abstracts for Oral Presentations

Oral Presentation 01

Evaluation of Natural Killer Cell Cytotoxicity by Flow Cytometry

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Background and Objective: Natural killer (NK) cells are innate immune cells that target tumour cells. Chromium release assay has been used in the past to measure the cytotoxic activity of NK cells. This assay involves use of radioactive chromium which limits its usage. Flow cytometry is used to study the biology of cells based on its light scattering and fluorescent properties. The objective of this study was to test if flow cytometry can be used to measure the cytotoxicity of NK cells.

Methodology: NK cell-sensitive target cells were labelled with fluorescent dye. Labelled target cells were co-cultured with peripheral blood mononuclear cells (PB MNCs) containing NK cells at various effector to target cell (E: T) ratios. Co-cultures were stained with viability dye followed by analyses on flow cytometer and percentage specific lysis was calculated.

Results: We successfully labelled NK cell-sensitive target cells (87.6% ±2.55) with fluorescent dye. Two out of three independent experiments showed an increase in lysis of target cells upon an increase in the number of effector cells. Representative data from one experiment showed percentage specific lysis to be 11.59% ±0.78, 3.06% ±0.65%, 0.62% ±0.32 at 80:1, 40:1 and 20:1 E: T ratios respectively. Increasing the number of effector cells (80:1 to 40:1 and 40:1 to 20:1) was found to be statistically significant.

Conclusion and Future Prospects: This study shows that flow cytometry can be successfully used to study NK cell cytotoxicity which is an addition to the applications of flow cytometry in the field of cell biology.

Key words: NK-cells, cytotoxic, flow cytometry

Oral Presentation 02

Effect of Endurance Exercise onthe Oxidative Stress Marker Malondialdehyde in Type 2 Diabetic Mice

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Background: Diabetes is associated with oxidative stress which may have an important role in its pathophysiology and complications. Exercise training is a powerful therapeutic approach in diabetes and has protect effects against the progress of its complications.

Objective: The aim of this study was to find the effect of an endurance exercise program on the stress marker malondialdehyde (MDA) in high fat fed-streptozotocin induced type 2 diabetic mice.

Material and methods: 60 male albino mice were fed a high fat diet containing 60% kCal as fat for 4 weeks. This was followed by intra peritoneal injection of 40mg/kg body weight streptozotocin, given on three consecutive days. Mice with fasting blood glucose more than 200mg/dl were considered diabetic. Half the mice underwent an exercise program which comprised of a 20 minute swimming session per day, 3 days a week, for 4 weeks. The level of MDA was estimated in both groups using TBARs method.

Results: Mean malondialdehyde level (nmol/ml) was significantly reduced in diabetic mice that underwent endurance exercise training.

Conclusion: This study highlights the important role of endurance exercise in reducing oxidative stress in diabetes.

Key words: Oxidative stress, Malondialdehyde, Type 2 Diabetes

Oral Presentation 03

Neuroplin-1 Over-expression in Mesenchymal Stem Cells Resulted in Improved Cardiac Function in Rat Model of Myocardial Infarction

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Background: Cardiac regeneration is an important topic in the field of regenerative medicine. Mesenchymal stem cells (MSCs) can be utilized as a source for cardiac regeneration.

Objective: The study was carried out to investigate the role of cell survival factor Neuroplin1 (Nrp1) to improve the therapeutic potential of MSCs.

Method: Based on our earlier experiments we selected Nrp1 to transfect MSCs. Rat MI models were developed through ligation of left anterior descending coronary artery and confirmed through echocardiographic evaluation 4 weeks post MI with significant increase (*$p<0.05$) in diastolic and systolic left ventricular internal diameters (LVIDd and LVIDs) and significant reduction (*$p<0.05$) in left ventricular ejection fraction and fractional shortening (LVEF and LVFS). The animals were divided into five groups 1) Normal Control, 2) Sham control, 3) Infarcted with no transplantation, 4) Infarcted and transplanted with Normal MSCs and 5) Infarcted and transplanted with Nrp1 transfected MSCs. Functional performance of the hearts was analysed through echocardiography while regeneration of cardiomyocytes was observed through histological examination.

Results: Histological examination of the heart sections 4 weeks post-infarction showed that MSCs home towards the site of injury in case of all treatment groups. Additionally, Nrp1 transfected MSCs exhibited the potential to regenerate the cardiac tissue. The heart function was also found to be comparable to that of the control group.

Conclusion: The recovery in the heart function and protection against infarction observed in Nrp1 transfected MSCs suggests the suitability of the use of Nrp1 for preconditioning of MSCs for future regenerative therapy for cardiomyogenesis.

Key words: Neuroplin-1, Myocardial infarction

Oral Presentation 04

The Dauntless D: Association between VDR-ECORV gene polymorphism and periodontitis

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Background: Oral health is a heightened public health concern since it contributes to the overall health of an individual. Periodontitis is a chronic inflammatory disease followed by tissue destruction and an ultimate tooth loss. Cathelicidin is a potent oral anti-inflammatory peptide that maintains oral health and is released via vitamin D dependent pathway. Studies have suggested that vitamin D receptor gene polymorphisms might have an association with the onset and progression of periodontitis.

Objectives: This study was aimed to analyse the association between VDR EcoRV and gene variant and periodontitis.

Methodology: It was a case control study of 166 participants aged between 20-45 years. Individuals with periodontitis were recruited on the basis of Ramfjord Index from OPD of Civil Hospital, Karachi. A detailed questionnaire was filled by each participant about personal, demographic, dental and lifestyle habits. GCF and whole blood was collected for biochemical estimations of cathelicidin and vitamin D. VDR EcoRV was genotyped via PCR-RFLP. Statistical analysis was done using IBM SPSS version 22.

Results: A significant risk was observed between periodontitis with female gender and obesity. Also, social circle and socioeconomic status is found to be associated with risk of disease. The periodontal measures responsible for the severity of disease including PDI were also found to be associated with EcoRV genotype.

Conclusion: VDR EcoRV gene polymorphism is strongly associated with the course of periodontitis.

Future prospectus: Further studies are needed to endorse the insights of VDR gene and its association in modulating the role of AMPs in periodontitis.

Key words: Antimicrobial peptides, VDR, polymorphism, Vitamin D, cathelicidin.

Oral Presentation 05

Ginsenoside Rg3 treatment inhibits cells growth and metastasis of non-small cell lung cancer in nude mice model of lung cancer

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Background: Ginsenoside Rg3 is a traditional Chinese medicine extracted from ginseng, has shown significant physiological activities such as hepatoprotection, neuroprotection as well as anti-fatigue, anti-oxidant, and most importantly, anticancer effects.

Objectives: In this study, our aim was to explore that ginsenoside Rg3 is an effective drug to treat non-small cell lung cancer in mice model of lung cancer.

Methodology: We established xenograft mice model of lung cancer, for this $5x10^6$ NCI-H1299 cells in 0.5 ml of PBS were inoculated subcutaneously in the right flank of 12 male Balb/c nude mice. After 2 weeks mice were randomly divided into 2 groups, control and ginsenoside Rg3 treated group. Ginsenoside Rg3 100 µg/ml was treated for 28 days and tumor volume and body weight were measured throughout drug treatment. After 28 days, mice were sacrificed and tumor weight and volume were measured.

Results: We found that ginsenoside Rg3 treatment significantly decreased tumor size, weight and tumor volume than control group. Ginsenoside Rg3 treatment also decreased tumor proliferation marker, proliferating cell nuclear antigen (PCNA) expression in tumor tissue of mice. Gross metastasis of tumor was assessed by hematoxylin and eosin (H and E) staining. Mice treated with ginsenoside Rg3 have decreased tumor cells metastasis in mice organs tissues than non-treated mice. Metastatic markers including E-cadherin which was increased and N-cadherin decreased in tumor tissues of mice treated with ginsenoside Rg3.

Conclusion: Collectively these results suggest that ginsenoside Rg3 is an effective therapy to inhibit non-small cell lung cancer growth and metastasis.

Future Prospects: The use of ginsenoside Rg3 in cancer therapy may aid in the prevention of toxicity and morbidity associated with conventional chemotherapy.

Keywords: Lung cancer, ginsenoside Rg3, metastasis, xenograft mice model

Oral Presentation 06

BAP1 Gene Mutations: Loss ofTumor Suppresser Function

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Background: Analysis of primary breast tumor has revealed a large number of dominant and recessive gene alterations encompassing several cellular attributes and activities. It is likely that some of these alterations are of causal nature and thus enable the tumor to attain distinctive malignant phenotype such as dysregulated proliferation, invasion, angiogenesis and ability to metastasis.

Aims and Objectives: Study was designed to describe the mutational aspects of BAP1 (apurinic/apyrimidinic lyase) using three dimensional model of BAP1.

Materials and Methods: Three dimensional model of human BAP1 was constructed using the protein structure-modeling program, MODELLER 4. Model assessment was carried out by Ramachandran plot statistics and PROCHECK program. We also have modeled two BAP1 mutants and analyzed the changes that take place in the BAP1 models.

Results: BAP1 is a globular α/β protein consisting of 2 domains. Both domains display similar topologies with each other comprising a six stranded β sheet surrounded by α helices, to form 4 layered α/β sandwich. Active site is located in a pocket at the top of α/β sandwich and is surrounded by loop regions. Mutational studies showed a loss of H bonding between other amino acids residues and also loss of base pairing with DNA.

Conclusion: Study concluded that mutation of certain amino acid residues may decreased the stability of 3D structure as well as its important function.

Key Words: BAP1, Mutation

Abstracts for Scientific Session II

Cardio-Respiratory

Plenary Lecture 01

Effect of Altitude on Orthostatically Challenged Heart Rate Variability

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Background: High altitude affects autonomic regulation of cardiac rhythm (heart rate variability, HRV).

Objective: To study the effect of high altitude on HRV in response to graded change in posture.

Methodology: Purposively selected age-and-sex matched healthy consenting high- and lowlander adults (n=23+23) from high (2900 m) and low (440 m) altitudes were tested after 5-min rest. Four-min long RR intervals recorded in lying, sitting, and standing postures and differences among them [lying-sitting (LYSI), lying-standing (LYST), and sitting-standing (SIST)] were compared between (Mann-Whitney test) and within groups (Friedman test).

Results: The highlanders showed more parasympathetic changes in LYSI: RMSSD [1.35(-2.55&7.65) vs 10.3(2.58&24.33) ms, p<0.01], HF power [-3.5(-156.25&163.75) vs 137.5(12.5&433) Hz, p<0.01], and SD1 [1(-1.75&5.38) vs 7.3(1.9&17.3), ms; p<0.01] and more sympathetic changes in LYST [LF power -98.5(-475.25&171) vs -21(-220.5&342.5), Hz; p<0.05]. They showed parasympathetic changes in delta LYSI-LYST comparison: RMSSD [5.3(0.7&13.2) vs 17.4(6&26.3), ms, p<0.01], HF power [32(-30&241) vs 207(44&588), Hz; p<0.01], and SD1 [3.7(0.6&9.4) vs 12.3(4.2&18.6), ms; p<0.01] whereas lowlanders had both parasympathetic and sympathetic changes: RMSSD [-1(-9.9&2.5) vs 5.1(0.9&22.4), ms; p<0.05] and LFnu [-5.3(-20.8&-0.3) vs -21.9(-33.7&-4), Hz; p<0.05]. Lowlanders had more differences in delta LYSI-SIST comparison: RMSSD [-1(-9.9&2.5) vs 9.8(1.8&23.1), ms; p<0.01], LFnu [-5.3(-20.8&-0.3) vs -10.3(-15.5&-4.9), Hz, p<0.01], HFnu [5.4(-3&20.8) vs 10.4(5&15.3), Hz, p<0.01]. But highlanders had more differences in delta LYST-SIST comparison: RMSSD [17.4(6&26.3) vs 6(1.2-17.4), ms; p<0.01] and SD1 [12.3(4.2-18.6) vs 4.3(0.8&12.3), ms; p<0.01].

Conclusion: While changing posture, highlanders use more of parasympathetic but lowlanders use both the sympathetic and parasympathetic efforts in cardiac rhythm regulation.

Key words: highlander, lowlander, cardiac autonomic regulation, orthostatic challenge, HRV

Cardio-Respiratory

Plenary Lecture 02

The life history of atheroma of a coronary artery tree

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The atheroma life history of a coronary tree shows an exponential curve with three distinct stages of atheroma, plaque and thrombus formation. The atheroma stage runs hidden subclinical as it grows abluminal within the compartments of the arterial wall while initially sparing the normal lumen caliber. Thus it remains even undetected by angiography. Recently it has been shown that the atheroma growth is supported by both life lines of arterial and vasa vasorum. There are many hypotheses of atheroma formation but a consensus model remains to be elucidated. One of the hypotheses is the lipid one. Intimal ox-LDL binds to glycosaminoglycans of ECM to trigger atherogenesis. Leucocyte adhesion molecules [LAMs] invite then various blood cells to a lipid buffet forming foam cells. However, there are hemodynamic forces to oppose the atheroma formation. Laminar shear force increases SOD, transcription factor KLF2 and reduces LAMs. The pulsatile laminar shear force uniquely increases endothelial NO. How the equilibrium between two opposing forces break down in favour of atheroma is not known. A model of how does IL-33 induce a switch from a pro-atheroma Th1 to a protective Th2 phenotype has recently been proposed. The challenge is how to pick and study the atheroma stage of the arterial tree in humans. Its strategy is tricky because no change in lumen occurs initially despite ongoing atheroma formation. However, once its threshold size is reached, it starts narrowing the lumen with an effect of reduction in coronary blood flow leading to myocardial ischemia. Interestingly, if the lumen closure by the plaque occurs gradually, the collateral circulation can compensate even a total occlusion to ward off MI. However, if the time course of the lumen closure e.g. LAD is fast, no collaterals could be formed leading to serious consequences in MI. Based on these observations, ST and Non-ST Elevation MI are differentiated. When the plaque fibrous cap ruptures, it turns the stable angina into unstable one with the source for thrombi. Antithrombotic mechanisms come into play by lysing the clot using thrombomodulin, plasminogen activator,

proteoglycans, prostacyclin and NO. However, when the clot overrides the endogenous fibrinolysis, it may occlude the arterial lumen. The clinical manifestations of ST and Non-ST Elevation are variable as some are caught while others are spared. How collateral circulation is formed to low myocardial PO2 leading to sprouting of endothelial tubes from the vessel with the background of a gradual plaque invasion, is not completely elucidated. This presentation will discuss the gaps in atheroma research and how a methodology could be developed to detect atheroma formation stage in humans. This talk is dedicated to the fond memories of Stephan Hawking, an enlightened tutor of the universe to have driven the generation cycle of Albert Einstein.

Cardio-Respiratory

Plenary Lecture 03

Tadalafil Inhibits Hypoxia Induced Pulmonary Hypertension

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The present study was carried out to investigate the effects of long-acting phosphodiesterase five inhibitor, tadalafil, on pulmonary hypertension induced by chronic hypobaric hypoxia in rats. Adult Albino Wistar rats were exposed to 2 weeks of hypobaric hypoxia for 8 h daily and treated with tadalafil or tempol, a standard antioxidant agent. Right ventricular systolic pressure (RVSP) was taken as an index for pulmonary arterial pressure; malondialdehyde, reduced glutathione and superoxide dismutase were chosen as the markers of oxidative stress; serum tumour necrosis factor alpha (TNF-α) levels and inflammatory changes in lungs were assessed for inflammation. Chronic hypobaric hypoxia was found to induce pulmonary hypertension, as it significantly ($P < 0.001$) increased RVSP. Chronic hypobaric hypoxia also leads to an increase in oxidative stress as was evidenced by an increase in malondialdehyde levels ($P < 0.001$) and a significant decrease in ($P < 0.001$) reduced glutathione levels and superoxide dismutase activity. Chronic hypobaric hypoxia-induced inflammation was revealed by lung histology and increase in serum TNF-α levels. Tadalafil significantly prevented ($P < 0.001$) rise in hypobaric hypoxia-induced rise in RVSP. Tadalafil partially while tempol completely reversed hypobaric hypoxia-induced oxidative stress. Lung inflammation and serum TNF-α levels were significantly attenuated by both tadalafil and tempol. However, effect of tadalafil on inflammation was more marked than that of tempol. These data indicate that tadalafil possess antioxidant as well as antinflammatory action in addition to its vasodilatory property. All these three actions combined may have positive impact of tadalafil in the treatment of hypobaric hypoxia-induced pulmonary hypertension.

Abstracts of Oral Presentations

Oral Presentation 01

Clinical application of a basic science concept: The making of an Instrument

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Ischaemia relative to the work of the cell causes electrophysiological changes at the cellular level. In the heart, it reduces the magnitude and rate of depolarisation of myocardial transmembrane potentials, the synergy of depolarisation and conduction within an affected region and consequently reduces the electromotive force and its contribution to the magnitude of resultant cardiac vector at that instant and alter its direction. We proposed that these inherent indicators provide the basis for a simple, cost-effective tool for diagnosis and location of myocardial ischaemia. An instrument called Vector-cardiographic Signal Analyser (VSA) was developed at the Aga Khan University. This system is able to explore with high resolution the fast track kinetics of ventricular depolarization in response to exercise by examining orthogonal electrocardiographic signals. The method involves measurement of changes in the magnitude and direction of the planar vectors and spatial resultants calculated from them relative to a stage of exercise test as a reference. Inference is based on the extent of similar changes observed in healthy young male adults during a standard exercise tolerance test (ETT) for each stage of exercise. The pilot study showed statistically significant difference between patients and volunteers as groups in the extent of reduction in magnitude of resultant vectors with increasing exercise. A validation study involving a larger numbers of subjects, has led to the development of a refined clinical criteria for identifying changes due to myocardial ischaemia. This work suggests the possibility of developing a simple, portable, accessible, cost-effective and reliable tool for diagnosis and identification of location of myocardial ischemia.

Oral Presentation 02

Establishing Spirometry Reference Ranges for children

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Introduction: The accurate diagnosis of respiratory disease requires a good interpretation of spirometry results that based on the availability of region specific reference range as there are many modifiable as well as non-modifiable factors that can affect lung function like age, sex, height, weight, ethnicity, socioeconomic status. This may be the reason for higher spirometry lung function among white children or adolescents. Looking over Pakistan, the children and adolescents are diagnosing on Polgar reference ranges which is the major reason behind false positive or false negative results.

Objectives: The objective of the study is to establish spirometry reference ranges for children and adolescents of Pakistan, considering height as an independent variable.

Methods: The study design used was cross sectional done between April to October 2017.Modified form of International Study of Asthma and Allergies in Childhood (ISAAC) Questionnaire was used. Spirometry variables taken were Forced vital capacity (FVC), Forced expiratory volume in 1 second (FEV_1), FEV_1/FVC, Peak expiratory flow rate (PEF), Forced expiratory flow between 25% and 75% expired volume (FEF_{25-75}).By normal distribution curve the reference values were established, mean +/-2 SD were taken as significant. A Pearson's correlation coefficient was calculated for all pulmonary variables with height (cm). The linear regression models were calculated for all pulmonary variables with the age and height. Data with $p<0.05$ were considered as statistically significant.

Results: A total of about 1085 participants were included in the study after following the exclusion criteria. The mean lung volumes for FVC, FEV_1, FEV_1/FVC, PEF and FEF_{25-75} were 2.21 ± 0.75, 2.08 ± 0.73, 92.9 ± 4.7, 231.3 ± 70.5 and 2.68 ± 1.2, respectively. The data report that lung volumes were directly increasing with height from children to adolescents. The scatter plots with regression lines displayed a strong positive correlation among height and pulmonary variables including FVC, FEV_1, PEF and FEF_{25-75}.

Conclusion: Lung volumes and capacities are important for diagnostic as well as therapeutic purpose. The current study establishes a normative reference range along with prediction equation for children and adolescents of age group 7-18 years of Karachi. The present study reported a strong positive correlation of height with the spirometry variables, on the other hand it manifested higher values among boys as compare to girls.
Key words: Spirometry variables, FEV1, FVC

Oral Presentation 03

Charcoal Grilling: Is it as good for lungs as it is in taste?

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Background: Charcoal smoke with cooking oil fumes is a complex mixture containing toxic and carcinogens products and is likely to cause increased risk and occurrence of respiratory and non-respiratory diseases. The aim of this study was to examine likely effects from inhalation of charcoal and natural gas fumes on pulmonary functions.

Objective: To assess the pulmonary function tests amongst chronically charcoal exposed Barbeque and natural gas exposed Tandoor vendors and to compare the pulmonary function tests with non-exposed healthy subjects.

Methodology: After getting approval from Ethical Review Board, this convenientcross sectional comparative study was conducted at CMH-Lahore. In this study, 60 male volunteers of 20-60 years of age were divided into three groups named, Group A (charcoal exposed, Bar-B-Q vendors), Group B (Natural gas exposed, Tandoor vendors) and Group C (non exposed, healthy). Consented workers, abstaining from heavy meal, caffeine, vigorous exercise preferably for 24 hours, were interviewed through a questionnaire for their demographic data, working hours per day and years of exposure. Vital signs, height and weight were recorded followed by pulmonary function tests (FVC, FEV1, FEV1/FVC, PEFR and VC)by Spirometer. With a significant p-value ≤ 0.05, a statistical analysis was carried out using SPSS version 20.

Results: There was a statistically significant difference in FVC in between Group A and B (p= 0.04; 95% CI -8.4-0.02). Group C, however, did not show any significant difference either with Group A or Group B.

Conclusion: The charcoal exposed Bar-B-Q vendors have increased risk of altered pulmonary functions than those who are exposed to natural gas.

Key words: Charcoal grilling, FVC, Altered pulmonary functions

Oral Presentation 04

Relative Risk Estimation of T Wave Alternans and Ventricular Late Potentials in Patients with Cardiomyopathy

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Background and Objective: T Wave Alternans (TWA) and Ventricular Late Potentials (VLPs) are robust tools for arrhythmia risk stratification. Early detection of these in patients with cardiomyopathy can help in risk estimation of ventricular-arrhythmias leading to sudden cardiac death. The objective of our study was to evaluate the relative risk of developing TWA and VLPs in patients with cardiomyopathy.

Methodology: Sixty cardiomyopathic patients (any type) along with equal number of healthy controls were recruited through non-probability purposive sampling. Patients with systemic arterial hypertension, diabetes mellitus, heart failure, cerebrovascular accident, bundle-branch block, and ongoing antiarrhythmic therapy were excluded from the study. Ambulatory ECG was recorded by using DMS 300-4L Holters. T wave analysis was done by Cardio-scan premier 12 lux software.Mortara ELI 350 Electrocardiograph was used to obtain Signal Averaged ECG (SAECG).

Results: One twenty subjects were recruited. TWA was positive in 21.7% cardiomyopathic patients while in healthy controls only 6.7% participants demonstrated positive TWA.Cardiomyopathic patients with VLPs were 23.3 % while only 8.3% of healthy controls showed VLPs. The relative risk of having positive TWA was 3.3 times greater in patients with cardiomyopathies as compared to healthy controls while relative risk for developing VLPs was 2.8 times greater in patients with cardiomyopathy as compared to controls.

Conclusion: The relative risk of having TWA and VLPs is greater in patients with cardiomyopathy as compared to healthy control.

Future Prospects: Follow up studies of high risk patients should be carried out to determine the arrhythmic events and sudden cardiac death.

Key words: T wave alternans, late potentials, cardiomyopathy

Oral Presentation 05

Role of T-Lymphocyte depletion using fingolimod in Ischemia reperfusion injury related to myocardial revascularization

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Background: Ischemia Reperfusion Injury is a major but neglected issue in myocardial revascularization in acute coronary disease patients that leads to heart failure. During last decade, multiple strategies have been used to control this important problem. It is well known that fingolimod, a Sphingosine 1Phosphate receptor modulator may cause anti-inflammatory, antioxidant and T-lymphocyte depletion leading to lymphopenia. Thus, it leads to a reduction in ischemia reperfusion injury and ultimately, prevention of heart failure

Purpose: The main purpose to investigate the preoperative effect of fingolimod was to evaluate cardioprotective role in myocardial revascularization experimental model in comparison of placebo administration.

Methods: Male Sprague–Dawley (SD) rats (300 -350 g) (n = 20) ; Treated with either fingolimod (1 mg/kg total body weight) or normal saline solution. Ischemia was applied for 30 minutes and reperfusion was followed for 24 hours and 2 weeks. Post myocardial reperfusion at 24 hours and 2 weeks all surviving rats were sacrificed. Blood and myocardial tissue were collected for analysis of myocardial biomarkers, inflammatory markers, oxidative stress, and signalling pathways. Myocardial fibrosis was investigated using Masson's trichrome staining, Fluorescein activated cell sorting (FACS) to measure T-lymphocyte and TUNAL assay for level of apoptosis.

Results: Following 30 minutes of ischemia, both saline treated and vehicle group showed significant myocardial injury following myocardial revascularization. In fingolimod treated group, reduction of inflammation and oxidative stress have been observed significant as compared to saline treated or vehicle group. FACS analysis showed a significant T-lymphocyte depletion in peripheral blood after fingolimod treatment, which was not observed after saline or vehicle treatment, on TUNAL assay significant reduction in apoptosis has been observed.

Conclusion: The long-term survival improved in this study might be due to a cardioprotective role of fingolimod to prevent ischemia reperfusion injury in myocardial revascularization model, which may be mediated by decreased inflammation, reactive oxygen species and the lymphocyte depletion shown in the FACS analysis leading to reduced apoptosis.

Key words: fingolimod, reperfusion injury, revascularization

Oral Presentation 06

Correlation of Signal Averaged ECG Parameters with Arterial Blood Pressure in Hypertensive Patients

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Background: Signal averaged ECG is a high resolution electrocardiography which detects ventricular late potentials in patients susceptible to ventricular arrhythmias. Ventricular late potentials are identified on the basis of three parameters detected on signal averaged ECG. This study was planned to determine the correlation of signal averaged ECG parameters with arterial blood pressure in hypertensive patients.

Methods: Sixty-four patients with systemic arterial hypertension were enrolled in the study. Patients with acute or old myocardial infarction, diabetes mellitus, cerebrovascular accident, heart failure, structural heart disease, bundle branch block and cardiomyopathies were excluded from the study. DMS 300 4L Holter monitors were used to obtain 3 channel signal averaged ECG recording. CardioScan premium luxury software was used for analysis of ventricular late potentials.

Results: There were 49 male and 15 female patients (N=64) with mean age of 60±11.83 years. Eleven patients (17.2%) had ventricular late potentials whereas 53 (82.8%) were without them. The mean values for filtered QRS complex, low amplitude signals, root mean square voltage and noise were 108.52±23.63 ms, 28.81±20.78 ms, 92.17±51.02 ?v and 0.29±0.25?v respectively. Blood pressure was significantly and positively correlated with filtered QRS complex (p-value < 0.001) whereas the correlation with low amplitude signals and root means square voltage was not significant (p-value > 0.05).

Conclusion: Patients with higher systemic arterial blood pressure are at greater risk of developing ventricular late potentials which are reflective of ventricular arrhythmias. In hypertensive patients the arrhythmogenesis seems to be more related to duration of the cardiac signal as compared to its voltage.

Keywords: Ventricular late potentials, signal averaged ECG, systemic arterial hypertension

Oral Presentation 07

Analysis of Physiologic Strain Response and Cardiovascular Endurance Estimation of Runners

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Background: Physiologic strain response and cardiovascular endurance, which reflects the ability of athlete to train. It was estimated in competitive runners during running performance.

Method: Data was obtained from 20 runners of military school, age range, 21-25 years over 2 miles in Physical Efficiency Test. Heart Rate (HR) assessed physiologic strain, recorded every 15 seconds interval from start till end of the race to obtain HR max. Cardiovascular endurance was estimated by VO2 max using 12 minute run Cooper test and Lactate Threshold (LT) calculation by 30 minute time trail test.

Result: The results obtained were analyzed using SPSS 21.0, showed a significant elevation of HR max, VO2 & LT in relation to distance, to combat the growing physical strain, while, HR was observed to gradually decline with the duration of the event.

Conclusion: Humans control their physiologic strain actively by regulating muscle fatigue threshold. The outcome of HRmax, VO2 max and LT strengthens the concept that runners excellence is proportional to their capacity of dealing with physiological strain.

Key words: Physiologic strain, endurance

Abstract for Scientific Session III

GI & Renal System

Plenary Lecture 01

Role ofOxidative Defense System in Stress Tolerance

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Animal and plant cellular metabolism produces reactive oxygen species (ROS) as a by-product of normal defense mechanism as well as under stressful cues. However, internal and external stresses lead to excessive production of reactive oxygen species (ROS) that cause a progressive damage to normal cellular mechanisms ultra-structures and even death. Both biotic and abiotic stresses (i.e., drought, high temperature, salinity, metal toxicity, UV-B) in plant as well as in animal cells may disturb the equilibrium between antioxidant defense mechanisms and stress induced cellular damage. Unavoidable consequences include oxidation of lipids, proteins and nucleic acids that ultimately lead to programmed cell death (PCD). Cells possess a well-developed antioxidant defense system including both enzymatic and non-enzymatic ones in order eliminate ROS. Various cellular redox buffers such as tocopherols, ascorbate, carotenoids, glutathione (GSH), flavonoids, osmolyte such as proline and other phenolic compounds serve as non-enzymatic antioxidant defense system. While the enzymatic system includes glutathione (GSH) catalase (CAT), superoxide dismutase (SOD), glutathione reductase (GRs), glutathione peroxidase (GPx) etc. Physiological regulation of several phytochemicals and hormones released in response to stress condition conveys a message to the distant site from the site of oxidant damage that helps the cells to initiate defense responses before the occurrence of redox imbalance. Balance between the ROS and both enzymatic as well as non-enzymatic antioxidants is crucial for normal cellular mechanisms. The subcellular location of antioxidants, their expression profiles and synergistic effect of antioxidants on substrate reveals the multifaceted nature of cellular defense biology. Both plants and animal cells have well equipped defense measures through several evolutionary changes at genetic, metabolic and morphological level in order to adapt to adverse conditions. Due to highly reactive nature of the ROS and their short half-life, there are still gaps and ambiguities in understanding the tolerance to multiple stresses. So a detailed insight into the complex network of ROS as well as antioxidants and their interplay at cellular level should further be elucidated using advanced genomics, metabolomics and proteomics approaches.

Key words: Reactive oxygen species (ROS), Programmed cell death (PCD), Glutathione (GSH) Catalase (CAT), Superoxide dismutase (SOD), Glutathione reductase (GRs), Glutathione peroxidase (GPx)

Abstracts for Oral Presentations

Oral Presentation 01

Evaluation of Diet and Oral Health among Dentate, Edentulous and Complete Denture Wearers

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Introduction: Malnutrition is a state of body due to deficiency, excess or imbalance of macro and micronutrients that adversely effects normal functioning and clinical outcome. Multiple factors are involved in the increasing incidence of malnutrition among elderly and dental status is one of the major contribution. Oral cavity health along with the presence, number and distribution of teeth play an important role in selection and intake of different variety of food that affects nutritional status of the elderly. Furthermore, the amount of caloric intake, quality of food and dental hygiene can affect BMI and micronutrient status. The aim of our study was to find out the effect of dentition on diet, BMI and oral health.

Material and methods: This was a cross sectional study. A total of 60 elderly male and female participants within age range of 60-75 years, divided into three groups of Dentate (D), Edentulous (E) and Complete Denture (CD) wearers. Dietary data of all the participants were obtained using the 24 hours dietary recall questionnaire and it was analysed using the WinDiet 2005 software. Oral health status was calculated using the General Oral Health Assessment Index (GOHAI) scale which consisted of the 12 questions. Anthropometric measurement were done using the body composition analyser (trade name-Calibri) to calculate the lean body mass, body water and fat content etc. All statistical analysis of the data was done in SPSS version 22. ANOVA was done to compare results among dentate, edentulous and complete denture wearers.

Results: Results obtained showed a statistically significant difference in the following parameters obtained after Windiet analysis including vitamin B12 (CD vs E) (0.66 ± 1.47ug vs 0.43 ± 0.77ug, p=0.04), Carotene (D vs CD) (615.8±58ug vs 257.0±228ug, p=0.03) and Dietary fibres (D vs E) (17.0±7.3g vs 10.7±6.3g, p=0.01). Furthermore, the lean body mass was significantly high in dentate subjects compared to edentulous and complete denture wearers (D vs CD) (52.7±8.8kg vs 42.2±6.5kg, p<0.001), (D vs E) (52.5±8.8kg vs 47.1±6.3kg, p=0.04). We also found the caloric intake was more in dentate patients compared to other groups (D vs CD) (1750.9±132.9kc vs 1649.1±125.1kc, p=0.02). Oral health status showed improvement in dentate and complete denture wearer compared to edentulous subjects respectively (33.3±1.2, 31.7±2.6, 26.5±2.6, p<0.00). Difference in rest of the parameters were non-significant.

Conclusion: It can be concluded that with the use of complete dentures oral health status improves. However, there was no improvement in the caloric intake and anthropometric

measures. These do not improve with complete denture use and depends on the duration of subjects becoming edentulous.

Key words: Oral health, denture wearers, edentulous

Oral Presentation 02

Gastroprotective Effect of Ghrelin: A Study of Mechanism

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Background and Objective: Ghrelin is a 28 amino acid, natural ligand for growth hormone secretagogue receptors. It effectively influences gastric mucosal barrier. Its potential mechanism of gastroprotection is yet to be explored. The main objective of the study was to compare serum PG-E_2 levels and ulcer index of control rats with those of interventional groups to examine the possible role of NO-COX pathway in gastroprotection by intraperitoneally administered ghrelin.

Study Design: Non-randomized control trial

Setting: The Department of Physiology, Foundation University Medical College Islamabad.

Animals used: Adult, male *Sprague-Dawley* rats.

Methodology: 120 healthy rats were put into 2 main groups with 30 rats in group 1 (control Group) which were treated with "saline" for ethanol induced ulcers and 90 rats in interventional group. Interventional group was further subdivided into; Group 2A: treated with ghrelin only and Group 2B: treated with ghrelin + nitric oxide synthase inhibitor ($_L$-NAME). Blood and Gastric mucosal samples were collected to measure serum levels of PG-E_2 and ulcer index.

Results: PG-E_2 levels in serumwere found to be significantly higher in ghrelin treated animals in comparison with ghrelin + $_L$-NAME treated animals. Ulcer index was significantly reduced in ghrelin treated groups while increased in ghrelin + $_L$-NAME treated groups.

Conclusion: Reduced levels of PG-E_2 and increased ulcer index after giving ghrelin with $_L$-NAME (NO synthase inhibitor) suggests that ghrelin affects PG-E_2 synthesis and gastroprotection via NO-COX pathway.

Future Prospects: Ghrelin can replace synthetic antacids for effective ulcer treatment with no side effects.

Key words: Ghrelin, Gastroprotective

Oral Presentation 03

Study on Relationship between Lead Levels in Human Blood, Environmental Dust and Ground Water and Associated Demographic Characteristics

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Objective: To study the human blood levels in relation to lead in street dust drinking water and demographic characteristics of city and adjoining areas of Hyderabad Pakistan.

Methodology: Cross sectional study of blood lead levels, lead in dust and drinking water was undertaken in Hyderabad city and its adjoining areas. The dust and water samples were analyzed for lead content. 480 adult subjects from city and 522 subjects from adjoining areas were also analyzed for blood lead. A questionnaire was also used to determine the association of blood lead and demographic characteristics.

Results: The mean lead content of the dust samples in city, and adjoining areas was found as 255± 12.6µg/g and 320±15.2 µg/g respectively. The mean lead content of municipal water in city and adjoining areas was found as 40.16 ± 4.3µg/l and 35.72 ±6.4 µg/l respectively. The ground water was also found highly contaminated with lead in both of the areas and findings showed that none of the water samples met WHO recommended safe value of 10 µg/l of lead in drinking water. The mean blood lead levels of subjects from city and adjoining areas was found as 13.72 ± 5.83 µg/dl and 20.97 ±9.37 µg/dl respectively having positive association with certain demographic characteristics of subjects.

Conclusion: Decaying garbage stagnant water in residential areas, weathering of domestic paints and battery recycling are main reasons for the elevated lead concentration of lead in the environmental media and human subjects of Hyderabad city and its adjoining areas.

Key words: Lead pollution, Blood lead, Dust lead, Drinking water, Metal toxicity, life style

Oral Presentation 04

Hepatoprotective Effect of Sea Buckthorn Berry Seed Oil (SBO) in Cyclophosphamide-Induced HepaticToxicity in BALB/C Mice

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Introduction: Cyclophosphamide (CP), is a synthetic alkylating agent widely used as an anticancer and immunosuppressive drug. The major limitation of using CP is its side effects mediated by generation of reactive oxygen species and oxidative stress. Sea buckthorn berry oil (SBO), a phenolic substance, is a natural antioxidant with proven free radical scavenging activity and offers protection against oxidative damage.

Objectives: The present study was designed to investigate the possible protective effects of SBO against CP-induced hepatotoxicity in BALB/c mice.

Methodology: Randomized control trials (RCT)carried out at physiology department of Foundation University Medical College (FUMC), Islamabad in collaboration with pathology department, FUMC and National Institute of Health, Islamabad. Sample size is 90 healthy male BALB/c mice. The animals were divided into three groups of 30 each. Group one was control, group 2 received cyclophosphamide (i.p, 25 mg/kg b.w) for 10 consecutive days, and group three was co-administered CP (same dose) along with sea buckthorn berry oil (40 mg/kg.b.w) orally for ten days. All animals were sacrificed on 11th day. The main outcomes measured were: Hepatic damage serum markers (ALT, AST&ALP, total bilirubin, total albumin), Hepatic tissue anti-oxidant enzymes (Glutathione Peroxidase, Superoxide Dismutase and Catalase levels), Hepatic peroxidation marker (Malondialdehyde levels), Histopathology of liver tissue for evidence of hepatic injury and recovery.

Results: After administration of CP, hepatic damage was evident with a significant increase in the serum marker enzymes aspartate and alanine transaminases (AST, ALT) and alkaline phosphatase (ALP), serum total bilirubin and a decrease in serum albumin concentration. In addition, markers of oxidative stress in the liver increased like lipid peroxidation marker (MDA) and declined glutathione peroxidase (GPx), catalase and superoxide dismutase (SOD) content. Histopathological examination of liver showed significant sinusoidal injury with mild to moderate steatosis. All these changes were partially reversed with co-administration of Sea buckthorn berry oil.

Conclusion:SBO offers ameliorative effect by scavenging the reactive oxygen species generated by CP due to its antioxidant properties.

Keywords: cyclophosphamide; Sea buckthorn berry oil; oxidative injury; hepatic antioxidant enzymes, sinusoidal dilatation

Oral Presentation 05

Platelet Count to Spleen Diameter Ratio; A non-invasive predictor of High Risk Esophageal Varices

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Background: Liver Cirrhosis is a leading cause of esophageal varices (EV). A potential life threatening complication is variceal bleeding. Current guidelines are of view that all cirrhotic patients should undergo periodic screening for varices via upper GI endoscopy. Endoscopy is an invasive procedure that reduces patient compliance and is also unavailable at peripheries. The aim of present study is to assess the validity of a non-invasive alternate to endoscopy as a predictor of high risk esophageal varices.

Objective: To assess the validity of Platelet Count to Spleen Diameter ratio as a non-invasive predictor of High Risk Esophageal Varices among Cirrhotic patients.

Methods: 100 patients with known liver cirrhosis were divided into 2 groups on the basis of endoscopic findings: first group in which high risk EVs (grade 2 and grade 3) were present and second group in which they were absent. Platelet count and ultrasonologically determined spleen diameter were used to calculate platelet count/spleen diameter ratio. Receiver Operating Characteristic (ROC) Curve was applied and Youden's Index was calculated. Subsequently specificity, sensitivity, positive and negative predictive values were calculated.

Results: 100patients were included out of which 54% (n=54) were males and 46% (n=46) were females with ages between 37-80 years with mean 54.7±10.68 years. The cutoff value at maximum Youden's index (0.734) was 0.9405. Using this cutoff value for platelet count/spleen diameter ratio with gold standard endoscopy, sensitivity, specificity, positive and negative predictive values were calculated to be 83.9%, 89.5%, 92.8% and 77.2% respectively.

Conclusion: Platelet count/spleen diameter can be used as a non-invasive alternative under unavailability or contraindication for upper GI endoscopy or to reduce endoscopies performed for primary prophylaxis of variceal bleeding.

Keywords: Esophageal varices, Cirrhosis, Endoscopy, Platelet count/Spleen Diameter

Oral Presentation 06

Association of Renal Artery Resistive Index with Serum Uric Acid in Pregnancy Induced Hypertension

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Introduction: Raised serum uric acid (UA) have been found in pregnancy induced hypertension (PIH). UA which is produced by breakdown of purine nucleotides is as important as proteinuria in identifying fetal risk in PIH. UA is. UA is mostly excreted via urine. Thus, any change in blood flow to the kidneys (measured by Doppler ultrasound) should influence the plasma UA levels.

Hypothesis: Variations in maternal renal artery resistive index (RARI) can influence the levels of serum UA in PIH.

Methodology: This cross-sectional study included 90 females with PIH. Conditions affecting renal artery flow other than PIH were excluded. Doppler ultrasound examinations were carried out at 36 weeks' gestation and maternal RARI and serum UA was noted. Pearson correlation was used.

Results: A highly significant (p=0.001) moderate (r=0.52) positive correlation between RARI and serum UA was observed.

Conclusion: We demonstrated that as RARI increases, so does the plasma level of UA. This can be directly attributed to decrease in blood flow to the renal arteries in PIH which has an inverse relation to RARI. This is the first study to our knowledge to quantify the relation of serum uric acid to RARI. We conclude that RARI could be a useful non-invasive and cost-effective tool in assessing the severity of PIH.

Key Words: RA, Resistive Index, Uric Acid

Oral Presentation 07

Evaluation of Kidney Injury Molecule 1 as a disease progression biomarker in diabetic nephropathy

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Background: Kidney Injury Molecule-1 (KIM-1) is a peptide whose release into circulation is specific to tubular injury. Yet, very little is known regarding usefulness of serum KIM-1 in detecting diabetic nephropathy and predictability of progression of end stage renal disease in human subjects.

Methods: This prospective case control study recruited n=85 subjects. They were divided as: i) *Group A1* (n=30) subjects with diabetes for <5 years ii) *Group A2* (n= 30) subjects with diabetes for 6-10 years; iii) *Group B* (n=10) cases of diagnosed diabetic nephropathy and iv) *Group C* (n=15) subjects as healthy control group. Groups *A1, A2* were followed for 6 months and their blood glucose, urea, creatinine, electrolytes, albuminuria and serum KIM-1 were assayed.

Results: Elevated KIM-1 levels at baseline was seen in group A2 and group B as compared to controls ($p<0.001$). A rising trend of KIM-1 in group A1 subjects was observed at the 6 month follow up mark depicting damage to the kidney tubules. Moderate positive association were seen for KIM1 with disease duration ($r=0.430$; $p=0.011$) and a strong positive association with blood urea nitrogen ($r=0.843$; $p=0.001$). In order to observe the discriminatory power of KIM-1 in two disease groups, a receiver operator curve was plotted. The area under curve (AUROC) for KIM-1 was highest at both baseline (0.470 CI 0.294-0.646) and follow-up (0.415 CI 0.250-0.581; $p > 0.05$), with a cut off value of 20.60ng/mL to accurately discriminate the level of kidney injury with 85% specificity 76% sensitivity.

Conclusion: Serum KIM-1 was able to screen declining renal functions in the type 2 diabetes mellitus patients even when no signs of kidney inflammation were apparent.

Key Words: Diabetes Mellitus, Diabetic Nephropathy,KIM-1

Abstract for Scientific Session IV

MSK / Special Senses & Others

Plenary Lecture 01

The Era ofChronomedicine Let the Natural Cycle Rule Our Health

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Understanding of basic rhythm of human body can enhance health unexpectedly. The science of chrono-medicine explores the interaction between biological rhythms, medicine and drugs. Cardiovascular variations can serve as endpoints for preventive as well as curative health care. Endogenously regulated daily cyclic rhythms of body are known as circadian rhythms.

Apart from this many biological cycles are exogenously regulated like light and dark or day and night. Many a times they are organizing force for endogenous cycles. Everyday human body experiences of being hungry, tired, active, listless or energized at regular interval. Body temperature, heartbeat, blood pressure and urine flow cycle rhythmically change throughout the day. Levels of many hormones, for example ACTH-cortisol, thyroidstimulating hormone (TSH) and growth hormone (GH), rise and fall in a daily rhythmic pattern. It is relatively predictable too and governed partially by exposure to sunlight and darkness being dependent on melatonin secretion. These daily cycles work to facilitate human body functions. We try to disrupt these cycles in many ways in our modern living and invite illnesses arising out of desynchronization from natural atmosphere.

Knowledge of these cycles helps in dispensing medicines at a time when it can be most effective or really needed by human body. Ultimately it contributes in developing effective chrono-preventive and chronotherapeutic strategies. Chrono medicine is best defined as the application of chronobiology in order to understand the pattern of disease, which can be related to disturbances of circadian rhythm. Chronobiology is derived from three different words 'chromos' means 'time'; 'bio' means 'life'; and 'logos' mean 'science'.

Thus it can be inferred that chronobiology is the science to discover the variability in the functioning of the human body. Time is divided into various frames known as chronomes. Chronomes contain the major incidents in that time frame (only the deterministic events are marked) they are mapped by chronomics as the reference values for both an applied chronomedicine and a basic chronobiology. Chronomics quantify health and helps in identifying

new disease risks. They are important tool to diagnose pre-disease and overt illness, enabling timely and timed treatment.

They are also instrumental in validating the short- and long-term efficacy of a given treatment on an inferential statistical individualized as well as population basis. If we can really understand the basic rhythms of human body, we can get our health enhanced in a way never expected before. The field of chronomedicine explores the interaction between biological rhythms, medicine and drugs. Greater extent of cardiovascular variations can also be exploited as endpoints for preventive as well as curative health care. Implementation of chronomedicine with molecular medicine is also being explored.

The founder of chronomedicine was Franz Halberg (1919–2013) he developed the technique of chronobiology which included chronomics, chronoastrobiology, and chronobioethics. He coined the term circadian, after documenting that biologic rhythms tip the scale between health and disease and even between life and death. The daily peripheral activities of the organs are dependent on the Suprachiasmatic Nucleus (SCN) while interacting with the endocrine and autonomic nervous systems. It is reset by alternating light and dark through the retino-hypothalamic tract. Feeding time and scheduled exercise can also trigger the mammalian circadian system.

MSK / Special Senses, Renal & Others

Plenary Lecture 02

Osmoregulation: A Mysterious Human Behavior

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Osmoregulation is the active regulation of the osmotic pressure of an organism's bodyfluid, detected by osmoreceptors, to maintain the homeostasis of the organism's watercontents: that is, it maintains the fluid balance and the concentration of electrolytes (salts insolution) to keep the fluids from becoming too diluted or concentrated. This involvesexcretion (getting rid of metabolic nitrogen wastes and other toxic substances in the blood)through organs such as the skin and the kidneys.The present study includes one hundredfifty two males and females from LodhranCity &suburbs. The duration of study is from 1st July 2017 to 30th June 2018. Cases ofdiarrhoea, vomiting brings sufferers with severe dehydration threatening to the life especially inchildren. The extreme high environmental temperature (42C° to 48C°) was main cause ofdehydration. The age of males ranges from 15 years to 68 years, ageof females ranges from 12 years to 72 years, the age of children rangesfrom 08 months to 06 years. Their average BMI = 21.34 ± 2.47 (male),20.14±1.56 (female) and 16.2 ± 3.36 children.Before and after the protocol, signs and symptoms of dehydration were recorded. Thesamples of Serum and Urine were collected and analyzed for osmolarity using Osmometermodel no.3250 (JENWAY). The average osmolarity of Serum (308.6±8.24mOsmol/L) andUrine (648±38.12 osmos/L) was for the whole cohort and after managing dehydration, theaverage osmolarity of Serum (294.4±5.18mOsmol/L) and Urine (448±56.24 osmos/L) wasobserved. There was a significant difference of these parameters compared to dehydratedstatus & after management P values (0.05).

Abstracts for Oral Presentatio

Oral Presentation 01

Association of Executive Functions and Level of Stress among Adolescents in Colombo District Sri Lanka

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Background: Adolescence is a period in life where emotional and mental maturation occurs to develop an adult brain. Executive functions (EF) mediated by the prefrontal cortex mature during adolescence. Visuo-Spatial Working Memory (VSWM) and Inhibition are executive functions which may be affected by stress. The association of levels of EF and stress levels during the adolescent period are unknown.

Objective: The objective is to determine the association between executive functions and stress levels among adolescents in Colombo District Sri Lanka.

Methodology: A cross sectional study was conducted on adolescents aged 11 to 13 years (n = 162). Psychosocial adversity was assessed by Adolescent Psychosocial Adversity Questionnaire (APSQ). VSWM and inhibition were assessed by executive function tasks – Pig house and Stroop Colour Word Test (SCWT). Higher the scores of VSWM and inhibition higher the VSWM and poorer the inhibitory control.

Results: The mean age of the study sample was 11.82 years (SD ± 0.40) with 73.5% of boys. Mean APSQ score was 22.80 (SD ± 2.66). Mean scores for VSWM and inhibitory control was 18.0 (SD ± 8.15) and 13.19 (SD ± 7.44) respectively. A significant negative linear correlation was observed between stress score and SCWT score at the 90% level ($r = -0.152$, $p = 0.05$).

Conclusion: Stress scores and inhibitory control scores were positively linearly associated. Increased level of stress increases, the ability to inhibit irrelevant information. The existence of some stress enhances inhibitory performance of adolescents.

Future Prospects: Measures to identify adolescent stress levels and reduce excessive stress levels are essential for better executive function development.

Key words: stress, executive, adolescents

Oral Presentation 02

mRNA Expression Changes in the Skeletal Muscle after 16 Weeks of Aerobic Exercise

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Type 2 diabetes mellitus (T2DM) has been viewed as an evolutionary disease of modern age. The thrifty genotype has been used to explain the increased incidence and prevalence of chronic non-communicable diseases such as T2DM in high risk ethnic populations such as Pima Indians, Latino and African Americans, Japanese and Pacific people. Exercise affects the primary defects related with reduced metabolic capacity and fatty oxidation which are related to the aetiology of obesity and insulin resistance. Eighteen participants with type 2 diabetes were recruited to participate in aerobic exercise training for 16 weeks. The mRNA was extracted from the skeletal muscle biopsy samples. Interrogation of the gene set, molecular and physiological function analysis and network construction was performed in Ingenuity Pathways Analysis (IPA) after mRNA expression profiling using illumine gene microarray. A total of 20,000 genes related with the human genome were investigated. An unbiased exploration for the statistically significant genes (ROBP< 0.005) was performed. Total 786 (3.9 % of the human genome) were found to change in expression with statistical significance, after 16 weeks of intervention. A total of 130 genes showed fold change ≥ 1.2. Out of these total 130 genes, 119 genes showed a fold change ≥ 1.3 and 11 genes had a fold change ≥1.4. In this cohort the top functions derived from IPA analysis, related with muscle remodelling and energy metabolism were angiogenesis, fibrosis, immune and inflammatory cell assembly, anti-fibrosis and lipid and glucose handling. These results suggest that exercise could be an important rehabilitation tool to stimulate skeletal muscle plasticity in subjects with T2DM and grade 3 obesity.

Key words: T2DM; type 2 diabetes Mellitus, AER: aerobic exercise, ROBP: Robust P value Ingenuity Pathways Analysis (IPA)

Oral Presentation 03

Association between Myopia and Digit ratio in medical students of FJMU

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Objective: Myopia is the most common type of refractive error throughout the world. Many factors are responsible for causing myopia including environmental and genetic factors. Research is still going on to identify unknown factors in the etiology of myopia and excessive eye growth. Recent studies have shown the presence of sex hormone receptors in the eye. It has been hypothesized that 2nd to 4th digit ratio is determined by prenatal exposure to androgens. So, a study is planned to assess the association between 2D: 4D ratio (a proxy marker of prenatal androgen exposure) and myopia. As the digit ratio remains the same since birth, so it can be used to predict the risk of myopia in a child at an early age.

Methodology: This study was conducted in the physiology department of FJMU after ethical clearance. 180 students were enrolled. Visual acuity was checked by Snellen's eye chart. Digit length was measured by taking photographs of hands and then measuring the length by adobe Photoshop. Data was analyzed by SPSS-21. Independent t-test was applied to compare the means. Pearson's correlation was applied for finding correlation b/w myopia and digit ratio. p value less than 0.05 was considered significant.

Results: This study was conducted on 180 students of 1st and 2nd year MBBS; all females of age group 19.5± 1.5years. Out of 180, 95 students were myopics and 85 were non myopics. Thus the prevalence of myopia was 52%. Mean refractive error for right eye was -2.3 ± 1.52 and for left eye was-2.25±1.47. Mean digit ratio of myopics for right hand was 0.9820± 0.04 and for left hand0.9751± 0.035. Mean digit ratio of non myopics for right hand was 1.04± 0.071 and for left hand1.019± 0.03. Independent t- test analysis showed that the mean difference between digit ratios was statistically significant ($p < 0.05$). Pearson's correlation showed a significant negative association between myopia and digit ratio.

Conclusion: There is a significant negative association between myopia and digit ratio showing a role of prenatal sex steroid on eye growth and development of myopia.

Key words: myopia, digit ratio

Oral Presentation 04

Association of N-Terminal Propeptide of Type I Collagenwith Bone Mineral Density

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Introduction: Osteoporotic fractures are the foremost healthcare concern. Around 9.9 million people in Pakistan are affected by osteoporosis out of which 7.2 million are women. As compared to DEXA scan, bone turnover biomarkers unmask early changes in bone metabolism, and thus can be repeated at small intervals with better patient compliance.

Objectives: To study the association of N-Terminal Propeptide of Type I Collagen (P1NP) levels with Bone Mineral Density (BMD) at hip and spine in normal, osteopenic and osteoporotic females.

Materials & Methods: A total of 267 females were recruited in the study. BMD was assessed by DEXA scan while P1NP levels were measured using electrochemilluminescnet technique. Kruskal-Willis Test was applied. For intra group association, post hoc Tukey Test was applied. Pearson correlation was used to determine correlation between P1NP level and BMD levels.

Results: Median P1NP levels were reported to be 46.05, whereas BMD was reported to be 0.90 and 0.89 at hip and spine respectively. A significant ($p<0.01$) mild negative correlation ($r=0.218$) was found between P1NP and BMD at hip. A significant ($p<0.01$) moderate negative correlation ($r=0.434$) was found between P1NP and BMD at spine.

Conclusion: This study demonstrates that as BMD decreases, the levels of P1NP in serum increases. It can be used as an indicator of disease severity as well as a predictive marker for early detection of falling BMD.

Key words: P1NP, DEXA, Osteoporosis

Oral Presentation 05

Cardiovascular effects of aqueous-methanolic extract of Salvia Officinalis in experimental animals

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Background: Hypertension is a chronic cardiovascular disorder with injurious consequences. Mostly lifelong therapy is the only management strategy leading to lack of compliance resulting in high prevalence. Searching for new treatments is thus warranted. Plants have been widely used for ages as a source of effective therapy for numerous diseases.

Objective: To explore the cardiovascular effects of aqueous-methanolic extract of *Salvia Officinalis* (So.Cr) and to investigate its traditional use as an anti-hypertensive agent.

Methodology: The aerial parts of the plant were utilized to prepare the extract. *In vitro* isolated tissue experiments were carried out using thoracic aortae from rats and right atria from guinea pigs which were placed in tissue baths filled with Kreb's buffer (37°C) bubbled with carbogen and connected to a force transducer and PowerLab attached with a computer. All the graphing, calculations and statistical analyses were performed using Graph-Pad Prism software version 4.00 for Windows.

Results: When tested on phenylephrine (PE, 1 μM) and K^+ (80 mM)-induced vasoconstrictions, So.Cr caused a concentration-dependent relaxation in both types of contractions and also produced suppression of PE (1 μM) control peaks in Ca^{++}-free medium. The extract equally inhibited force and rate of spontaneous atrial contractions.

Conclusion: The cardio-suppressant and vasodilator effects of the aqueous-methanolic extract of *Salvia officinalis* are possibly mediated through calcium channel antagonism which provides pharmacological basis for its use in the management of hypertension.

Future Prospects:*In vivo* studies are required to further elaborate the blood pressure lowering activity of the plant.

Key words:*Salvia Officinalis*, cardio-suppressant, vasodilator, calcium channel blocking activity.

Oral Presentation 06

Effect of Ascorbic Acid on Fatigue of Skeletal Muscle Fibersin Long Term Cold Exposed Sprague Dawley Rats

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Background: On exposure to prolonged cold temperature, the body responds for effective heat production both by shivering and non-shivering thermogenesis. Cold exposure increases the production of reactive oxygen species which influence the SR Ca^{++} release from the skeletal muscles and affect their contractile properties. The role of ascorbic acid supplementation on the property of fatigue of cold exposed skeletal muscles was evaluated in this study.

Method: The study was conducted in Physiology Department of Islamic International Medical College, Rawalpindi, National Institute of Health, Islamabad and Railway hospital, Rawalpindi. Ninety Sprague Dawley rats were randomly divided into three groups of control, cold exposed and cold exposed along with ascorbic acid supplementation. After one month of study, the Extensor Digitorum Longus muscle (EDL) was dissected out. The property of fatigue in the skeletal muscle fibers was analyzed on computerized data acquisition system.

Results: The cold exposed group showed a significant decline in the contractile properties of skeletal muscle fibers as compared to the control group. In the third group, the duration of fatigue were reduced.

Conclusions: Ascorbic acid increases the resistance of fatigue in the muscles exposed to chronic cold.

Key words: ascorbic acid, skeletal muscle fatigue

Abstract for Scientific Session V

Neurosciences

Plenary Lecture 01

Role of Neuropeptide and Steroids in Regulation of Social Behavior

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Preeclampsia is seen as a complication in 5-8% of all pregnancies. Proteinuria and hypertension dominate the clinical picture, because the chief target organ is the kidney (glomerular endotheliosis). The pathogenesis of preeclampsia is complex; numerous genetic, immunologic, and environmental factors interact. Maternal vascular remodelling in pregnancy has a role on preeclampsia. In view of the well-known physiological roles of nitric oxide as a vasodilator, in attenuating responsiveness to vasopressors and increasing uteroplacental blood flow, an upregulation of the placental and maternal NO regulated by HIF-1 and VEGF system during pregnancy and decrease with preeclampsia is empirically expected. This could occur in preeclampsia by either (i) alterations in VEGF/HIF-1/NOS protein expression and activity, (ii) decreased substrate levels for NOS, (iii) increased inhibitors of NOS or (iv) increased degradation of NO per se along with alteration of s-flt1 protein differential expressions. While an up-regulation of total NO synthesis is seen in normal pregnancy, data from various studies examining pre-eclamptic pregnancy are conflicting. The placenta can produce NO from the endothelial and inducible NOS isoforms which have been shown to be expressed in syncytiotrophoblast and hofbauer cells. Data from our studies showed an elevated i-NOS/NOS2 with concomitant reduced e-NOS/NOS3 gene expression in the placental blood of pre-eclamptic women, which may be reflecting a serious vascular stress and reduced endothelial functions. The results also indicated with higher pulse wave velocities (b-a PWV & c-f PWV) with arterial stiffness index (ASI) in patients with preeclampsia. The laboratory of Vascular Physiology & Medicine, BLDE University under the leadership of Professor Kusal Das works to establish the relationship between a possible differential mode of actions of NOS3 and NOS2 gene expression in relation to HIF-1 in PE, their correlation with cardiovascular and renal functions.

Neurosciences

Plenary Lecture 02

"Role of neurotransmitters in basal ganglia functions"

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Basal ganglia (nuclei) are masses of the grey matter present in the white matter of each cerebral hemisphere. These consist of; caudate, putamen, globus pallidus, substantia nigra and subthalamus.

Functions of the basal ganglia include; control of complex pattern of motor activity, cognitive control of sequence of motor activity and control of the timing and intensity of motor activity.

Neurotransmitters play a vital role in functioning of the basal ganglia. Nigrostriatefibers release dopamine in caudate and putamen. Corticostriatefibers secrete glutamate at their nerve endings in caudate and putamen, while large interneurons in corpus striatum release acetyl choline. Degeneration of pars compacta of substantia nigra results in deficiency of dopamine in caudate and putamen, leading to Parkinson's disease. Nerve fibers from caudate and putamen to globus pallidus and substantia nigra release gamma – aminobutyric acid (GABA). Degeneration of caudate and putamen leads to deficiency of GABA resulting into Huntington's chorea. At the nerve endings of nerve fibers from subthalamic nucleus to globus pallidus, glutamate is released. In the connections of basal ganglia, putamen and caudate circuits are important.

Neurosciences

Plenary Lecture 03

Unravelling Mysteries of Metal Exposure on Brain Functions

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Exposure to heavy metals is a potential risk factor for developing cognitive impairment. Heavy metals enter to brain and cause neurotoxicity, however, the specific underlying mechanisms are not known. We studied neurotoxic mechanisms of Aluminium (Al) on cholinergic system in mice. In these rodent studies, Al-treated animals showed impaired spatial and emotional memories and higher anxiety levels. High Al deposition and severe neurodegeneration in the hippocampus were observed following Al treatment. Hippocampus was the most affected brain part after Al intoxication. Further we extended studies in human subjects. We wanted to investigate the possible association between the concentration of heavy metals and the extent of cognitive impairment in human subjects. Levels of heavy metals in patients diagnosed with cognitive impairment were measured and it was found that metals levels were significantly higher in the cognitively impaired patients. Increasing concentration of metals was strongly correlated with the increase in severity of the disease. Our results have shown that among the studied metals, Al and copper (Cu) are strongly associated with the cognitive impairment. This suggests the need for decrease in metal exposure to humans from environment, food and industries.

Abstract for Oral Presentations

Oral Presentation 01

Comparison of Salivary Alpha-Amylase Levels in Schizophrenics and Normal Individuals

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Background: Schizophrenia is an intricate mental disease with unidentified aetiology. It affects person's awareness, thought processing, language, communication and attitude and hence can lead to social and occupational dysfunctioning. So far there is no known diagnostic laboratory test for schizophrenia and the diagnosis is made only on the basis of clinical interviews before labelling a person as schizophrenic. However, recent studies indicate that Salivary Alpha-Amylase (sAA) levels are raised in schizophrenics. Determination of sAA might help them avoid extended clinical sittings and thus expedite quick diagnosis.

Methods: The current research was a cross-sectional comparative study in which sAA levels were assessed in 100 subjects. The subjects were divided in two groups; fifty patients in schizophrenia group and fifty in control group. sAA levels were compared between the two groups.

Results: Mean sAA levels were significantly higher in schizophrenic group as compared to normal individuals (p-value= 0.001). However, there was no significant difference in mean sAA levels between the two genders (p-value= 0.163).

Conclusion: The findings indicate that sAA levels are expected to be high in schizophrenics as compared to normal individuals and hence may be used as a biomarker for diagnosis of schizophrenia in future.

Keywords: Schizophrenia, Salivary alpha-amylase, Biomarker

Oral Presentation 02

Prevalence and Risk factors of LBP among Radiology Technologists in Radiology Diagnostic Centers of Karachi

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Background: Lower back pain (LBP) is most common musculoskeletal symptoms among the paramedic staff throughout the world.Many studies showed that LBP has higher prevalence among medical practitioners than any other musculoskeletal symptoms.

Objective: To determine the prevalence and risk factors of lower back pain among paramedic staff of Bahria Town International Hospital, Karachi.

Methodology: A cross-sectional self-reported questionnaire-based study was conducted. And included with Department, age, sex, education, marital status, working hours, Professional Experience, Trauma, Acute or Chronic lower back pain and its Risk factor.

Result: Total Samples were 110; male 138 (80%) and females 28 (20%). 93 (67%) Participants reported Lower back pain and 45 (32%) have no pain. Out of 93 participants 23 (24%) reports acute LBP and 70 (75%) reported Chronic LBP. The ratio of LBP reported in female participants is greater than in males. Out of 28 females, 25 (89%) and out of 110 males, 68 (61%) are suffering from LBP. Paramedic staff are divided into two groups, in the 1st group employees perform their duties while sitting on computer or chairs (Office table work), while in the 2nd group employees perform their duties in standing or walking position. Majority lower back pain has been reported in sitting group, that is 53 (56%) while in standing or walking group it was only 36 (38%).The major thing is that mostly higher ratio of LBP is also being reported in Radiographers. Out of 11, 9 (81%) Radiographers reported LBP, (May be due to Radiation area). After that nurses also has suffered from LBP out of 48, 29 (60%) have reported LBP. On 3rd O.T Technicians also suffered out of 32, 11 (34%) had LBP.

Conclusion: This study investigated that the paramedic staff facing LBP according to their nature of work and poor self-care. Among both of the genders female staff are at higher risk of musculoskeletal symptoms and diseases. On the other hand working in Radiation area (i.e. X-rays and CT scan) is another cause and risk factor for Lower back Pain, It has also been noted that lower back pain is prevalent among those who continue to stay seated on chair or computer.

Keywords: LBP=Lower Back Pain, BTIH= Bahria Town International Hospital

Oral Presentation 03

Long-Term Rap1a Gtpase Deficiency Enhances Recognition Memory, Spatial Memory and Serotonin Turnover in the Hippocampus

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Background: Rap1 belongs to Ras sub-family of small G-proteins having two isoforms, Rap1A and Rap1B. Rap1 signalling has been shown to participate in regulatory processes of synaptic plasticity, learning and memory formation; however, isoform specific role of Rap1A remains largely elusive.

Objective: To assess learning and memory phenotype, serotonin turnover, and gross hippocampal architecture in Rap1A-deficient C57BL/6 mice [1].

Methodology: Experimental procedures involving animals were approved by IACUC of ICCBS (protocol 2017-0058). Novel object recognition test, Morris water maze test, HPLC-ECD (5-HT and 5-HIAA detection), and gross hippocampal architecture analysis using H&E staining were performed on Rap1A-deficient (n=4-5), heterozygous (n=4-8), and wild-type mice (n=4-7), with mean age of 14 ± 2 months (generated through breeding pairs kindly provided by Mississippi State University, USA).

Results: Rap1A-deficient miceshowed increased wet brain to body weight ratio ($p<0.005$), elevated preference for novel object ($p<0.05$), trend of spending more time in target quadrant (spatial learning), increased serotonin turnover in the hippocampus ($p<0.005$), and unaltered gross hippocampal organization (cornuammonis 1 to dentate gyrus length and circumference) compared to that of wild-type mice.

Conclusion: These preliminary observations suggest possible association of Rap1A GTPase in regulating pathways underlying learning and memory deficit conditions coupled with reduced serotonin turnover in the hippocampus, in aging mice.

Future Prospects: This pathway could be studied for its potential therapeutic utility against neurological disorders that result in learning and memory dysfunction, and conditions that stem out from aberrant serotonergic signalling.

Key words: Rap 1a GTPase, serotonin, hippocampus

Oral Presentation 04

Comparison of salivary cortisol levels in normal and severely depressed patients

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Introduction: Depression is defined as a mood disorder marked especially by sadness, inactivity, difficulty with thinking and concentration, a significant increase or decrease in appetite feeling of dejection, hopelessness, and suicidal ideation. Cortisol known as a stress hormone is found to be raised in the cases of severe depression and its higher levels were detected in saliva early morning sample.

Aims and Objectives: To compare the salivary cortisol levels of normal and severely depressed patients.

Materials and Methods: This study was cross-sectional, comparative and was conducted in Department of Physiology, Shaikh Zayed FPGMI Lahore in collaboration with Punjab Institute of Mental Health Lahore, after getting permission from ERB. A total 60 participants were included in this study divided equally into two groups; each group having equal number of normal and depressed individuals respectively. Patients diagnosed as having major depression based on outdoor assessment, clinically and confirmed by ICD-10 Depression Diagnostic criteria and DSM4.All known cases of hyperaldosteronism, Cushing's syndrome or disease were excluded. Data was collected in the form of a questionnaire based on Becks Inventory. Saliva samples were taken, processed and assessed for cortisol levels using ELISA.

Results: We found higher salivary cortisol levels in severely depressed patients. Moreover, BMI was found to be associated with depression. Cortisol levels were also found to be elevated in those subjects who had positive family history of depression as compared to normal individuals. (p-value 0.001)

Conclusion: Salivary cortisol (p-value 0.03) may be considered and explored as a biomarker for diagnosis and prognosis of depression.

Key words: saliva, cortisol, depression

Oral Presentation 05

Assessment of Spinal Cord Function through an Electrophysiological Approach in a Cervical Spinal Cord Injury Model

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Background: Traumatic spinal cord injury (SCI) evokes a complex array of cellular and molecular events. Apart from initial trauma secondary mechanisms are thought to contribute to progressive damage. There are mechanisms that occur simultaneously to promote limited repair and recovery. Commonly anatomical, histological and radiological techniques are used to assess damage. Furthermore, repair is measured in the form of behavioral assessment in animal models. Functional outcome is the interaction of these two process (secondary damage and spontaneous repair). However, because compensatory changes in the brain are likely to contribute to recovery, these techniques cannot assess the degree to which function improves in spinal cord itself. Furthermore, these histological/anatomical changes appear quite late after the initial trauma compared to the actual loss of function in the spinal cord. Therefore in vivo electrophysiological assessment of the function in the spinal cord can provide a direct approach for the immediate assessment of the functional integrity of the neurons surviving the initial trauma.

Objective: An in vivo (direct) electrophysiological measurement in order to assess the function of the spinal cord in the vicinity of injury.

Methods: Cervical contusion SCI model was made with the help of Infinite Horizon Impactor at the C6 level of the spinal. Lister Hooded rats (n=158) were divided into 7 groups depending on the duration post-injury (acute to 6 months). We recorded cord dorsum potentials (CDPs) evoked by supramaximal electrical stimulation of a radial nerve (to activate sensory fibres) or within the pyramids (to activate corticospinal fibres) and used these to measure changes in the function of these fibre systems in the vicinity of a spinal cord injury.

Results: Immediately following a contusion, sensory circuit function was profoundly depressed at the injury centre and further deterioration occurred over the following 3 days at the injury margins, especially above the injury (demyelination). A marked recovery occurred at the injury margins by 2 weeks (re-myelination), and this was followed by a prolonged period of stability. However, a later phase of deterioration occurred below the injury between three and six months due to extension of cavity. Corticospinal pathway also showed profound deterioration immediately below the injury. However, evidence of a spontaneous gain of function of spared corticospinal fibres projecting caudal of the injury site was observed in post-injury phase, indicating plasticity in the corticospinal fibres.

Conclusion: These findings suggests that maximum functional damage after contusion injury occurs at the time of impact. Spontaneous electrophysiological improvement is observed in the spared corticospinal fibres.

Key words: cervical cord, electrophysiology

Abstract for Scientific Session VI

Endocrine / Reproduction

Plenary Lecture 01

Goitrogenic/Antithyroidal Potential of Commonly Consumed Indian Cyanogenic Plant Foods

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Goitrogens are naturally occurring substances that interfere with the function of thyroid gland. Goitrogens got their name from the term "goitre" which means the enlargement of thyroid gland. If the thyroid gland has difficulty in synthesizing thyroid hormones, it may enlarge to compensate for this inadequate hormone production. Goitrogens cause difficulty for thyroid in synthesis of the hormones. Goitre is usually the most obvious sign of iodine deficiency; however, brain damage, mental retardation, reproductive failure, IQ loss, childhood mortality are more serious consequences which are collectively called iodine deficiency disorders (IDDs) . As a whole, iodine deficiency affects the socio-economic development of affected community. Iodine deficiency is an environmental determinant in the development of goitre has been well established. However, there are observations that indicate the existence of factors other than iodine deficiency that are also responsible for bringing about similar changes in the thyroid physiology relating to thyroid hormone synthesis and release. Iodine deficiency does not always cause endemic goitre. Iodine supplementation does not always result in complete eradication of goitre; conversely there are epidemiological and experimental evidences that concomitant exposure to other naturally occurring antithyroid agents magnifies the severity of goitre. The commonly consumed Indian plant foods that contain goitrogens/antithyroidal substances are responsible for the exaggeration, persistence and development of goitre and associated disorders. To prevent IDDs, Govt. of India has implemented the policy of Universal Salt Iodization throughout the country to provide adequate iodine to its people in late eighties of the last century. There are however epidemiological evidences that during post salt – iodization phase, endemic goiter still persist in many regions in spite of the intake of adequate iodine. On the other hand systematically analyzed data on the consumption pattern of goitrogenic and antithyroidal potential of commonly consumed Indian cyanogenic plant foods, their possible action on thyroid physiology both in vivo and in vitro studies in relation to iodine nutritional status is scanty. In this context the role of commonly consumed cyanogenic plant foods on thyroid morphological

and functional as well as cellular molecular status under varying conditions of iodine intake with possible mode of action based on our original studies will be presented.

Key words: Cyanogenic plant, goitrogens, thyroid, IDDs, USI

Endocrine / Reproduction

Plenary Lecture 02

Translational Genomics of Early-Onset Non-Autoimmune Diabetes towards Diabetes Precision Medicine

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Diabetes mellitus, type 2 (T2D), affecting more than 420 million individuals worldwide, is a main health challenge of the century and a leading cause of co-morbidities (like cardio-vascular diseases and cancers), early-age disabilities and mortality. As compared to common T2D in adults, early-onset non-autoimmune diabetes in young patients, resulting from single-gene mutations (so-called monogenic diabetes), is less prevalent albeit ~2-5% of all diabetic people may be affected by such a condition. Moreover, young-onset monogenic diabetes is clinically and genetically very heterogeneous, although most patients present primary defects of endocrine pancreas function, and of insulin secretion and action. More than 30 genes have been identified so far, which have greatly enhanced our understanding of key molecular targets in cell biology and diabetes pathophysiology, and led to major improvements in patients' personalized care and long-term evolution. In my presentation, I will discuss the many challenges of an early etiological genetic diagnosis in young-onset diabetic patients, as well as some striking examples of proof-of-concept of genomic medicine enabling to provide the most efficient, less straitening and cost-effective treatment (in place of daily insulin injections) for an improved quality of life. Furthermore, an early precision diagnosis will enable to provide genetic counselling to the concerned families, especially in case of consanguinity or of young diabetic patients with atypical presentation of the disease.

Abstract for Oral Presentations

Oral Presentation 01

Comparative Effects ofCane Sugar and Honey on Metabolic Profile and Oxidative Stress Levels in Diabetic Rats

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Backgroundand Objective: The study was planned to evaluate and compare the effects of processed ordinary table sugar (cane sugar) and minimally processed honey on body weight, plasma glucose, lipid profile and oxidative stress in alloxan induced male diabetic Wistar rats.

Methodology: The study was randomized controlled trial conducted at animal house of Services Institute of Medical Sciences, Lahore involving 120 male albino Wister rats. After acclimatization for one week, the rodents were converted into "chemically induced type-2-diabetic rat models" through a single intraperitoneal injection of alloxan-monohydrate (120mg/kg) after an overnight fast. After confirmation of diabetes, these rats were randomly allocated into three groups based on the type of sweetener supplementation including: diabetic group I (control) rats received distilled water and normal pelleted diet, diabetic group II rats received cane sugar (sucrose) supplementation and group III diabetic rats received honey supplementation.Specific sweetener solution (made by diluting respective sweetener in a dose of 1g/kg rat's body weight in 2ml distilledwater) was fed to the rats of each group by oral syringe dosing method once daily for 28 days. At 29thday, after an overnight fast, body weights were recorded and blood was collected for bio-chemical assay via terminal blood sampling technique of cardiac puncture. Levels of glucose, total cholesterol, triglyceride, HDL cholesterol, LDL cholesterol, VLDL cholesterol and malondialdehyde (MDA) were determined in the serum.

Results: Honey considerably reduced body weight, produced least hyperglycemia and dyslipidemia and moreover exhibited significant antioxidant effect in diabetic rats of group III. Whereas cane sugar supplemented rats demonstrated body weight gain, hyperglycemia, dyslipidemia and raised serum MDA levels of almost similar magnitude.

Conclusions: It is concluded that honey in type 2 DM has considerably less hyperglycemic and dyslipidemic effect and it diminishes oxidative stress. Whereas cane sugar do not possess these effects rather it deranges the metabolic profile and enhances oxidative stress.

Future Prospects: Long termmetabolic effects of organic and raw varieties of honey could be tested in patients of diabetes.

Key words: cane sugar, metabolic profile, oxidative stress

Oral Presentation 02

Essential Fatty Acids and Vitamin D in A Group of Eczematous Children

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Background: Eczema is an itchy, chronically relapsing inflammatory condition commonly observed in children. Factors including genetic, environmental and nutritional factor play an important role in development and progression of disease.

Aims and objectives: Study was designed to find out the levels of essential fatty acids and vitamin D in eczema patients and healthy individuals in local population.

Material and methods: A cross sectional study was carried out at the Institute of Soil and Environmental sciences, Agriculture University of Faisalabad. Data of 100 male cases and 100 controls with ages between 2 to 12 years from local population and dermatology OPDs of Allied and DHQ hospitals of Faisalabad was collected. The study duration was from June 2016 till September 2017. Level of vitamin D was estimated by ELISA technique. Concentration of essential fatty acid was estimation by the technique of Gas Chromatography flame ionization detector.

Results: Levels of vitamin D and essential fatty acids were significantly reduced in children with eczema as compared with the controls.

Conclusion: It is concluded that eczematous children do suffer from hypovitaminosis D3 and show reduced levels of Omega 3 and Omega 6 EFA which could result in altered skin barrier and immune deregulation leading to the characteristic symptoms.

Key Words: Eczema, children, Vitamin D, Essential Fatty Acids.

Oral Presentation 03

Effects of L-Carnitine in Restoration of Pancreatic B Cell Physiology in Alloxan Induced Diabetic Albino Wistar Rats

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Background: Decreased free CoA in cytosol in comparison with Acetyl CoA impairs glucose oxidation causing hyperglycemia and induce oxidative stress with production of reactive oxygen species (ROS). ROS causes T-cell activation and inflammation in diabetics causing destruction of pancreatic beta cells. L-Carnitine causes increase in free CoA level favoring glucose oxidation.

Objectivesof Study: The present study was conducted to determine the anti-hyperglycemic and pancreatic β cell protective effects of L-Carnitine in Alloxan induced diabetic albino Wistar rats.

Materialsand Methods: The present experimental study was conducted at ISRA University Hyderabad. Sample of 36 albino wistar male rats selected by non-random purposive sampling. Samples were divided into 3 groups; Group A=Control rats, Group B=Diabetic rats (Alloxan 50mg/kg bwt intraperitoneally), Group C=Diabetic rats + L-Carnitine (500 mg/kg bwt for 21 days orally). Blood samples of all animals were taken for Biochemical Analysis comprised of Blood Glucose, Serum Insulin and Glutathione Peroxidase. The data was analyzed on SPSS version 22.0 using ANOVA at 95% Confidence interval ($P<0.05$).

Results: The mean ± SD of Blood Glucose in groups A,B and C was noted as 104.58 ± 7.05, 221.25 ± 8.22, 110.17 ± 12.85 mg/dl respectively ($P=<0.001$). The mean ± SD of Serum Insulin in groups A, B and C was noted as 1.45 ± 0.083, 0.31 ± 0.16, 1.74 ± 0.23 ng/ml respectively ($P=<0.001$). The mean ± SD of GPX in groups A, B and C was noted as 1.45 ± 0.17, 0.93 ± 0.11, 1.74 ± 0.17 ng/ml respectively ($P=<0.001$).

Conclusion: The present study reveals anti-diabetic effects of L-carnitine by reducing blood sugar, insulin releasing and anti-oxidative effects.

Keywords: L-Carnitine, Diabetes, Alloxan, Pancreas.

Oral Presentation 04

Effect of Serum Cortisol on Daytime Sleepiness of Young Adults

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Introduction: Poor sleep quality and daytime somnolence is reported to be associated with cardiovascular events, road traffic accident, poor academic performance and psychological distress.

Objectives: The study was carried out in first year and final year medical students to assess day time sleepiness and relate their serum cortisol level.

Study Design: It was a cross- sectionalstudy and its duration was 1 year (March 2010-March 2011).

Setting: Study was conducted in Islamic International Medical College Rawalpindi and IIMC-T Railway General Hospital Rawalpindi.

Subjects and method: A total number of 60 MBBS students were randomly selected, divided into Group "A" comprised of 30 students from first year and 30 from final year class. Their daytime sleepiness was evaluated by Epworth sleepiness scale, and blood sample was taken for serum cortisol.

Results: Statistically significant results were found while evaluating the daytime sleepiness with female students showing more daytime sleepiness as compared to male students irrespective of class. The analysis of serum cortisol depicted that serum cortisol is more in those subjects who have less than 7 hrs of sleep duration, more awakening in the night and having daytime sleepiness.

Conclusions: It was concluded from the study that final year class had more sleep difficulties as compared to first year class. Female students had more daytime sleepiness as compared to male students and cortisol level was more in those students who had sleep difficulties.

Key words Sleep habits, daytime sleepiness, medical students, cortisol, Epworth scale

Oral Presentation 05

Role of HMGB1 in Obesity and Metabolic Syndrome

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Background: Prevalence of obesity as a disease is increasing rapidly all over the world with its associated co morbidities such as metabolic syndrome (MS) amongst other common disease. High mobility group box 1 (HMGB1) protein as a pro-inflammatory cytokine has more recently been considered as an important diagnostic marker for transition from obesity to MS with insulin resistance playing a key role.
Objectives: The aim of present study is to evaluate serum concentration of HMGB1 and its possible role as a cytokine biomarker in obese and MS adult subjects from the local population.
Materials and Methods: 40 blood samples of adults MS subjects and 20 samples of obese subjects between the ages 25-50 were obtained from M. Islam Teaching Hospital, Gujranwala. Twenty healthy subjects served as the control group. Fasting serum samples were analyzed for lipid profile, fasting blood glucose (FBG), insulin and HMGB1 levels. Insulin and HMGB1 were estimated by commercially available ELISA kits. Insulin resistance was calculated by HOMA-IR index.
Results: Blood pressure showed significant differences among the three groups of subjects and was shown to be highest in the MS group. Significantly increased levels of FBS (124.13±8.77 mg/dl) were observed in the MS group as compared to obese and normal subjects (85.95±2.68 mg/dl and 84.50±1.06 mg/dl, respectively). Lipid profile revealed that triglycerides, LDL and cholesterol levels were significantly higher (213.78 ± 11.62mg/dl, 133.30 ± 6.45mg/dl and 218.98 ± 5.66mg/dl respectively) and HDL levels were relatively low in MS patients (44.18 ± 1.03) in comparison with obese triglycerides, LDL, cholesterol and HDL levels (133.85±6.31mg/dl, 106.15±4.31mg/dl, 166.00±5.56 mg/dl and 45.70±1.53mg/dl respectively) and normal subjects triglycerides, LDL, cholesterol and HDL levels(122.05±4.25mg/dl, 108.05 ± 3.56mg/dl, 152.15±6.00mg/dl and 46.65±1.07mg/dl respectively). Mean HMGB1 levels were maximal in patients with MS (19.68±2.58 mg/dl) and were significantly different from mean levels in subjects with obesity alone (11.06±1.12 mg/dl) and healthy subjects (13.28±0.65 mg/dl). Significantly elevated levels of insulin and insulin resistance were evident in patients suffering from MS (13.59±1.49 mg/dl and 4.06±0.54 mg/dl, respectively) as compared to healthy subjects (10.22±1.29 mg/dl and 2.13±0.26 mg/dl, respectively) and the obese group (9.95 ± 1.67 mg/dl and 2.06±0.32 mg/dl, respectively).
Conclusion: The current study demonstrates significantly higher levels of serum HMGB1 levels in MS patients in comparison with those of obese and control groups. The study suggests a role of HMGB1 as a pro-inflammatory cytokine in patients with MS. Significantly increased insulin resistance in MS patients further indicates that the HMGB1 related inflammatory pathway may be involved in pathogenesis of diabetes type 2.
Keywords:HMGB1, MS, obesity, insulin resistance, pro-inflammatory cytokine

Oral Presentation 06

Molecular basis of non-alcoholic fatty liver disease and metabolic syndrome in a South Asian cohort

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Background: Metabolic syndrome (MetS) and Non-alcoholic fatty liver disease (NAFLD) are emerging health threats in Pakistan. Various adipokine and their genetic polymorphisms are now considered as risk factors for these conditions. Adipokine Chemerin modulates glucose and lipid homeostasis; Nesfatin-1 acts as an anorexigenic peptide; Leptin regulates energy balance; Desnutrin regulates adipose tissue fatty acid oxidation, adipocyte fat content, and size. Therefore, this study was designed to identify the molecular and genetic differences of these factors in metabolically healthy and unhealthy subjects.

Methods: MetS positive (n=92) versus negative (n=208) adults diagnosed on the basis of National Cholesterol Education Program Adult Control Panel III criteria were recruited. Serum adipokine levels, lipid profile, blood glucose and insulin were performed. Body fat percentage was measured by bioelectrical impedance analysis. Fatty liver was detected by ultra-sonographic scans. Chemerin rs17173608 polymorphism was determined by tetra arm polymerase chain reaction.

Results: Higher Chemerin was observed in MetS& NAFLD positive versus negative (37.87± 13.60 vs. 24.03 ± 12.32 ng/ml);(199.83 ±12.26 vs. 32.57 ± 2.36 pg/ml) individuals while low Desnutrin and Nesfatin levels were seen in Mets/ NAFLD positive versus negative individuals (103.08±5.84;270.19±25.67pg/ml); (276.49±31.09;754.34±57.77pg/ml) respectively. Chemerin correlated positively with the body fat % and MetS ($p<0.05$). Further, every unit rise in Chemerin and a unit decrease in Desnutrin was associated with a higher odds of developing NAFLD ($p<0.05$). The variant rs17173608 showed association with MetS phenotype (1.841 [1.101-3.078]; $p=0.020$). Presence of this minor 'G' allele was seen to increase the risk of developing MetS by 1.567 ($p<0.012$).

Conclusion: High Chemerin and low Desnutrin are linked to NAFLD, further presence Chemerin 'G' allele increases the risk of developing MetS.

Key words: Metabolic Syndrome, Non Alcoholic fatty liver disease, Adipokine

Abstract for Scientific Session VII A

Medical Education: Curriculum Development

Plenary Lecture 01

Developing Self Awareness through Johari Window

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One of the challenging tasks of Human beings is to explore about themselves; that is, where they stand. It is only possible if one is open and willing to improve him or herself. The concept of self-awareness is closely related to health and overall development. It also includes viewing oneself using concept of Jo-Hari window, which is a technique that helps people understand their relationship with themselves & others.

The Johari window divides human personality into 4 windows or components: open self, blind self, hidden self and unknown self.

The concept of self-awareness is further elaborated under "Who am I" which looks at the attributes they have, the roles they perform and whether or not they have control over them. The key learning point is self-awareness that helps us to develop positive and healthy appreciation of our strengths and limitations leading to control over ourselves. It helps us to accept others as they are with their strengths and limitations. To become self aware is a difficult process.

Medical Education: Curriculum Development

Plenary Lecture 02

Formal Mentoring Program of Undergraduate Students, Sharing the Experience

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Mentoring includes a long-term association where a mentor monitors and guides a mentee during the phase of training and education. Mentoring to the students can have positive effects for mentees, mentors, and concerned educational institute. Mentor is a well-established peer and guide for the mentee.Mentoring program is the ongoing process to train and re-train the faculty members for good mentoring, then the process of implementation and later on the evaluation of mentorship program. In University college of Medicine and Dentistry, formal mentoring program was established in 2014. The goal of the program is to provide the students with an immediate support network which can help students to reach their full potential, provide a supportive environment and reassurance. Firstly, workshops were arranged to train the faculty members. These sessions were conducted fortnightly, mentees were given the time to interact with their mentors. Mentees were given a chance to have meeting with their mentors twice a month. The purpose of the talk is to share the experience of formal mentoring program being implemented at University College of Medicine and Dentistry, with particular reference to the quality of interactions between mentor and mentees.

Medical Education: Curriculum Development

Plenary Lecture 03

Integrated Modular Curriculum: Advantages and Disadvantages

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Current trends of most curriculum for Medical education is to integrate basic and clinical sciences, both horizontally and vertically. However there is an ongoing discussion about whether medical curriculum should be discipline based or integrated, because of its advantages and disadvantages.

The purpose of this presentation is to highlight the pros and cons of each, and then leave it to the stake holders to adopt the system which suits them in their context.

The conventional method implies that student should first learn basic and bio medical sciences and then move to clinical sciences; however, this is not how patients are presented. Thus the main criticism of this approach is that student will not see the relevance of basic and biomedical Sciences applied to clinical practice, and it is preferable to encourage students to think as doctor from the day they enter medical school.

This is undoubtly an advantage but is based on a biologist's vision of health-illness process.

When there is a change in the definition of disease from an anatomical alteration of the organ to its multicausality and influence on lifestyles, affecting social, cultural and biological parameters so it's teaching and learning process needs to be multisproug approach, incorporating sociohumanistic and population health sciences.

With a view towards facilitating this integration, the aims of this presentation is to discuss various designs of integrated curriculum and their implementation methodologies.

Abstract for Oral Presentations

Oral Presentation 01

Role of Attendance in Academic Performance of Male and Female Medical Students: A Descriptive Study

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Background: Maintenance of good class attendance has always been regarded as an important factor affecting the academic success of students. Various studies have been performed to investigate this relationship worldwide but hardly any has been carried out in undergraduate medical students in Pakistan. There are strict implications for those students who fail to meet the minimum attendance requirement that is seventy percent annual attendance in medical colleges. Therefore, it's imperative to assess and understand the impact of regularity on the academic performance of medical students.

Objective: To assess and correlate the class attendance and academic performance of boys and girls of first and second year MBBS students.

Methodology: This retrospective descriptive study was done by using 1st and 2nd Year MBBS students' records maintained in the Department of Physiology at FMH College of Medicine and Dentistry, Lahore. Students' records included attendances in lectures, practicals and tutorials as well as academic performance records of all written exams, viva exams and formative assessments in the subject of Physiology during the academic session 2016-17. Data was entered and analyzed by using IBM SPSS v.23. Important variables studied included average percentage of all written tests, average percentage of all viva tests, average percentage of all formative assessments, attendances of lectures, practicals, tutorials and overall attendance percentage. All the variables were studied independently as well as in groups of MBBS classes and gender. Normality of data was assessed by Shapiro Wilk's statistics. As all variables were non-normally distributed, Mann-Whitney U test was used to compare various variables while spearman's Rho correlation was used to observe correlations between quantitative variables.

Results: Out of 287 students, there were 53.3%, (153) first year MBBS students and 46.7% (134) second year MBBS students. Boys were 38.3% (110) whereas girls were 61.7% (177). Girls of both MBBS classes have significantly higher overall attendance percentage as compared to boys of these classes ($p= 0.015$). Similarly girls have significantly higher average percentage of all formative assessments as compared to boys ($p < 0.001$). However, no significant

differences of average percentage of all written tests and average percentage of all viva tests were seen between boys and girls. Moderate to strong correlations of overall attendance were observed with average percentage of all written exams (rho= 0.428, n=287, p = <0.001), average percentage of all viva exams (rho= 0.308, n=287, p = <0.001) and average percentage of all formative assessments (rho= 0.699, n=287, p = <0.001). This trend of significant correlations of overall attendance with performance parameters persisted when seen in groups of boys and girls as well as in separate classes of 1st and 2nd year MBBS.

Conclusions: Attendance may be considered as an important parameter to predict academic performance in written and viva exams during 1st and 2nd years of MBBS. Girls are more regular in attending classes as compared to boys during first two years of MBBS. Measures should be taken to motivate students to attend classes that may eventually help them to better perform in college and university exams.

Key words: Attendance, Academic Performance, Medical students

Oral Presentation 02

Integrated-Modular System for Under Graduate Medical Students: Faculty's Perception

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Objective: To explore perception of Pakistani faculty working in medical college of Saudi Arabia regarding their experience of teaching in integrated modular system.

Study Design: Constructivist approach using qualitative phenomenological design.

Place and duration of study: Rabigh medicalcollege, King Abdulaziz University Jeddah Saudi Arabia, from November 2016 to April 2017.

Methodology: Perception of 11 Pakistani faculty working in Rabigh medicalcollege, regarding integrated modular system (IMS) was explored through interviews. Interviews were audiotaped, transcribed and analyzed through thematic analysis. Triangulation of themes was done through audit by second author and content analysis by relating to their respective frequency of quotes.

Results: Overall the participants considered integrated modular curriculum a better system to provide holistic approach in teaching and learning. They believe the system provides relevance to basic and clinical sciences with real life situations in clinical context. The participants support the view that integrated system can create long-lasting professional foundations for future doctors. They emphasized the importance of faculty development, faculty and student training to increase the awareness of this system and considered it fundamental for successful implementation of integrated modular system.

Conclusion: Thefindings suggest that if integrated modular system is implemented in true spirit, it is more effective than other teaching systems. IMS facilitates contextual and applied learning thus it not only enhances students' levels and depths of knowledge, but also develop learners' critical thinking to perceive in a diverse and wide range of situations.

Key words: Integrated curriculum, modular system, medical education

Oral Presentation 03

Octopus Skill Model of a Medical Professional: A focus group discussion

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Abstract: Professional behavior or professionalism refers to the traits that a skilled person must possess in order to be maximally effective. When it comes to a medical professional, professionalism refers to the values and behaviors that connect a health professional to society. Despite of its high significance, a clear model that explains and identifies the required qualities, appears to be lacking.

Objectives: To formulate an undergraduate model of competencies expected in a medical professional as perceived by medical students.

Methods: A focus group discussion of 17 final year medical students was conducted under supervision of an experienced moderator. The study comprised of discussion lasting for 90 minutes. Consensus was identified by content analysis and numerical analysis.

Results: Out of 28 competencies identified initially, eight professional competencies were shortlisted which included learning skills, behavioral skills, procedural skills, self-regulation skills, organizational skills, research skills, teaching skills, emotional skills. This resulted in generation of octopus skill model of a medical professional, which would help in better understanding of medical professionalism.

Conclusion: Being generated by medical students, the 'Octopus' Model of Skills is expected to give ownership of these eight competencies to all future doctors and may serve as students' perspective in curriculum development.

Key words: Skill Model, Professional

Oral Presentation 04

Imposter Syndrome among Medical Students: A Myth or Reality?

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Background: Students suffering from imposter syndrome consider themselves less competent, skilful as compared to the abilities they actually possess. Although previous research has identified different causes of stress and burn-out but less research has been conducted to determine the frequency of imposter syndrome among Medical undergraduate students.

Objectives:

1. To determine the frequency of Imposter syndrome among Medical students.
2. To evaluate the degree of Imposter syndrome among Medical students.
3. To find out the association of Gender with imposter syndrome.

Material and methods: The cross sectional study was conducted on the 1st and 2nd year MBBS students of Shalamar Medical and Dental College, Lahore. Convenient sampling technique was used. The study instrument is a validated questionnaire (Clance IP Scale) containing 20 items with 5 pointLikert scale. By adding up the score, the degree of severity is determined. Frequencies & percentages were determined, Student t- test& A-nova were applied, p-value <0.05 was considered significant.

Results: One hundred and 10 students filled the IP Scale. There is high frequency of imposter syndrome among Medical Students. Majority (85%) of the Medical students had moderate to intense imposter feelings. Significantly (<0.05) higher number of Female students were affected by imposter phenomenon as compared to males (75.5% of females versus 24.5% of males).

Conclusion: There is high frequency of imposter syndrome among Medical students. The degree of severity ranges from moderate to frequent imposter experiences and female students are affected more as compared to their male counterparts.

Key words: imposter syndrome, medical students

Oral Presentation 05

Knowledge and Attitude of Postgraduate Trainees towards Learning Communication Skills

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Background: Proper delivery of quality healthcare requires effective communication between doctors and patients. The need for developing communication skills among healthcare providers is now gaining emphasis worldwide.

Objective: To assess the knowledge and attitude of postgraduate trainees towards learning communication skills.

Methodology: A cross-sectional questionnaire-based study was conducted at Post Graduate Medical Institute/ Lahore General Hospital. Eighty Two (82) post graduate trainees of different modalities were selected through purposive sampling. Validated Communication skills attitude scale (CSAS) having 13 + 13 questions to get positive and negative attitudes was selected as the assessment tool. All questions were answered on Likert scale from 1 to 5. Data was analyzed using SPSS20.

Results: Out of 82 participants, 47(57.3%) were males and 35(42.7%) were females. Out of 82 participants 87.9% considered speaking, 51.2% listening and 56.6% attitude-behavior as a component of communication skills.The mean scores for positive attitude was 54.4 out of 65, and the mean scores for negative attitude was 42.5 out of 65.

Conclusion: There is an inadequate awareness towards different components of communication skills yet the importance and need for learning communication skills has been well acknowledged by most participants.

Future Prospects: Communication skills learning should be a part of training curriculum to enhance doctor-patient interaction, which leads to better treatment outcomes.

Key words: postgraduate trainees, communication skills

Abstract for Scientific Session VII B

Medical Education: Teaching, Learning and Research
Plenary Lecture 01

Self-directed learning

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Introduction:
Self-directed learning requires self-discipline, self-motivation and metacognitive skills. An essential aspect of maturing is developing the ability to take increasing responsibility of our own lives to become increasingly self-directed. Self-directed learning reflects a basic human competence; the ability to learn on one's own, that has become a prerequisite for living in this rapidly changing competitive world. It is a process where individuals take the initiative to diagnose their learning needs, formulate learning goals, identify resources, choose and implement learning strategies, and, finally, evaluate their learning. It is not simply a learning strategy but a complete remodeling of one's personality.

Impact:
Generally, after acquiring postgraduate qualification especially in Basic Medical Sciences, people stop learning and ultimately perish intellectually. The sequel assumes the practical reality of Allama's poetry 'hay jurm-e-zaeefikisazamarg-e-mafajat'. The fundamental point is lack of self-directed learning leading to 'stunted growth'. In a competitive environment where more powerful forces tend to engulf the weaker, this puts the fraternity of Basic Medical Sciences at a serious threat of displacement or even extinction. The solution is not the condemnation of the stronger forces but self-improvement to the point where our existence becomes indispensable.

Key words: Self-directed learning, self-regulated learning, personal improvement

Medical Education: Teaching, Learning and Research Plenary Lecture 02

Leading with Reasoning: The Challenges of Medical Education

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Aim: To highlight the unique challenges faced by leaders in medical education context and to share evidence-based practices adopted by them to handle these challenges.

Introduction:

The paper highlights the unique challenges of the medical education context, posed to those in leadership positions; owing to the inherent complexity and the changing pace of the healthcare system.

Leaders face diverse challenges in medical education institutions as there are too many expectations from them. They are considered visionaries who are instructional and curriculum leaders; who should have expertise in assessment in addition to being specialists in public relations, financial matters and legal issues. Nevertheless, healthcare is a target oriented enterprise, struggling to balance the available budget for a variety of needs among which, training and development don't get precedence. Yet the additional challenge is to lead effectively across professional boundaries and to be cognizant of the needs and demands of a multitude of stakeholders, all striving to develop practitioners who are competent and flexible enough to work in diverse circumstances.

Therefore, what evidence-based practices are adopted by leaders to lead this kind of systems effectively and to have the ability to think and make decisions in the face of ambiguity while demonstrating stability and firmness in highly dynamic and unpredictable circumstances, will be shared in detail.

Key words:reasoning, medical education

Abstract for Oral Presentations

Oral Presentation 01

Developing the research question

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Background & Objective: All the medical students and faculty are required to come up with their research proposals required for completion of degree/training. Every research proposal indicates that there was a research question. The most neglected area in a research is developing the research question. Every researcher has his own strength and weakness regarding research which remains unidentified. Knowing about the essential components of a research question helps formulate a question which is able to bridge the gap in knowledge. Otherwise the researcher is left with a hodgepodge and insufficientdata which no one can help sort out. There is waste of precious time, energy and resources. Spending sufficient time on initial thought and converting it to a question saves lot of inconvenience later.

Methodology: Survey and feedback conducted on a group of researchers attending the workshop with the same title. Answers were selected from given options.

Results: Out of a total of 21 participants, research topic was allotted by supervisor in 11(52%) of participants, 9(50%) helped in data collection only. Most difficult aspect for 12(60%) was statistical analysis. Lack of expertise in write up affected research of 9(50%). The PICOT and FINER criteria got 10(51%) response as new concept.

Conclusion: Researchers are dependent for finding and refining their study topics. Lack of expertise in write up and statistical analysis delays the presentation of results.

Key words: Research question, PICOT, FINER

Oral Presentation 02

Outreach Model to Promote Basic Life Support through Medical Student Trainers

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Background and Objective: Medical students proficient in basic life support training can be employed as a source of training community to enhance public health awareness, and help students to improve their skill. Current pilot project was planned to train five educational institutes' personnel in BLS training utilizing medical students and to evaluate its impact on students and participants learning.

Methodology: After training 30 medical students of Foundation University in collaboration with HEC in basic life support by American Heart Association certified trainers, they were divided into 6 teams each including one team leader. Each team conducted BLS workshop at its allotted institute. Pre and post workshop evaluation for improvement in 257 participant's knowledge on self-assessment proformas was recorded. Interviews with student leaders were done.

Results: Before training, 20.7% of the participants had heard about BLS. 82.8% of the participants reported their inability to assess unresponsive person. Their pre-training knowledge regarding checking carotid pulse, providing rescue breathing, chest compression and knowing about ventilation compression ratio was 17%, 15.1%, 14.4% and 7.2% respectively, which improved to more than 99% in all areas ($p < 0.001$) after training. Improvement in technique, confidence and communication skills were found to be common themes in the student leader interviews.

Conclusion: Student BLS trainers proved to be efficient in raising health awareness in non-medical persons along with improvement in their own knowledge, technical skills and confidence.

Future Prospects: Medical professionals have an obligation to transfer knowledge which can be done by creating community training modules.

Key words: basic life support, medical student trainees

Oral Presentation 03

Preparation of Mini Lesson byBOPPPS (Bridge In, Objectives, Pretest, Participatory Lecture, Posttestand Summarizing)

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Description: In the teaching and learning model, a number of approaches have been put forward to make the lectures interactive, informative and interesting. BOPPS is one of the strategy used for the preparation of mini lectures that makes use of: Bridge-in, Objective or Outcome, Pre-assessment, Participatory Learning, Post-testfollowed by Summary or closure.

"B", Bridge-in is the "motivational statement" or "hook" that helps the learners focus on what is about to happen in the lesson. This is usually short. Some simple strategies include: providing motives for learning the topic, explaining its importance and relating with an example from everyday life. "O", Objective or Outcome clarifies and specifies the learning intention, clarifies what the learner should know, think, value or do by the end of the lesson, under what conditions and how well. "P", Pre-assessment is to know the existing knowledge of the students; "What does the learner already know about the subject of the lesson? "It can reveal learners' interests, identify learners who can be resources within the class and help the instructor to know the points that need to be revealed. "P" Participatory Learning is the body of the lesson, where learners are involved as actively in the learning process as possible. There is a planned arrangement of activities or learning events that will help the learner achieve the specified objective or desired outcome. The lesson may include the use of media. "P", Post-assessment demonstrates if the learner has indeed learned in accordance with the objective or outcome. It can be assessed by questions asked in the form of: multiple choice, true/false, matching, completion or short written answers. "S", Summary/Closure provides an opportunity for learners to reflect briefly and integrate the learning during the closing of the learning cycle. It may include, content review either instructor or learners briefly recap main points in the form of a low cart or Concept Map.

Impact: With the use of BOPPPs in teaching of Physiology, we can enhance the interaction with the students and facilitate long term retention of concepts.

Key Words: BOPPPS, Teaching and Learning, Learning Objectives.

Oral Presentation 04

Teaching And Assessing Professionalism To Our Students In 21st Century

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Background: Professionalism is defined as a group of attitudes, values, behaviours and interactions that act as the basis of the health professional's contract with society. Our students have responsibilities towards the society and they are expected to have good standard of professional behavior. Now the question is "Are we providing them enough opportunities to learn professionalism in our existing curriculum?" Professionalism is a dynamic and socially constructed concept. It evolves not only with the advancement of Medicine as a science but also with socio-societal expectations. It has been a concept which has been 'caught' by the students from teachers, seniors and peers rather than 'taught' to them. Educators should not leave such an important domain of learning by chance.

Objectives: It is important to understand the principles of professionalism as described by Good Medical Practice (GMC) along with its domains and attributes. This paper discusses methods of teaching and assessing Professionalism in Medical Curriculum.

Key words: Professionalism, assessing, students

Oral Presentation 05

Impact of Teaching Methodology and Live Tissue Experiments on Medical Learning: Gender and Public versus Private Sector Differences in Student Perception

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Background: New teaching methodologies and assessment measures are continuously being introduced in medical education while some like use of animal experiments are slowly being excluded.

Objective: The present study was designed to know the effect of various teaching methodologies and live tissue experiments on medical learning.

Method: Opinion of 521, fourth and final year medical students was sought on a five point Likert scale which included 12 questions covering various aspects of the different learning methods the students had experienced in the MBBS course. The variables included differences between gender, public versus private sector and type of pre-medical education (FSc or A-level) received.

Results: In the various questions put to the medical students, significant differences were observed mostly in the response of public and private sector medical students, less between gender and type of pre-medical education received.

Conclusion: Results of this study highlight the gender, public and private sector differences in student learning perceptions in the same course of study. This should be kept in mind in curriculum design and emphasis should be made on continuous student feedback when introducing new teaching methods.

Key words: teaching methodology, live tissue experiment, public versus private sector.

Oral Presentation 06

Developing role models in clinical settings: A qualitative study

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Background: Role modelling is a key component of teaching professional values, behaviours and attitudes in medicine. It facilitates student learning and is vital in developing their professional identity. The aim of the present study is to explore how positive role modelling attributes can be developed in students, residents and medical teachers.

Method: This was a qualitative study using focus group discussions. A total of 60 medical students, 35 residents and 21 medical teachers participated in the study. Four sessions were conducted with medical students, three sessions were conducted with residents and three with medical teachers. Content analysis was used to analyse the transcribed verbatim.

Results: Four major themes that emerged from the study included attributes of role models, role modelling as a learnt behaviour, challenges in developing role models, and recommendations for developing positive role models. A number of attributes of positive and negative role models were identified by the participants. All the participants including students, residents and teachers appreciated the importance of role modelling in developing professionalism among health professionals and medical students. Factors hindering development and demonstration of positive role modelling were also identified and possible solutions suggested.

Conclusion: Medical teachers need to be made cognizant of their role as positive role models in developing professionally competent physicians. The medical institutions need to develop and implement policies that would enhance positive role modelling by the teachers and facilitate learning of positive attributes at all levels.

Key words: role model, clinical setting.

Abstracts for Poster Presentations

Medical Education Poster Abstracts

1. Study of Annual and Semester Systems of Examination in Indus Medical College, University Of Modern Sciences, Tando Muhammad Khan, Sindh, Pakistan

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Background: Educational system has never been constant. Through progression and revelation to new concepts, educationists explore possibilities to teach texts in different practical manners. Annual or Semester Systems of Examination forman important part of the teaching of undergraduate students. There is need to explore that in which system of examination students can perform comparatively better. The Annual Examination system, as adopted by several universities previously, conduct one final examination at the end of relevant session / year, in which the papers are generally set by the outsider professors and checked by external examiners through centralized marking, under the supervision of controller of examination of the University concerned. While the semester system of examination has been showing a lot of difference in association to examination methodology such as conduct of examination, tenure of semester, paper setting, paper marking and teacher's power and authority, student's learning and their attitude and discipline. Semester system keeps students busy in study, and more focused towards their objectives. Students of semester system, who want to do something else, do not get time.

Objective: The objective of this study is to know the perspective of students as well as senior teachers about the annual and semester systems of examination.

Methodology: The study was conducted at the Indus Medical College Tando Muhammad Khan, in Physiology Department. Both the annual and semester systems of examination are in practice simultaneously at IMC, TMK. 200 medical students and 25 senior teachers of IMC, TMK enrolled in the study. The participants were provided with self-administered Performa and interviewed face to face; regarding their perception about the two systems of examinations. The data collected was analyzed on IBM SPSS.

Result: 154 (77%) students liked and responded in favor of semester system, while 26 (13%) students liked the annual system and 20 (10%) liked both examination methodologies. Among 25 senior teachers, 9 (36%) teachers were in favor of semester examination while 6 (26%) were in favor of annual examination. Instead 10 (40%) senior teachers suggested new methodology of modular system.

Conclusion: The study concluded that majority of students liked semester system as the best examination system. They found the semester system as a forum where individual students are able to erase vast troubles that are encountered in understanding their distinctive parts of their subject in given short time period. Remaining participants who disliked the Semester system suggest that because of short given time, they cannot read from text book easily, and they go for short books to pass the examination and furthermore,have no time for extracurricular activities.

2. Application of CIPP (Context, Input, Process and Product) Model for Program Evaluation at Aga Khan University

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Background:TLA program was introduced in the department of Department of Biological & Biomedical sciences (BBS) to organize workshops, seminars and courses to enhance teaching, learning and assessment capabilities. We aimed to evaluate these initiatives for the capacity building and professional development of faculty and staff.

Methodology: The retrospective study from January to December 2016 included responses from facilitators and participants who have conducted /attended at least two activities (Workshop/seminars/courses) organized by TLA from January 2012 till 2015. The quantitative analysis of response from participants was done from feedback evaluation of TLA record, on a Likert type scale ranging from 1-5, where 5= excellent, 4= very good, 3= good, 2= fair and 1=poor. Responses 'excellent', 'very good' and 'good' were clustered as positive response and responses 'fair' and 'poor' grouped as a negative response. The qualitative aspect was analyzed by in depth Interview from TLA director and co-director and focused group discussions (FGD) with facilitators and participants.

Results: Quantitative analysis showed consistent positive responses for presentation skills, level of interaction and course material provided of all 66 activities offered during the study period. The responses related time management and reply to queries during workshops were found relatively weak in the year 2015 (p value=0.022).

Discussion: The qualitative arm of in-depth interviews revealed "research, education and educational research synergy" themes for TLA initiatives. Participants and facilitators in FGDs indicated satisfaction for design and objectives of the activity, balance between theory and hands-on component, and acquisition of new knowledge and skills. Facilitators suggested increasing the frequency of contextual guest lectures.

Conclusion: TLA initiatives in the study period played a positive role in professional development of faculty and staff of AKU. It is thus imperative that such activities should be

continued and periodically reviewed for their impact to achieve medical education excellence at institutions.

3. Stress Challenging House Officers Physically and Mentally

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Objective: The aim of this study is to evaluate the major mistakes of house officers, causes of these mistakes and if stress is the major cause the strategies to cope up with it.

Methodology: Study was conducted in 13 different tertiary care hospitals of Karachi in both government and private sectors from October to November 2017.A descriptive cross sectional study was done in which a self-designed and self-explanatory questionnaire was used. Results were analyzed using Statistical Package for Social Sciences (SPSS).

Results: About 300 questionnaires were distributed to interns. From the total, 83.9% participants were female. The mean age of the participants was 24 years. Out of the total respondents, 9.4% participants stated no any significant medical mistake. Issues arising due to lack of knowledge or incompetency leading to misdiagnosis of patients was reported by 20.5% respondents. One of the common mistake reported was wrong drug administration, either route, dosage or incorrect medicine, committed by about 25.3% of doctors participated. The most reported reason thought to be the underlying cause of mistakes was work overload that was about 36.3%.

Conclusion: It can be concluded that house officers are susceptible to stress which affects their overall work performance and it leads to significant medical mistake due to which patient suffer and because of this pressure it's very hard both physically and mentally for a doctor to coupe up.

Neurosciences Poster Abstracts

1. Comparative Analysis of Mood and Perception of Performance in Professional Runners Before and After Sprint

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Background: Assessment of the mood of performer pre and post-run by Brunel Mood Scale is significant in understanding the psychophysiological aspects during running competition.

Ratings of perceived exertion is obtained by Borg Rating of Perceived Exertion Scale to measure physical activity intensity levels.

Methodology: Data was obtained from 50 runners of military school, age ranged from 20 to 30 years. Mood was estimated by using Brunel Mood Scale and it is assessed by using 5-point Likert Scale from '0' being 'Not at all' till '4' being 'Extremely' for the feelings experienced. While, the Borg Rating of Perceived Exertion (RPE) is used for runner to help them monitor their work intensity for satisfaction with performance.

Result: The results showed a significant increase in perceived exertion of post-run than pre-run test. Similarly, post-run mood scores showed great variations in comparison to pre-run score with no significant difference in mood.

Conclusion: Mood and perceived exertion are observed to be related to the intensity of the performance.

2. Were You Still Stressed…. While You Were Sleeping?

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Background: Depression, stress and anxiety constitute spectrum of the same neurological disorder which is characterized by general feeling of low mood, displeasure and low self-worth. Despite of high prevalence of these conditions, due attention is not paid to them. In order to make early recognition easy, some simple parameters should be identified so that further management can be done, if needed.

Objectives: To measure and compare perceived depression, anxiety and stress among a sample of female boarding medical undergraduates in a private school (UCMD) in association with their TLC and sleeping pulse before and after the period of exam.

Methodology:A sample of 30 female medical students was taken and their level of depression, anxiety and stress was assessed using DASS 42, along with the measurement of their sleeping pulse and total leucocyte count, both under resting state and during time of stress.

Results: Results showed increase in level of sleeping pulse and total leucocyte count during time of stress. Similarly, stress, anxiety and depression level was found to be significantly elevated during exams, which were the major stressor of students.

Conclusion: Mind and body has linear effects over each other both during and after stressed, depressed and anxious state.

3. Diffusion MRI guided study of regional variations in Glioblastoma Multiforme pathology and gene expression

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Background: Glioblastoma multiforme (GBM) is the most common type of primary brain tumors known as Gliomas. It has a high mortality and has a post-operative life expectancy of 15 months, despite best clinical management. Hence, new research ideas need to be explored to elucidate molecular mechanisms of this disease, leading to development of new treatment options.

Methodology: In this study we used apparent diffusion coefficient (ADC) and contrast enhancement seen on MRI to identify four different regions of the GBM with different cellular density. Biopsy samples were collected during resection of these areas as part of regular tumor management. These tissue samples were used to characterize the expression of oncogene, IDH1/2 and tumor stem cell markers CD133 and CD44 using immunohistochemistry.

Conclusion: This is the first study that characterized the expression of oncogene and tumor stem cell markers and histo-pathological changes in different regions of the same GBM tumor.

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4. Depression, Anxiety, Stress and its Associated Factors with Chronic Illness: A Cross-sectional Study

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Background: Depression and anxiety are highly prevalent in patients with chronic diseases, but remain undetected and hence untreated despite significant negative consequences on patient's health.

Objectives: The present study was conducted in order to assess the presence and severity of depression, anxiety and stress in chronically ill patients and to find out the effect of various socio-demographic factors on the co-morbidity.

Methodology: The self-designed demographic characteristic performa recorded patient's age; gender; marital and employment status; presence, type and duration of comorbid medical

condition. The 42- item Depression, Anxiety and Stress Scale (DASS) which is an Internationally Standardized Protocol performa, was used to assess the presence and severity of the above in chronically ill patients.

Results: DASS results show that more than 50% of chronically ill patients also suffered from extremely severe degree of anxiety. Male patients were found to be more anxious whereas female patients were more depressed. Patients with multiple medical conditions were more depressed as compared to those with a single disease entity. Unemployed male patients were more anxious, more depressed and more stressed than the employed ones. Middle age group patients were significantly more depressed than the elderly.

Conclusion: Results of this study indicate that depression, anxiety and stress is prevalent among patients suffering from chronic diseases and certain demographic factors affect it to various degrees. All such patients must be assessed for their psychological problems so that adverse outcomes of this co-morbidity can be prevented.

5. Migraine among medical students in Fatima Jinnah Medical University

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Objective: Headache is one of the most prevalent disorders of the nervous system, having several sub types migraine, tension and cluster headache. Out of these three, migraine is the most prevailing and disabling disease. Medical students have certain triggers like stress of ongoing tests and irregular sleep that are associated with migraine. So, the prevalence of migraine is high among medical students. We planned a study to know the prevalence of migraine among our medical students in FJMU.

Methodology: This is a cross sectional study based on ID migraine ™ test. The students were asked the question "Do you have two or more headache in the last three months?" Students with Yes to this question were the subjects with headache. They were then asked to do the ID migraine ™ test. The questionnaire also covered the other aspects of headache like frequency, severity, relieving and aggravating factors. Data was analyzed by SPSS and descriptive statistics was applied. Results were expressed as mean ± S.D.

Results:A total of 609 students gave yes to the question "Do you have two or more headache in the last three months?" Out of these, 216 fulfill the criteria of migraine headache according to ID migraine ™ test. So, the prevalence of headache was 35.4%. Majority of students have more than 14 attacks / month with average duration of attack of more than 4 hours. Majority have their headache on forehead with pressure like feeling. Headache was most commonly associated with nausea and photophobia. Most common aggravating factor was lack of sleep which was relieved by taking over the counter analgesics and 4-5 hours of deep sleep.

Conclusion: Our medical students have a high prevalence of migraine that affects their studies.

6. Association between Myopia and Blood groups in medical students of FJMU

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Objective: Blood groups are classified into 4 groups: A, B, AB and O depending on the presence of antigens on the surface of RBCs. Blood grouping is not only important for blood transfusion but also there are associations of blood groups with different diseases. Myopia is the most common type of refractive error. Many factors are responsible for causing myopia including environmental and genetic factors. Research is still going on to identify unknown factors in the etiology of myopia and excessive eye growth. So, present study is planned to find out the association of myopia and ABO blood groups in medical students of FJMU. As the blood group remains same since birth, so it can be used to predict the risk of myopia in a child at an early age.

Methodology: This study was conducted in the physiology department of FJMU after ethical clearance. 357 students were enrolled. Visual acuity was checked by Snellen's eye chart. Blood groups were determined by slide method. Data was analyzed by SPSS. Chi square test of association was done. P value less than 0.05 was considered significant.

Results: This study was conducted on 357 students of 1st and 2nd yearMBBS; all were females of age group 19.7± 2.1years. Out of 357 students, 181 were myopics and 108 were non myopics. Thus the prevalence of myopia was 51%. Mean refractive error for right eye was -3.1 ± 1.22 and for left eye was- 2.28± 1.71. The most prevalent blood group was B+ followed by O+. It was found that the frequency of occurrence of myopia was highest in blood group O (39.2%) > B (30.4%) > A (20.1%) > AB (9.4%). Chi square test showed that this association was statistically significant.

Conclusion: Blood groups showed statistically significant association towards myopia. The chances of occurrence of myopia are highest in blood group O.

7. Frequency of Computer Vision Eye Syndrome among Medical Students

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Introduction: The invention of computer and advancement in information technology has revolutionized and benefited the society but at the same time has caused cluster of symptoms related to its usage such as ocular sprain, irritation, redness, dryness, blurred vision and double vision. This cluster of symptoms is known as computer vision syndrome, which is characterized by the visual symptoms which result from interaction with computer, mobile phones, laptops, etc. display or its environment. Three major mechanisms that lead to computer vision syndrome are extra ocular mechanism, accommodative mechanism and ocular surface mechanism. The visual effects of the computer such as brightness, resolution, glare and quality all are known factors that contribute to computer vision syndrome. Prevention is the most important strategy in managing computer vision syndrome. Modification in the ergonomics of the working environment, patient education and proper eye care are crucial in managing computer vision syndrome.

Objectives: To determine the frequency and factors leading to computer vision syndrome among medical students

Methodology: This descriptive cross-sectional study is conducted among medical students of different medical colleges of Peshawar under the domain of Department of Medical Education & Research; NwSM Hayatabad Peshawar.A well-structured questionnaire was used for interviewing medical students from different medical colleges of Peshawar. About 450 medical students (Boys/Girls), who use computer more than 3 hours daily, were interviewed. Prior to the study, written permission had been obtained from the concerned authority of different Medical Colleges of Peshawar. Confidentially and anonymity of the subjects has been maintained. Consent has been obtained from the medical students before conducting the study.Inclusion criteria: All medical students from different medical colleges of Peshawar,who use computer, mobile phone, and laptops, etc. for at least 3 hours daily. Exclusion criteria: Students having Convergence Insufficiency and Compound Hypermetropiawere excluded.

Results: A total of 450 students, aged between 18-25 years, from five medical colleges of Peshawar were surveyed. The frequency of symptoms of computer vision syndrome CVS (three or more) was found to be 89.9%; the most disturbing symptoms was headache (68.4%) followed by eye strain (45.1%). Students who used computer more than 3 hours per day experienced significantly more symptoms of computer vision syndrome CVS. To get their relief and reduce the risk of computer vision syndrome students (56.9%), take frequent breaks, which helps in decreasing headache and eye strain. In order to prevent the associated symptoms, (headache and eye strain) of computer vision syndrome, (36.0%) students take frequent breaks (at least once per hour) as well as (32.2%) students using glare screen on the computer for prevention CVS.

Conclusions: The computer vision syndrome is a common ocular problem but the symptoms often been ignored and neglected by the students and computer users. If the problem persisted it may cause some ocular symptoms such as headache, eye strain, dryness, redness, blurring of vision, and double vision. Prevention of symptoms is an important strategy and students need to understand the factors they may contribute to these symptoms. Students should reduce their time spending on computer, also modification in the studying or working environment, and student's education and proper eye care are important in the prevention of computer vision syndrome.

8. Middle and Late Latency Auditory Evoked Potentials and Their Clinical Applications: An Update

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Background: Auditory evoked potentials up to 10 ms are collectively known as early auditory brain stem response (ABR). The waves following the ABR, up to roughly 80 ms, are collectively known as the auditory middle-latency response (AMLR). Although responses in this time frame are less mapable to specific neural generators than the earlier ABR waves, the thalamus (P0, Na) and cortex (Pa, Nb, P1) are involved. Auditory Late Cortical Response (P1,N1,P2,N2) (ALCR) (>80 ms), historically the first to be discovered, are cortical in origin and are much larger and lower in frequency than early and MLR. Highly dependent upon stimulus type, recording location, recording technique, patient age and state, the late-latency responses may differ dramatically in morphology and timing and may overlap one another. They are categorized into exogenous and endogenous responses. Central Auditory Processing Disorder exists when a reduced ability to discriminate, recognize or comprehend auditory information is documented in people who have no identified hearing loss.

Conclusion: AMLR and ALCR are used to assess cortical auditory dysfunction in relation to auditory processing, language, and reading disorders, Traumatic brain injury, neurological and neuropsychiatric disorders, suspected false or exaggerated hearing loss, especially adults seeking compensation and documentation of benefits of intervention in infants and young children after cochlear implants.

9. Neuroprotective Effect of *Panax Ginseng* Extract against Cerebral Ischemia-Reperfusion Induced Oxidative Brain Injury in MCAO Models

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Objective: Present study is designed to investigate the *in vivo* neuroprotective role of *Panax Ginseng* extract (PGE) pretreatment against transient cerebral ischemia in middle cerebral artery occlusion (MCAO) model.

Methodology: Thirty six Wistar rats were randomly divided into four groups. Group I: control, group II: sham-operated, group III: animals subjected to MCAO surgery, and group IV: animals

orally administered with 10ml/day PGE for thirty days followed by MCAO induction at day 31. Following 24 hours of reperfusion, blood and tissue (brain, liver and kidneys) samples were collected for biochemical and histopathological examination. Biochemical testing include lipid profile (TC, TG, HDL, LDL and VLDL), liver enzymes (ALT, AST and ALP), kidney function tests (urea, creatinine, uric acid and blood urea nitrogen), serum C-reactive protein (CRP), lactate dehydrogenase (LDH), glucose and total protein estimation. Tissue antioxidants (catalase, superoxide dismutase, glutathione) were assessed in brain, liver and kidney tissues. MCAO-induced histopathological changes were also examined in these tissues.

Results: Pretreatment with PGE showed significant improvement in tissue antioxidant status (catalase, superoxide dismutase & glutathione) in brain, liver and kidney tissues. PGE treatment was also found to maintain plasma lipid profile, liver enzymes, kidney function, serum CRP, LDH, and glucose levels. Histologically, monocytes/macrophage infiltration was seen in tissues of MCAO animals. PGE treatment showed preserved tissue architecture and minimal macrophage/monocyte infiltration.

Conclusion: These findings showed neuroprotective potentials of PGE supplementation against ischemic-reperfusion injury related neurological alterations.

Future prospect: Further role of ginseng will be investigated for its anti-apoptotic activities in brain homogenates.

Preemptive Effect Of Curcumin Administration On Sensorimotor Dysfunction: A Study In Middle Cerebral Artery Occlusion-Reperfusion (Mcao-R) Injury Model Of Ischemic Stroke

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Background: Stroke is the foremost cause of death and permanent disabilities accompanied with cognitive impairments, affecting around 15 million people annually with nearly 6 million fatalities. Curcumin- key bioactive constituent of turmeric is renowned to possess anti-oxidative, anti-inflammatory and other neuroprotective activities.

Objective: The present study aimed to investigate the protective effects of curcumin supplementation (CUR) following unilateral middle cerebral artery occlusion/reperfusion (MCAO/R) model in relation to post-stroke neurobehavioral changes.

Methodology: Age and sex-matched *Wistar* rats were randomly divided into experimental *group I-* (control group), *group II* (sham group), *group III* (MCAO/R, stroke group) and *group IV* (MCAO+CUR treated group). Group IV animals were orally administered with curcumin (300mg/kg body weight) per day for thirty days. After one month MCAO/R surgery was

employed to group IV animals. At the end of experimental period, all groups were tested for ischemic stroke-related sensorimotor changes via battery of neurobehavioral tests including neurological deficit score, corner turn test, vibrissae-evoked forelimb placing test (a) ipsilesional limb & (b) contralesional limb placement, foot-fault test and wire-hanging maneuver.

Results: Curcumin supplementation showed consistent and significant ($P<0.05$) improvement in neurobehavioral activities following MCAO/R injury as expressed by significant reduction in ND score, significant improvement in contralesional&ipsilesional forelimb placement, foot faults, corner-turn and wire hanging maneuver.

Conclusion: Curcumin supplementation exhibit significant protective effect against ischemia/reperfusion associated neuronal injury as assessed by recovery of neurobehavioral functions.

Postsurgical Depression

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Postoperative depression is a clinical syndrome characterized by an acute change in mental status with a fluctuating course. It is a prominent disturbance in attention, either disordered thinking or altered level of consciousness. If untreated can lead to Major Depressive Disorder [MDD]. Especially strong correlations exist between postoperative depression and heart surgery, gastric bypass surgery, and plastic surgery. It's a complication that can happen after any type of surgery. But many doctors fail to warn their patients about the risk. It occurs in 15–53 % of surgical patients over the age of 65 years. The World Health Organization (WHO) ranks MDD as the fourth leading cause of disability worldwide and projects that by 2030, it will be the second leading cause.

Prevalence of Compulsive Sexual Behavior/Hyper Sexuality Disorder and Its Psychological Manifestations in Youth

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Sexuality or sexual behaviors are very complex to understand and hard to deal with. Especially in a society where "SEX" is a NO word in our families and society. Even though this a natural

phenomenon in which male and female genes combine to form off springs. Every person on this planet have felt or experienced sexual desire or got engage in sexual activities. Many parts of the brain are involved in generating a cascade of sexual events within the body but Limbic System plays a primary role in the initiation of sexual drive/ desire. When a person gets attracted towards someone these parts of the brain become active and induce sexual desire, this is a normal body response, but sometimes these parts become hyperactive and sexual desire is uncontrollable such condition is termed as "Hyper sexuality". In Pakistan, live-in relationships are not very common, so those unmarried individuals that are involved in sex addiction must have to hide their compulsion. This study revolves around the increasing rate of compulsive sexual behavior in youth. A random survey has been conducted with approximately equal number of male and female participants. Subjects belong to the age group from 16-25 years. Almost 200 subjects have participated in this study. Exclusion criteria was above 25 years and below 16 years. People with any other neurological or psychological disorders were excluded. Approximately a 70% of the subjects were found to be on the track of getting hyper sexuality disorder and 15% of them were suffering from this disorder. This is the high time to break the barriers. We need to start thinking and try to discuss and resolve our issues on our own. So, think and talk.

Miscellaneous Poster Abstracts

1. Autoimmune Hemolytic Anemia; a Hematologic Perspective at a Tertiary Care Hospital

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Background: Autoimmune hemolytic anemia (AIHA)- an immunological disease resulting from red cell hemolysis caused by circulating autoantibodies against antigens on red cell membrane. Positive direct antiglobulin test (DAT) always exists in association with AIHA and form basis for its serologic diagnosis.

Objective: To determine clinical presentation and etiological pattern in autoimmune hemolytic anemia at a tertiary care hospital.

Methodology: A descriptive, cross-sectional study carried out at Medical unit I of Liaquat University Hospital Jamshoro / Hyderabad, from 1st January 2010 to 30th June 2010. We enrolled 125 patients of either sex or age from 13 to 81 years for evaluation of possible AIHA. We screened patients by performing direct and indirect antiglobulin tests (DAT and IAT) and cold agglutinin titre (CAT) levels. Pregnant women or those with history of blood transfusion in

previous three months, DAT positive patients due to Rh and ABO incompatibilities in neonates and IAT positives cases in Rh-negative pregnant women were excluded.

Results: We evaluated 125 patients who were DAT positive autoimmune hemolytic anemia. About 93(74.4%) were females and 32(25.6%) were males with female to male ratio of 2.9:1. The mean age of our patients was SD ± 36.73 ± 9.32 years. Our patients commonly presented, generalized weakness in 33(26.4%), pallor of face and extremities in 22(17.6%) and breathlessness in 20(16%) respectively. On clinical examination, moderate to severe anemia was noted in 100(80%), splenomegaly in 40(32%), hepatosplenomegaly in 28(22.4%) and no visceromegaly in 30(24%) of our cases. We found 35(28%) with primary and 90(72%) patients due to secondary causes of AIHA. The connective tissue disorders, renal failure and hematological disorders were common causes of secondary AIHA in this study.

Conclusion: Our study showed females in their thirties presenting with generalized weakness, pallor of face & extremities and breathlessness. Majority had secondary AIHA due to consecutive tissue disorders, renal failure and hematological disorders as underlying causes. Doctors must be cautious regarding whole blood transfusion as means for treating mild to moderate anemia.

2. Assessment of Oxidative Stress Markers Catalase and Superoxide Dismutase in Blood Samples of Polluted and Non-Polluted Areas

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Back ground: Lack of wastewater purification facilities which results in municipal, agricultural, and industrial wastewater discharges directly entering the reservoir. Oxidative stress markers catalase and SOD may induced changes in biological systems.

Aims and Objectives: To assess the pollution in the effluents of industrial area, study estimate oxidative stress biomarkers Catalase and superoxide dismutase in blood sample of people living in the polluted areas and non-polluted areas.

Methodology: Blood samples were taken from the 50 workers of polluted area. Level of catalase and super oxide dismutase was estimated by ELIZA technique. 20 age matched controls with no history of any disease living in non-polluted areas were taken to compare the results.

Results: Level of catalase and superoxide dismutase was increased in workers of polluted area as compared to controls.

Conclusion: It is concluded that the presence of catalase and super oxide dismutase results oxidative stress that may induced harmful changes in biological system

3. Factors Associated With Skipping Breakfast among Day Scholars and Boarding Adolescents And Their Effects On Their Academic Performance

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Objective: Skipping breakfast has been linked with poor diet quality, higher BMI and poor academic performance.

Aims and Objectives: A comparative cross sectional study was designed to find out the Factors associated with skipping breakfast among Day scholars and Boarding Adolescent and their effects on their academic performance

Methods: A total of 100 day scholar's adolescent (70 breakfast eater and 30 breakfast skippers) and 50 living in hostel were included in the study. The questionnaire is based on body weight, consumption and type of breakfast, accommodation, attention in class and academic performance.

Results: Mean age of both groups of students was 18-19 years with mild increase BMI in breakfast skippers. 20% day scholars and 50% hostel living students skip breakfast. Negative emotional status was observed more in breakfast skipper compare to breakfast eater. Class assessment and academic performance shows the poor presentation of breakfast skipper and usage of pleasant but poor nutritious food. Among students of hostel living, the reason for skipping were distasteful food, not cooked well and inadequate amount. These students therefore preferred institute cafeteria where the pleasant looking food is with inadequate nutrient.

Conclusion: Factors associated with skipping breakfast especially in boarding students are usually distasteful and inadequate food with poor class assessment and academic performance. While in day scholar the reason may of skipping breakfast be getting late or late night dinner.
Key Words: Skipping Breakfast, Day scholars and boarding students

5. Prevalence of Gingivitis and Other Dental Problems

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Background: Gingivitis, an inflammation of the gums is the initial stage of gum diseases and the easiest to treat. The direct cause of Gingivitis is plaque-the soft, sticky, colorless film of bacteria that forms constantly on the teeth and gums. Acute gingivitis due to hormonal changing, pregnancy, during child birth, anemia and much blood related diseases. Chronic gingivitis due to

plaque and calculus. The main cause of gingivitis is plaque including Microorganisms which can cause damage to the epithelial and connective tissue constituents. The intercellular spaces between the junctional epithelial cells are destroyed. Absence of treatment of gingivitis can lead progress of gingivitis into periods.

Method: Primary method: Data observed or collected directly from firsthand experience. The data is derived from a new original research study and collected at the source.By visiting day to day meetings with the professionals, observations, Questionnaire, Interview, Secondary method: Data that have been already collected by and readily available from other sources. Hospitals, Universities, Clinics, Records of the organization, Internet, books

Results: Gingivitis affected more in people with poor oral hygiene, wrong brushing techniques and tobacco use. According to our survey,rural population is more affected; the reason being poor hygiene. It occurs mainly in young adults aged16 to 30 years. In the most recent national oral health survey, only 18% of 16-24 years old,8% of 35-44 years old and 7% of older people aged 65 years and over have healthy gums according to our survey. Poor oral care, smoking or chewing tobacco, older age, dry mouth, poor nutrition, vitamin c deficiency etc. increase the risk of gingivitis

Conclusion: It was concluded that absence of oral hygiene, the transition from tooth health to gingivitis is accompanied by a shift in the bacterial community structure of plaque and an increase in bacterial community diversity. The results demonstrated significant differences in both the membership and structure of analogous health-and gingivitis-associated plaque samples, and confirmed the association of particular species previously associated with gingivitis.

6. Anemia and its association with Anthropometric indices in affluent Male University students

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Background: Anemia is a burgeoning issue globally, particularly in developing countries. It is common in nearly all age groups. Various studies suggests that it is more common in adolescent females than males, however very few studies are available on adolescents university male students especially in accordance with World Health Organization (WHO) criteria. The current study thus focuses on the prevalence of anemia and its association with anthropometric indicators.

Methodology: A survey based, cross sectional study was carried out for the duration of Six (06) months. The sample size was 101. Complete blood count (CBC) was performed in sterilized condition in hematology laboratory of Department of Physiology and Medical laboratory Technology, University of Sindh, Jamshoro, Pakistan. Anthropometric indicators were also measured and analyzed.

Results: Overall prevalence of anemia was found to be 34.65%. Moreover, waist circumference (WC), Hip circumference (HC), BMI and WHtR (Waist to height ratio) were significantly less in anemic group (P=0.007, P=0.01, P= 0.03,*and* P= 0.004 respectively).

Conclusion: In conclusion, the prevalence of anemia is found in urbanized male students. The anthropometric indicators were found significantly lower in anemic groups than non-anemic.

7. Prevalence of Malnutrition among Children Under Five Years of Age in District Tharparkar, Sindh, Pakistan

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Introduction: Malnutrition is the major cause of mortality in children. Pakistan has one of the highest prevalence of child malnutrition as compared to other developing countries. Malnutrition is common in all age groups particularly in children under five years of age. Tharparkar is a desertarea with least agriculture, and increasing malnutrition.

Objective: The purpose of this study is to investigate the prevalence of malnutrition in children under five years of age as well as to find out the risk factors associated with malnutrition.

Methodology: This was a cross-sectional study carried out in selected villages of district Tharparkar. The data was obtained through interview based questionnaire. The Z- score for stunting (age for height HAZ), underweight (weight for age WAZ) and wasting (weight for height WHZ) were obtained by using WHO Anthro 2006 software. The data was analyzed by SPSS 16. The verbal consent was taken before collection of data.

Results: Out of 597 participants, the prevalence of stunting, underweight and wasting was 81.1%, (n=485) 57.3% (n=342) and 18.2% (n=112) respectively. The age (06-11 months), number of siblings (6-9), and Family size (6-11) were significantly ($p< 0.01$) associated with prevalence of stunting. The numbers of siblings (> 9), Family size (>10) and underground water were very the major factors significantly ($p< 0.01$) associated with underweight. The age (6-11 months), monthly income (>6000) and underground water were causing factors of wasting.

Conclusion: In conclusion, the higher prevalence of malnutrition was found in children under five of age in district Tharparkar.

8. Anemia and its Association with Oxidized Tea Drinking in Affluent Pakistani Female University Students

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Background: Tea intake ranks as one of the major beverages, generally in the subcontinent, particularly in Pakistan. Evidence suggests its positive as well as negative impacts on human health. Whereas, anemia is burgeoning in the region especially in female population despite their good financial status. There are many dietary factors which leads the healthy female to be anemic as well as many others factors worsening the anemic conditions in a female who have already low hematological indicators, especially those which leads to anemia. The present study revealed the prevalence of anemia, its association with tea intake and comparison of the observed values with the cut off set by WHO (World health organization).

Methodology: A cross sectional/case control study was conducted in order to investigate hematological parameters and its association with milk tea consumption by comparing anthropometric indicators.

Results: The overall prevalence of anemia was observed in 80.77%. Hemoglobin and red blood cells count (RBCS) were found less in tea drinkers (TDs) (10.84±1.34 g/dl and 4.09±0.32 million/mm^3 respectively) as compared to Non teadrinkers (NTDs) (11.08±0.88g/dl and 4.11±0.36 million/mm^3respectively). Mean corpuscular volume (MCV) was significantly lower in TDs (78.87±7.10 μm^3), as compared to NTDs (82.63±7.91 μm^3), p=0.03. The study could not find a significant difference in white blood cell count (WBCs) and anthropometric indices in aforementioned groups.

Conclusion: The study concludes the prevalence of anemia in young affluent university female students in Pakistan. Additionally, some hematological indicators are showing significant differences in two groups, however the anthropometric indices were not found different in TDs versus NTDs.

9. Pattern of Nutrient Selection and Physical Activity Status in Urban Pakistani Females of Different Socioeconomic Status

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Background: Nutrition related problems like over-nutrition and under-nutrition or selective nutrient deficiencies are the most common causes of long term systemic pathologies all over the world. Nutrition and health status of women is important both for the psychosocial behaviors of the society and for the healthy development of future generations.

Objective: Present study is designed to assess the pattern of nutrient selection and sternness of daily physical activity in Pakistani females.

Methodology: Total of seventy two females (age group of 20-68 years), were selected for the study from urban areas of Karachi city. Participant's personal profile, medical and family history were collected by investigators via questionnaire. Physical measurements were recorded for every participant. 24hr daily dietary intake was recorded with Harvard service food frequency questionnaire for two working days and one holiday.

Results: Results of the present study show more daily consumption of carbohydrates. Average 24-hr calorie intake was 1985.208 Kcal/day. Studied females show daily consumption of milk and dairy products with more amount of red meat in the daily diet as compared to fruits and vegetables.

Conclusion: According to our study, ethnicity, education level and socioeconomic status are the biggest determinants of disturbed dietary patterns in Pakistani females and overall physical activity was very low due to lack of awareness and lack of opportunities.

Future Perspective: To elaborate results of present study, additional population-based studies are needed to understand nutritional and physical patterns of Pakistani females.

1. Potential Effects Of Peel Extracts On Biochemical Parameters Of Hyperlipidemic Animal Models

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Background: Hyperlipidemia is a clinical disorder that exhibits high amounts of fats which leads to Oxidative stress contributes to cause or effect deleteriously a number of pathological conditions like, neurodegenerative diseases, autoimmune disease, cancer, cardio vascular disease, diabetes etc.

Aim of the study: Study aimed to identify in vivo hypolipidemic potential of fruit peels, the influence of peels on liver and cardio activities were also evaluated.

Material and Methods: The flavonoid compounds were checked in peels. Then 24 male wistar rats were divided into six groups including healthy control and disease control. In treatment group Punicagranatum (pomegarnet) peel extract treated group (PPE), Citrus sinensis (Orange) peel extract treated group (CSPE), Citrus× paradise (Grapefruit) peel extract treated group (CPPE) for 30 days. Lipid profiling and liver function test (LFT) and antioxidant profile were done through kit method

Results: ANOVA was used for analysis. Pomegranate peel extract reduced cholesterol, triglycerides, LDL-C significantly ($p < 0.05$). The LDL-C levels were significantly reduced ($p < 0.05$) in rats treated with Pomegranate and orange peel extract Whereas the levels of HDL-C in all peel extract treated groups were found to increase Further, the results indicated ALT and AST in pathological group have increased significantly ($p< 0.05$). While antioxidant status showed a significant effects.

Conclusion: The study reveal that peels collected from waste still has the potential to address hyperlipidemia and improve total antioxidant status.

Future Indication: Further study requires to identify the effect of these peels on different animal models.

2. Nomophobia: A Myth or an Emerging Issue among Dental Students

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Background: "Nomophobia"- no mo-bile phobia is increasing exponentially across the globe. The injudicious usage and over dependence on smart phone among medical students is a major source of distraction for academic activities. Nomophobia in medical students has been explored by some researchers but its influence on dentistry students has not been investigated.
Objectives:

10. To assess the pattern of mobile phone usage.
11. To explore its effects on the academic performance of students
12. To determine the gender based differences in the usage of mobile phones.

Methodology: A descriptive cross-sectional study was conducted on 100 students from 1st and 2nd year BDS at CMH Medical and Dental College. A pre validated questionnaire containing 19 items was administered to collect the data regarding the usage and associated anxiety with mobile phone. The data was analyzed on SPSS version 21 descriptive statistics were generated and chi-square test was applied.

Results: A total of 23.12% of the students were nomophobic while 40.5% were having the risk to develop nomophobia.The prevalence of nomophobia were higher among females (27.86%) when compared to males (19.88%)About 38.5% students agreed that they score low marks in professional exams if they spend more time on phone. The number of students who frequently checked their cell phone during their classes or while doing clinical work were 24.7%. A statistically significant difference was found among male and female students regarding the usage and effects of excessive use of mobile phone.

Conclusion: The pattern of mobile phone usage among dental students show alarming signs that are detrimental for their academic performance. Awareness campaigns should be started to increase the level of awareness regarding the side effects of excessive use as well as counselling should be provided to guide the students about the meticulous and appropriate usage of mobile phone.

Endocrinology/Reproduction Poster Abstracts

3. Relationship of Vitamin D and Magnesium with Insulin Resistance in Obesity

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Background: Obesity is a disorder in which there is unnecessary buildup of body fat. Additionally, bioavailability of vitamin D in obese subjects might be low because of its sequestration in fat tissue. Vitamin D is included in a group of vitamins which are soluble in fat, locally it function as cytokine while in circulation as a hormone. Its active metabolite increases intestinal and renal absorption of magnesium. Hypovitaminosis D lead to magnesium deficiency which is associated with glucose intolerance, insulin resistance, and dyslipidemia and hypertension.

Objective: The aim of this study was to determine, compare and correlate serum vitamin D and magnesium levels with insulin resistance in controls and obese males.

Methods: It was a cross-sectional comparative study in which eighty male subjects were included. They were divided on the basis of BMI into two equal groups, 40 non-obese (control) BMI< 25 Kg/m^2 and 40 obese males' withBMI>25 Kg/m^2, all subjects with age 35-50years. Blood samples were drawn after overnight fast. Serum Vit. D was measured by commercially available ELISA Kit. Serum insulin levels were measured by ELISA test and blood glucose levels were estimated by glucose oxidase method. Insulin resistance was measured from fasting serum glucose levels taken in mmol/l and the fasting serum insulin taken in μ IU/ml by using HOMA-IR index (Mathews et. al., 1985).

Results: Lower serum 25 (OH) D and Magnesium levels and higher HOMA-IR index was present in obese males. Significant positive correlation was present between serum vitamin D and Magnesium levels in both groups and significant negative correlation was present between serum vitamin D and Magnesium levels with HOMA-IR when tested by Spearman's correlation.

Conclusion: Vitamin D and magnesium has got a shielding effect in prevention of insulin resistance in obesity and defend our body from chronic inflammatory state which can lead to impaired glycemic control and insulin resistance later on.

4. Effect Of Vitamin D Supplementation On Weight And BMI Of Mice Taking High Fat Diet

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Objective: To see the effect of vitamin D supplementation on weight and BMI of mice taking high fat diet

Methodology: 90 male mice were taken. They were randomly divided into 3 groups of 30 each. Group A mice were given normal diet for 6 weeks. Group B mice were given high fat diet for 6 weeks to induce hyperlipidemia. Group C mice were given high fat diet and vitamin D daily for 6 weeks. Vitamin D was given in a dose of 100ng/kg/day through oral gavage tube daily for 6 weeks. Weight of mice was taken by electronic weighing machine at the start of study and then twice weekly. Initial length of each mice was taken before start of study and final length was taken at the time of sacrifice. BMI (gm/cm2) of each mice was calculated. Initial and final weights and BMI of three groups were compared by applying one way ANOVA test.

Results: Final weight and BMI of group C mice is reduced as compared to group B. P value is significant (p=0.04)

Conclusion: vitamin D supplementation in mice taking high fat diet results in decreased weight and BMI.
Key words: weight, BMI, Vitamin D

5. Association of Serum Vitamin D levels with Hypertension & Myocardial Infarction

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Background: Vitamin D is considered to be one of the most important vitamins which plays a vital role in bone and calcium metabolism. Vitamin D is also thought to play an important role in metabolic functions of widespread tissues because of the extensive distribution of its receptors. Particularly important are the extra-skeletal effects of vitamin D through its receptors in smooth muscles and endothelial tissue, through which it produces anti-inflammatory effects, inhibits vascular proliferation and alters renin angiotensin aldosterone mechanism. Various studies have shown detrimental effects of vitamin D deficiency on cardiovascular system. So, decreased vitamin D levels can be associated with increased risk of cardiovascular diseases like hypertension and myocardial infarction.

Objectives: The objectives of this study were to observe an association between low serum vitamin D levels and hypertension and myocardial infarction and to compare the levels of serum vitamin D among hypertensives, patients with myocardial infarction and healthy controls.

Materials and Method: This was a cross-sectional comparative study in which serum Vitamin D levels were measured and compared in 96 patients divided in three groups, hypertensive group, myocardial infarction group and a healthy control group and a potential association between low serum vitamin D and hypertension and myocardial infarction was examined.

Results: Serum Vitamin D levels were equally low in hypertensive group and also in patients with myocardial infarction group (p-value 0.983) and the healthy controls and no clear association between vitamin D levels and these conditions was found. Mean±SD serum Vitamin D levels were 19.9±12 ng/L in myocardial infarction group, 19.5±10.0 ng/L in hypertensive group and 19.5±13.6 in healthy controls. So, our study could not establish an association between serum vitamin D levels and hypertension and myocardial infarction

Conclusion: Serum Vitamin D levels are low in general population in our region and so establishing an association between serum Vitamin D and these conditions requires further research.

6. Association Of Low Serum Vitamin D With Myopia In Students Of FJMU

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Background: It has been found out that low vitamin D, which is chemically 25 dihydroxycholecalciferol [25(OH) D], is related to myopia in children and adolescents. Myopia is usually corrected well in time; still there is an increased risk of visual impairment or blindness owing to retinal detachments, lattice degeneration and angiogenesis in choroid. Moreover, myopia is also associated with high risk age related disease of the eye; such as cataract and glaucoma.

Methodology: This is a cross-sectional study. We selected 70 myopic students from first and second year class of MBBS. Approval of our study was obtained from the research ethical committee, FJMU. Demographic data was collected through a questionnaire. The experiments were undertaken with the understanding and written consent of the student. The extent of myopia was correlated with the quantity of 25(OH) D as estimated in blood by ELISA technique. Multiple linear regression analyses were performed to examine the link between 25(OH) D and myopia.

Results: The association between myopia and 25(OH) D was found to be significant with a p value of 0.011and 0.001 in moderate and severe myopia respectively.

Conclusion: Low serum 25(OH) D is associated with high prevalence of myopia. It further suggests the direct and independent role of vitamin D in the development of myopia.

7. Study of Rap1 GTPase Subtype A in the Regulation of Insulin Secretion *In Vivo* and *In Vitro*

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Background: Cyclic AMP regulates insulin secretion through protein kinase A (PKA) and/or *via* guanine exchange factor GEFII and the small GTPase Rap1, independent of PKA. *In vitro* studies implicate Rap1 subtype A in insulin secretion [1]; however, this has not been validated *in vivo*.

Objective: To examine the role of Rap1A in regulation of glucose-dependent insulin secretion *in vivo* and *in vitro*

Methods: The study included three groups of C57BL/6 mice, Rap1A knockout, heterozygous, and wild-type, which were generated through breeding pairs kindly provided by Mississippi State University, USA. The experimental approaches included oral glucose tolerance testing (OGTT), insulin secretory activity in isolated pancreatic islets, and insulin measurements using ELISA.

Results: OGTT in Rap1A-knockout and heterozygous mice revealed that following 15 min of glucose load, the blood glucose levels were found significantly ($p<0.05$) high compared to the control group, which agreed with serum insulin levels; high in control and reduced in knockout and heterozygous mice. Furthermore, the results of impaired glucose stimulated serum insulin in Rap1A null mice mimicked well *in vitro* in isolated islets where the glucose-dependent insulinotropic effect was significantly reduced in comparison to the wild type mice.

Conclusions: Taken together, Rap1A GTPase plays a key role in the regulation of glucose-dependent insulin secretory activity.

Future Prospects: By targeting Rap1A, therapeutic agents may be discovered to treat impaired insulin secretion found in diabetic subjects.

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8. Effects Of Vitamin D On Of Hypothalamic Pituitary Gonadal Axis Of Adult Sprague Dawley Rats

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Background: Vitamin D_3 seco-steriod hormone, classical effects of which are well established in calcium homeostasis and bone metabolism. Over the last decade vitamin D receptor has been identified in wide range of tissues. Vitamin D deficiency in concordance with infertility in males is alarming. This study was carried out to find out the effect of vitamin D_3 on functions of hypothalamic pituitary gonadal axis of adult Sprague Dawley rat by determining its effects on synthesis and release of GnRH, FSH, LH, Testosterone synthesis and release.

Methodology: Study was carried out in Department of Animal Sciences, Quaid-i-Azam University Islamabad, after approval of Ethical Review Committee. Twenty adult male Sprague Dawley rats were purchased from National institute of health sciences Islamabad. The primary culture of hypothalami, anterior pituitaries, and testes was done for two hours in an incubator in falcon tubes containing culture medium (DMEM/F12). Control group (10 tissues each of three organs) were given placebo and experimental group (10) were treated with ZK 159222 (Vitamin D Antagonist). The samples for hormonal analysis (ELISA) were taken from the culture tubes after every thirty minutes. The tissues after two hours were saved for immunohistochemistry. Graph pad prism version 5 was used to perform repeated measures and two way ANOVA. (p value ≤ 0.05 was considered statistically significant.

Results: Hormonal analysis showed statistically significant decreased ($p \leq 0.05$) concentration of GnRH and testosterone in treated groups as compared to controls. The concentrations of FSH and LH in treated groups was less than controls but the results were not statically significant. The fluorescent microscopy showed decreased expression of GnRH neurons in treated group.

Conclusion: Vitamin D antagonist decreased the concentration of all hormones in hypothalamic pituitary gonadal axis. It also decreased the expression of GnRH in preoptic area of hypothalamus, FSH and LH in anterior pituitary gland and the Leydig cells in testicular interstitium.

Key words: Vitamin D, Vitamin D receptors, ZK 159222, fluorescence microscopy

9. Physical Fitness and Its Relationship to Plasma Leptin, Leptin Soluble Receptor, and Free Leptin Index in a Saudi Population: A Comparison between Diabetic and Non-Diabetic Individuals

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Background: Low physical activity is considered to be a risk factor for type 2 diabetes mellitus (T2DM). One theory suggest that leptin resistance is involved in the pathophysiology of impaired glucose metabolism. In this study we aimed to assess the correlation of physical fitness scores (PFS) with serum total leptin (TL), serum leptin soluble receptor (LSR), and free leptin index (FLI) in a group of Saudi patients with T2DM.

Methodology: This cross-sectional study involved 115 subjects: 52 healthy control subjects and 63 patients with T2DM. All subjects underwent body composition analysis. Blood samples were analyzed for fasting blood glucose (FBG), glycosylated hemoglobin (HbA1c), serum total leptin (TL), and serum leptin soluble receptor (LSR). Based on ideal body composition and our previous studies, physical fitness scores (PFS) were recorded for each subject.

Results: In patients with T2DM, levels of LSR were positively correlated with PFS (r=0.281, p=0.025), while the levels of TL (r=-0.425, p=0.001) and FLI (r=-0.439, p=0.001) were negatively correlated with PFS. In control subjects, TL and FLI levels were negatively correlated (r=-0.612, p=0.001and r=-0.543, p=0.001 respectively) with PFS. In linear regression analysis, after adjustment for age and BMI, TL and FLI were independent predictors of PFS.

Conclusion: Serum TL and FLI were negatively correlated while LSR was positively correlated with PFS in patients with T2DM. Therefore, they may be important biomarkers for predicting the outcomes of physical fitness and exercise programs.

10.Comparative Analysis of Kefir and Alovera Gel among Normal Flora of Diabetic and Non-Diabetic

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Background: Human skin is physical barrier against foreign substances. Nonpathogenic organism presents the normal flora of the body and shows mutual beneficial effects towards the part of the body. A part of this sometimes they become opportunistic organism.

Aim of the study: We determined the difference of normal flora among diabetic (case) and non-diabetic (control) patients and also determined the efficacy of Alovera gel and Kefiran against these bacteria.

Methods: We collected swab from armpit portion from 10 diabetic and 10 non-diabetic. MSA (Mannitol salt agar), and McConkey agar was used for culturing. Then allowed to incubate for 24 hours at 37^0C in incubator. Several colonies were obtained. Then confirmatory test including coagulase, catalase, IMVIC and Nitrate Reductase test were performed.Antibacterial activity of all organism was determined through agar well diffusion method on MHA (Mueller Hinton Agar)

Results: For data analysis we used independent t test by using SPSS 16.0 version. A significant difference (p-value<0.05) of Coagulase-Negative *Staphylococcus, Enterobacter spp.*, and *Klebsiellaspp*in cases. While in control there were a significant difference (p-value<0.05) of *beta*

hemolytic streptococcusspp. Kefiran and Aloveraproduced antibacterial activity against six organism

Conclusion: The study revealed that the diabetic patients with disturb homeostatic mechanisms of the body may cause pathogenicity by changing bacterial physiological functions. In addition the Alovera gel and kefir may play a potential role to reduce the harmful effects.
Future Direction: Large number of study is required to identify the further unrevealed causes of skin infections among diabetic patients.

11.Mean Platelet Volume as an Indicator of Glycemic Control in type 2 Diabetes Mellitus

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Objective: Tostudy the platelet count (PC), mean platelet volume (MPV), glycated HBA1c in type 2 diabetes mellitus (T2DM).

Study Design: Case control study

Place and duration of study: This study was conducted at the department of Physiology in collaboration with department of Medicine, Indus Medical College, Tando Muhammad Khan, Sindh.

Methodology:A sample of 150 subjects comprising of group A- controls (n=50), group-B controlled diabetics (n=50) and group C (n=50) uncontrolled diabetics.DM was diagnosed according to American diabetic association. Permission was taken from ethics review committee of institute. Only willing subjects were including after they signed consent proforma voluntarily. Blood pressure, BMI, Blood Glucose, Platelet Count, MPV HbAIc were determined data was typed on Microsoft excel and then pasted SPSS 22.0 sheet for statistical analysis. Chi square test, one way ANOV, post –Hoc Tukey Cramer and Pearson's association was used for analysis of variables.

All data was analyzed at confidence interval of 95% (<_ 0.05)

Results: MPV was raised in Diabetics in particular with uncontrolled glycemic index as shown in table II. Showed negative correlation with platelets was found with MPV (r= 0.78, p=o.ooo1). HbAIc as high as 14.3%was noted in uncontrolled diabetics.

Conclusion: The present study reports raised mean platelet volume in diabetic in particular uncontrolled dial MPV showed positive correlation with HbA I c and negative correlation with platelet count.

Key Words: Mean Platelet Volume, Platelets, Glycated Hb A I, Diabetes mellitus

12.Blood Group B: A Risk Factor for Pre-Eclampsia

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Background: ABO blood group antigens have been identified to be involved in pathogenesis of different disease conditions. For some time, the association of blood group with pregnancy associated condition like pre-eclampsia is extensively under debate. Pre-eclampsia is a distressing condition of pregnancy which commonly causes maternal and fetal mortality around the globe. Multiple risk factors are found to be associated with pre-eclamptic occurrence. In this study our aim was to delineate a specific blood group which could be implicated as a risk factor for pre-eclampsia.
Methods: This retrospective study which was conducted in a tertiary care hospital of Karachi, obstetric data including blood group was retrieved from medical record files of 368 patients. Obtained data was analyzed by IBM SPSS version 21.
Results: The prevalence of B group was recorded to be 41.3% as compared to O (26.1%), A (22.8%) and AB (9.8%). So, it can be concluded that women having blood group B are more prone to develop pre-eclampsia. Blood grouping of pregnant women in early weeks of pregnancy could assist in prediction or better management of pre-eclampsia.
Keywords: Blood groups, Pregnancy, Pre-eclampsia

13. Breast Cancer Awareness amongst FemaleTeenagers Studying in the Federal Territory of Pakistan

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Background: Breast cancer is the most prevalent cancer amongst women worldwide. Pakistan has the highest incidence of breast cancer amongst Asian countries but its awareness amongst Pakistanis is limited owing to low literacy rate and general taboo associated with discussion of gender-specific parts in the human body. Adolescence is a period of rapid change; thus, proper health education during this time is essential to instill good health behaviors.

Objective: This study was conducted to determine knowledge of breast cancer, its risk factors and screening methods amongst teenage females in the federal territory of Pakistan.

Methodology: Using descriptive research design, data was collected using a self-administered, close-ended questionnaire which was distributed amongst 450 female teenagers studying in various institutions in Islamabad, Pakistan during March to June 2018 by convenient sampling. Data was analyzed by Statistical Package for Social Sciences Version 23. Three groups were

compared by applying chi square test. The significance value was set at $p<0.05$. The awareness levels were categorized on numerical scale of 0 to16; (0-5=unaware), (6-10=moderately aware), (11-16= satisfactorily aware).

Results: Only 47.6% of the participants were aware of the incidence of breast cancer in Pakistan (n=450). The percentage of the minimally aware teenagers was 1.1%, of moderately aware ones 5.5%, while only 0.2% females were maximally aware. There was significant relationship between age of the individuals and awareness levels (p=0.00). The total awareness score and knowledge of all risk factors of breast cancer was significantly related to education level of individuals, p=0.00 each.

Conclusion: Our study indicated that knowledge regarding breast cancer was insufficient amongst majority of the participants.

Keywords: Breast Cancer, Awareness, Female Teenagers, Pakistan

14.Antioxidant Effects Of Spinach (Spinacala Oleracea) On Testicular and Epididymal Weight Of Obese Sprague Dawley Rats

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Objective: To determine the antioxidant effects of spinach on weight of testes and epididymis in obese Sprague Dawley rats.

Study Design: Experimental, randomized control study.It was carried outfrom April 2016 to March 2017 in the department of physiology of Islamic International Medical College, Rawalpindi, Pakistan.

Methodology: Total 40 male Sprague Dawley rats of about 8 weeks were included and randomly divided into Group A- Fed on standard diet and Experimental group- Fed on high fat diet to induce obesity. At the end of 6^{th} week, after inducing obesity, Experimental group was then subdivided into Group B and Group C. Weight of testes and epididymis of Group A and Group B rats was recorded. Then 5% spinach was given to Group C along with high fat diet for 4 weeks and finally weight of testes and epididymiswas measured.

Results: Weight of testes and epididymis (g) of Group B (1.32 ± 0.53g) rats was significantly decreased ($P<0.001$) as compared to Group A (1.88 ± 0.92g) rats. However, weight of testes and epididymis (g) of Group C (1.92 ± 0.49g) rats was significantly increased ($P<0.001$) as compared to Group B (1.32 ± 0.53g) rats after spinach intake.

Conclusion: Intake of spinach supplemented diet has ameliorative effects on weight of testes and epididymis in response to deleterious effects caused by obesity-induced oxidative stress.

Key word: Epididymis, Obesity, Spinach, Testes.

15. To Evaluate Serum Alanine Aminotransferase (ALT), Uric Acid And Creatinine Levels In Patients With Preeclampsia-Eclampsia And Pregnancy Induced Hypertension

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Background: Pregnancy results in important alterations in liver and renal function due to pregnancy-associated physiologic changes in renal and systemic hemodynamics. Pregnancy itself can cause acute kidney injury which may affect the process of clearance. Liver disease in pregnancy encompasses a spectrum of diseases encountered during gestation and the postpartum period that result in abnormal liver function. In hypertensive disorders of pregnancy the liver is also affected because it becomes inflamed due to elevated levels of liver enzymes.

Objective: The study was aimed to identify hepatic and renal function in patients with preeclampsia-eclampsia and pregnancy induced hypertension in Pakistani population.

Material and Methods: A cross-sectional study was conducted in which 120 age- matched, pregnant women having >24 weeks of gestation, were equally divided into four groups. 1. Normotensive pregnant (control) 2. PIH group 3. Preeclamptic and 4. Eclamptic group, participated in the study. Blood samples were collected f and serum ALT and creatinine and uric acid level was estimated. Groups were compared by applying one-way ANOVA in SPSS (version 22). P value less than 0.05 was considered significant (95% confidence interval).

Result: This study shows that ALT levels were significantly higher (65.53±58.86) in PIH group than controls (28.15±5.4), showing abnormal liver function. Uric acid levels were significantly higher (7.17± 0.96) in eclamptic group, (5.13±1.34) in preeclamptic group as compared to control group (4.14± 1.11). Which may be due to kidney problem, causing Uricemia. Creatinine was not found to be significantly different in any of the group. Uric acid levels are found to be significantly correlated with maternal age in eclamptic group. ALT levels are positively correlated with serum creatinine conc.

Conclusion: Pregnancy-induced hypertension, preeclampsia and eclampsia are associated with liver dysfunction and kidney failure. Uricemia, in preeclampsia, is due to reduced uric acid clearance from diminished glomerular filtration, increased tubular reabsorption and decreased secretion.

Keywords: alanine aminotransferase, creatinine, preeclampsia, eclampsia, Uricemia

16.Post Menstrual Syndrome and Nutritional status of young females in Pakistan

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Background: For developing countries, under nutritional consequences are big challenges to tackle. Premenstrual syndrome (PMS) is very common in young females and has strong association with unhealthy diet. Unhealthy lifestyle or inadequate food intake may induce severe symptoms of PMS.
Aim of the study: This study aimed to determine the association between unhealthy or poor dietary habits in menstrual problems of young females and their poor reproductive outcomes.

Methodology: Total of seventy six female of age 15-25 years were selected .24 hour daily dietary intake was recorded with Harvard Service Food Frequency Questionnaire for two working days and one holiday. To assess PMS symptoms we provided them PMS questionnaire to fill during their one complete menstrual cycle. We selected six participants from that in order to evaluate their biochemical parameters (hormones and electrolytes) while LH and progesterone were tested on 15^{th} day of their menstrual cycle.

Results: In majority participants, fast food consumption was strikingly very high than vegetables and fruits. On the other hand, most frequently occurring PMS symptoms were hopelessness, sad blue, tension and menstrual cramp. In majority of the studied subjects, serum electrolyte level was in normal range but vitamin D and hormonal status were below normal.
Conclusion: Our study concluded that poor dietary habits have strong connection with menstrual complications and also aggravates PMS symptoms which may produce the harmful effects later on.
Future Indications: Large number of data is required to reveal the further association and physiological linkage between them.

17.Effect Of Vitamin D Supplementation On Statins Induced Decline In Fertility

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Objectives: To determine the effects of vitamin D supplementation on statins induced decline in serum testosterone levels.

Method: A total of 90 male albino rats were taken and divided randomly into three equal groups (Group A=30, Group B=30, Group C=30). A was control group, B was given atorvastatin

10mg/kg body weight per oral for 6 weeks and C was given atorvastatin in the same dose plus vitamin D 100ng/kg/day for 6 weeks. At the end of 6th week blood samples were taken through cardiac puncture for serum testosterone levels. Significance of difference was calculated by one way ANOVA.

Results: Testosterone levels were significantly raised (p-value=0.001) in rats treated with Atorvastatin along vitamin D supplementation in comparison of those rats treated with atorvastatin alone.

Key words: Vitamin D, Testosterone, Atorvastatin.

18. Contribution of Male factor in infertility in a sample of local Population of Pakistan

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Introduction: According to WHO currently 60–80 million couples (8-12%) globally suffer from infertility.Unfortunately, as the lady nurtures the pregnancy so conventionally she remains the focus of investigations and bears the brunt of infertility, specifically in the developing countries. Hence the causes of male factor infertility generally remain under-diagnosed and under-treated.

Objectives:

10. To find out contribution of male factor responsible for infertility among infertile Pakistani couples.
11. To detect the abnormalities of seminal parameters among infertile male subjects.

Methodolgy: This cross sectional study was conducted at Physiology Department, University of Health Sciences, Lahore. Two hundred infertile males fulfilling the inclusion criteria and visited the infertility clinics of Combined Military Hospital and General Hospital, Lahore were chosen for the research. Thorough history was taken, relevant physical examination, scrotal ultrasound and semen analysis of all subjects were performed.

Results: Among males, the infertility factor was identified in 30. 5 % on the basis of semen analysis, while 53% suffered from unexplained infertility. Two groups emerged by Semen analysis of 200 men from infertile couples, first group comprised of men (101) with normal semen parameters and men (99) with abnormal semen parameters. The semen analysis of these 99 infertile males revealed that Asthenozoospermia (31.3 %) is the most common abnormality of semen parameters followed by Oligospermia (23.2 %), Tertozoospermia (20.2 %) and Azoosprmia (19.2 %). There was non-significant difference found in the testicular volume, seminal volume, pH and viscosity among different groups emerged after semen analysis.

Conclusion: The frequency of male factor infertility is quiet high among infertile couples, equally high is the frequency of unexplained infertility. It is high time to educate our males for undergoing semen analysis and other relevant thorough investigations to find out the cause of infertility to be successful in treating infertility.

Keywords: Male factor infertility, Asthenozoospermia, Oligospermia, Azoospermia, Seminal volume

19. Serum levels of Visfatin in Normal and GDMPatients InThird Trimester

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Background: Gestational diabetes mellitus (GDM) is any degree of intolerance to glucose with onset or first recognition during pregnancy. It is depicted by pancreatic beta cell dysfunction that does not meet the insulin demand of the body during pregnancy and therefore causes insulin resistance. In normal pregnancy insulin resistance increase throughout 2nd and 3rd trimester, which may be due to both increased adiposity and insulin desensitization by the placental hormones. These hormones antagonize the action of insulin. Adipose tissue is considered an endocrine organ which produces several adipokines. Visfatin is one of them that modulates insulin sensitivity and participate in the pathogenesis of gestational diabetes and insulin resistance. Visfatin also lowers blood glucose and improves insulin sensitivity by affecting the insulin signal transduction pathway.
There are disagreements regarding the link between serum visfatin levels to the parameters of glucose metabolism and insulin resistance during GDM. The purpose of this study was to explore the changes in maternal serum visfatin levels in third trimester in normal pregnancy and pregnancy complicated with GDM.

Methodology: A case control study was carried out in Lahore General Hospital /PGMI. This study included 21 normal healthy pregnant females (Group1) as controls and 21 GDM females (Group11) as cases. Fasting blood samples were drawn during 32-36 weeks of gestation. Samples were centrifuged for 15 minutes at 3000rpm and serum stored at -80°C for serum visfatin, fasting insulin and fasting blood sugar.

Statistical Analysis: The data was entered and analyzed by using SPSS-20.0. Mean ± SD was calculated for quantitative variables. Independent sample and paired t-test were applied. A p-value of < 0.05 considered as statistically significant.

Results: Comparison of serum Visfatin levels between group I and group II during third trimester revealed a statistically significant difference (p=0.00).
Insulin resistance calculated by HOMA IR (Homeostatical Model Assessment of Insulin Resistance) showed a statistically significant difference (p=0.00) between group I and group II in third trimester.

Conclusion: Serum level of visfatin are higher in GDM patients as compared to normal pregnancy during third trimester.

20.Prevalence of Metabolic Syndrome in Pre and Post-menopausal Working Women in Hyderabad, Pakistan

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Background: Increasing evidence suggest the high prevalence of metabolic syndrome (Mets) in Post-Menopausal Women. High prevalence of Mets is often associated with diabetes and cardio vascular diseases. Pakistan has high mortality rate due to Cardio vascular diseases. No extensive study regarding prevalence of Mets and its association with diseases has been carried out. The main purpose of this study is to show the prevalence of metabolic syndrome among post-menopausal working women and give them awareness to prevent cardio vascular diseases.

Methodology: Cross sectional study was carried out on 276 working women, randomly selected from degree colleges of Hyderabad region. The data was collected by structured questionnaire. Demographic information was achieved. Venous blood sample was collected in the morning time, while respondents were fasting. Serum was collected after centrifuging the samples; serum was kept at 4^0C. Estimation of Triglycerides, total cholesterol, LDL-cholesterol, and HDL-cholesterol was carried out using Spectra XL fully automatic machine. Statistical analysis was carried out using SPSS 16.ethical approval was taken before collection of data, both verbal and written consent was obtained from participants.

Results: Out of 276, overall prevalence of Mets was 46.37% (n=128), postmenopausal women had significantly higher prevalence of Mets 31.88%, ($P< 0.0001$) than premenopausal women 14.49%. According to the odd ratio, the post-menopausal women had significantly higher odds of hypertension (O.R = 7.7, $P< 0.0001$) than premenopausal women. No significant difference of odd ratio for Waist Circumference (O.R = 0.93), Fasting blood Glucose (O.R = 1.7) HDL (O.R = 0.66), Triglycerides (O.R = 1.34) was found between post-menopausal women and premenopausal women. Further postmenopausal women had significantly higher prevalence of all five components ($\chi 2= 16.4$, $P< 0.0001$) than premenopausal women.

Conclusion: In conclusion, postmenopausal women had significantly higher prevalence of Mets in post-menopausal women; post-menopausal women were significantly at higher risk of suffering from CVDs.

21.Association of Oxidative Stress with Female Infertility

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Objective: To compare stress markers; [glutathione reductase (GR), cortisol] and reproductive hormonesin fertile and infertile females and relate Cortisol and GR with age, duration of infertility,cause of infertility and body mass index (BMI).

Materials and Methods: Total of 328 females, recruited from Australian Concept Infertility Medical Centre wereequally divided into infertile cases (A) and fertile controls (B). Serum Follicular StimulatingHormone (FSH), Luteinizing Hormone (LH), estradiol, GR and cortisol were measured usingcommercially available Enzyme Linked Innmuno Sorbent Assay kits. Statistical comparisonsby Student-t test and Mann-Whitney U test and correlations using Spearman's rank wereperformed; p < 0.05 was significant.

Results: Serum LH and cortisol was higher in the group A (10.05 ± 0.34 IU/mL & 27.12 ± 6.41ug/ml) versus group B (5.34 ± 0.32IU/mL & 10.84 ± 2.41ug/ml) respectively (p < 0.001). Serum GR was low in group A when compared with group B, (p < 0.001). Duration of infertility, serum levels of GR and cortisol were also significantly different among infertile females when distributed on the basis of cause of infertility. Serum cortisol had negative Correlation with GR (r =-0.380, p < 0.001). Age and BMI, had a positive correlation with serum cortisol (0.117, p= 0.035; r = 0.026, p = 0.63, respectively), while negative correlation with GR (r = -0.019, p = -0.732).

Conclusion: Increased years of being infertile, age of females and BMI enhanced the production of stress hormones and decreased antioxidant activity which impaired ovarian steroidogenic activity hence augmented the risk of infertility.

Key words: Oxidative stress, female infertility, Glutathione reductase, cortisol

Plasma Somatostatin, Insulin and Insulin like Growth Factor-1 Levels in Women with and without Polycystic Ovary Syndrome

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Background: Polycystic ovary syndrome (PCOS) is a disease characterized by hyperandrogenism and ovulatory dysfunction after other related endocrine disorders have been excluded. Insulin resistance (IR) and higher fasting blood glucose (FBG) levels have been found in women with PCOS. Somatostatin (SS), protects against insulin resistance by preventing increased insulin secretion from beta cells of pancreas and also balancing the absorption of nutrients from small intestine. Raised Insulin like growth factor -1 (IGF-1) levels were found in PCOS females that play a role in causing IR that contributes in causing hyperandrogenemia and PCOS.

Objective: To estimate plasma SS, insulin and IGF-1 levels in PCOS women and compare it with apparently healthy women.

Methodology: This cross-sectional comparative study was conducted at University of Health Sciences, Lahore from December 2016 to October 2017. Forty PCOS and forty apparently healthy women were included in this study. Anthropometric measurements, physical examination and FBG levels were determined immediately. Fasting plasma insulin, SS and IGF-1 levels were estimated by ELISA. Data was collected on predesigned questionnaires and analyzed by SPSS version 20.

Results: Significantly raised FBG ($p = 0.000$) and insulin levels ($p = 0.000$) were found in PCOS women. Lower plasma SS levels ($p = 0.11$) were found in PCOS women, although not significant. Raised plasma IGF-1 levels ($p = 0.000$) were found in PCOS women.

Conclusion: Insulin resistance, raised IGF-1 and lower SS levels are found in PCOS women. Future prospects: SS analogues could be a useful option for treatment of PCOS.

CMB/ Genetics Poster Abstracts

1. Association of ABO Blood group with Malaria

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Background: Malaria is the major cause of public concern and it caused millions of death around the world and it is still uncontrollable. Malaria is mainly caused by plasmodium namely P.Vivex, P.Falciparam, P.Malarie, P.Ovale.Previous studies suggest that the association of ABO blood group with diseases. It has been hypothesized that blood group are shaped due to environmental factors, one of the factors is presence of mosquitoes. O blood group is mostly prevalent in areas where mosquitoes causing malaria are more prevalent. However, the association of ABO blood groups with Malaria has still been an understudied subject.

Methodology: In order to find out the association of ABO blood group with malaria, a cross section study was set up to find out the association of ABO blood groups with Malaria. This study was carried out in Nawabshah District Shaheed Benazirabad and their peripheries. The data was collected through structured questionnaire, the blood was drawn and kept $4C^{o}$. Blood was analyzed for various blood parameters and presence of malaria. The ethical consent was obtained prior to study. The data was analyzed using SPSS.

Results: Total 113 patients were recruited for the study, whereas out of 113, 36.28 % (n=41) were male subjects and 63.72% (n=72) were female subjects. Overall 17.67% (n=20) were positive for the malarial parasite test. Overall frequency of the ABO blood group was O 37.16%

> B 26.55% > A 24.78% > AB 11.50%. The frequency of Rh +ve was 92.92% and Rh –ve was 7.08%. The ABO blood group frequency in non-malarial patient was O 38.7% > B 26.8% > A 24.7% > AB 9.6%, with Rh factor Rh +ve 93.55% > Rh –ve 6.45%. The ABO blood group frequency in malarial patients was O 30% > B 25% & A 25%> AB 20%, with Rh +ve 90%, Rh – ve 10%.

Conclusion: The hematological analysis indicated that malarial patients had significantly lower number of RBCs ($P < 0.05$) than non-malarial patients. In conclusion, most of the patients referred by clinicians as Malarial Patients were detected negative for MP test; in addition, the Non O blood groups had higher frequency of Malaria. This study will help in making public health policies.

2. Association of Single Nucleotide Polymorphism of Transforming Growth Factor β1 (T29C) in Breast Cancer Patients

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Introduction: TGF β is a multifunctional, homodimeric, and pleiotrophic cytokine and a molecular weight of about 25 kDa secreted by different cell types such as endothelial cells, Treg cells, and Platelets and perform several important functions in modulation of cellular growth, differentiation, and maturation, homeostasis, extracellular matrix formation, endothelial cell plasticity, angiogensis, apoptosis, immunoregulation, and cancer development. The human 25 kb TGF β is situated at 19q13 chromosome and comprise seven exons that encode three different molecular isoforms of TGF β formed by alternative splicing and have been identified to have functions in normal mammary gland development as well as in breast neoplasm.

Objective: To determine the association of single nucleotide polymorphism of transforming growth factor β1 in breast cancer patients.

Material and Methods: A total of 150 participants were selected in this study by convenient sampling technique including 80 cases and 70 controls. All investigations were done using standardized laboratory protocols and results were noted for analysis. The data was analyzed by using SPSS 21.0. The study outcomes were determined in term of association of TGF β1 in breast cancer. Descriptive statistics including frequencies and percentages and chi square test were used to analyze the data.

Keywords: Breast cancer, Single nucleotide polymorphism, Transforming growth factor, T29C

3. Cloning, expression, purification and structural studies on novel oxidoreductase and phosphoribosyl formylglycinamidine synthase from vancomycin resistant Staphylococcus aureus

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Background: The cloning and expression of proteins from pathogens in a heterologous system lie at heart of protein characterization and drug target discovery. Enzymes are fundamental players in regulating cell cycle, developmental stages and cellular metabolism. Targeting enzymes subunit either regulatory or catalytic that bring profound effect on enzyme performance would result in regulation (inhibition or activation) of a particular reaction. It would also render the subsequent pathway to be blocked or initiate.

Methodology: This study focused on two enzymes phosphoribosyl-formyl-glycinamidine (FGAM) synthase (EC 6.3.5.3) and oxidoreductase. FGAM is involved in denovo purine biosynthesis pathway [1]. The oxidoreductase showed ~45% sequence homology with TusA protein. Generally, TusA protein has a role in the basic physiological processes along with its role as a sulfur transfer protein in *E. coli* [2].

In the current study, gene for oxidoreductase and phosphoribosyl-formyl-glycinamidine (FGAM) synthase from VRSA (Mu50) were cloned in expression vector pSpeedET and transformed in to *E. coli* DH5α cells. Positive clones were screened *via* colony PCR and DNA sequencing for confirmation of in-frame insertion of the desire genes. Recombinant plasmids with 100% correct sequence from positive clones were transformed in *E. coli* BL21(DE3) cells for expression, induced by IPTG. Affinity and size exclusion chromatographic techniques were used to purify the expressed protein. NMR experiments of the purified protein were performed on 800 MHz NMR spectrometer, coupled with cryogenic probe.

Conclusion: This work can be helpful in discovering novel small molecules as drug therapy upon its submission to Protein Data Bank.

1. Association of Vaspin levels and its SNP rs2236242 with Gestational Diabetes at a tertiary care setting

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Background: Gestational diabetes mellitus (GDM) affects almost 17% women in Karachi. The likely contributor is the presence of adipokine Vaspin in the blood stream.Vaspin, also known as

serpin A12, is a 415 amino acids long hormone that is directly related to obesity and insulin resistance. Recently, the A allele of vaspin rs2236242 polymorphism has been identified to play a protective role against obesity and diabetes and it was reported that individuals with an allele had lower vaspin levels. Therefore, this study aimed to evaluate and correlate vaspin levels and the genotype frequency in gestational diabetes mellitus.

Methods: One hundred and twelve pregnant females, in their second trimester, were recruited in a case-control study. Tetra arms amplification system for the gene of interest i.e. rs223642 was performed. The anthropometric, data of each patient was recorded, and all participants gave a written and informed consent.

Results: GDM positive females had a higher BMI ($p=0.047$) and fasting blood glucose levels ($p<0.01$) versus control. Serum Vaspin concentrations were significantly lower in the control group (0.711 ± 0.24 ng/mL) than in the GDM group (1.68 ± 0.57 ng/mL) ($p=0.041$). Genotype and allele frequencies followed Hardy Weinberg's Equilibrium. The 'A' allele frequency was 40.0% and 33.58% while 'T' allele frequency was 60.0 % and 66.42 % in control and cases respectively.

Conclusion: Higher serum vaspin levels were seen in gestational diabetic females. However, no association between the SNP rs2236242 and GDM was seen. Further investigations on larger scale is required to analyse the physiological role of vaspin in the context of GDM is required.

Keywords: Vaspin, Gestational diabetes, Diabetes, Pregnancy.

2. Assessment of Potential Modifiable and Non-Modifiable Risk Factors for Breast Cancer among Premenopausal Women in Southern Pakistan

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Background: Breast cancer is the most prevailing and mortifying cancer among women of Pakistan. Now-a-days its incidence rises among young females but the pathophysiology of breast cancer remains unclear. Therefore, the goal of present study was to probe the interplay between modifiable and non-modifiable factors and risk of breast cancer among premenopausal women of Southern Pakistan.

Methods: A total of 228 breast cancer women and 503 healthy volunteers between 20 and 45years of age without a prior history of breast cancer were selected from tertiary hospitals located in Sindh, Pakistan. Potential risk factors for the breast cancer were evaluated using pretested self-structured questionnaire.

Results: The adjusted regression analysis showed that Balouchi (OR=12.93, 95%CI=4.26-39.17) and Sindhi (OR=9.41, 95%CI=4.72-18.77) ethnic groups, positive family history (OR=1.83, 95%CI=1.16-2.91), lower socio-economic class (OR=26.81, 95%CI=17.56-40.94), marital age >30yrs (OR=20.99, 95%CI=4.15-106.24), hormone replacement therapy (HRT) (OR=1.95, 95%CI=1.03-3.69), obesity (OR=1.589, 95%CI=1.03-2.46), high WHR (OR=2.69, 95%CI=1.67-4.32), apple body shape (OR=2.62, 95%CI=1.63-4.21), consanguineous marriages (OR=1.62, 95% CI=1.15-2.29)and sun exposure <1 hr/day (OR=7.56, 95%CI=3.002-19.04) were associated with the development of breast cancer among premenopausal women. Conversely, first full term pregnancy <24 years (OR=0.53, 95%CI=0.33-0.85), WHR <0.85 (OR=0.296, 95%CI=0.15-0.59) and avocado body shape (OR=0.31, 95%CI=0.16-0.61) were considered a protective factor. Some factors have lost its statistical significance during analysis and no other contributing factors (modifiable and non-modifiable) were recognized within these age brackets.

Conclusion: Ethnicity, SES, marital age, no previous pregnancy, HRT, positive history breast cancer family history, overweight and obesity, intermarriages and sun exposure are the major risk factors for breast cancer in premenopausal women of Sindh, Pakistan. Women with these risk factors can overcome the breast cancer incidence by modifying their life style pattern. Early breast cancer screening is strongly recommended for the females having these modifiable and non-modifiable risk factors.

Keywords: Breast cancer; Risk factors; Modifiable; Non-modifiable; Premenopausal

Cardiovascular & Respiration Poster Abstracts

1. Serial evaluation and inter-relationship of C-reactive protein with cardiac enzymes pattern in patients suffering from ischemic heart disease (IHD)

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Objective: To assess the serial determination and evaluation of cardiac enzymes and C- Reactive protein levels in adult patients of both sexes known to have coronary artery disease undergoing coronary bypass graft surgery (CABG) and correlation of different variables.

Materials & methods: Doctors hospital Johar town Lahore in collaboration with Chugatai's medical laboratory.

Samples were collected from 60 stable male and female cases. Out of them 30 were cases and 30 were controls .Duration was of06 months.

The serum of 60 cases was analyzed for CRP and Cardiac enzymes. The levels of CRP were done by the use of serum protein multi-calibrator. AST was done by spectrophotometric method and AST and LDH was done by colorimetric method.

Results: Understanding of the demographic basis, clinical course and treatment of ischemic heart disease (IHD) has increased substantially in the last decade. From the results we have seen that IHD patients are not only from low income groups but also from high income areas and number is quite significant among the total cardiac patients during that part.

Conclusion:

Study of relationship of inflammatory markers and cardiac enzymes with ischemic heart disease will inevitably influence considerations for treatment.

Keywords: IHD, CABG, AST, CRP, LDH, CAD

2. Insulin Resistance and Beta-Cell Function In Adolescents Of Hypertensive Patients

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Back ground: Variation of insulin resistance in hypertensive and normotensive subjects reflect glucose load.

Aims and Objectives: Study was designed to find out the insulin resistance and beta cell function in adolescent of hypertensive patients.

Material and Methods: Study included 50 adolescents with age range 17-19 years with family history of hypertension. 50 age matched subjects with no history of any disease were taken as controls. Demographics of patients were entered in Proforma. Level of blood glucose was estimated by glucose oxidase method. Level of serum insulin was estimated by ELISA. Values of insulin resistance and beta cell function were calculated by formula.

Results: Level of fasting blood sugar was mildly increased whereas the level of insulin was decreased in study subjects compared to controls. Values of insulin resistance were increased. On the other hand no change in beta cell functions.

Conclusion: It is concluded that insulin resistance is present in adolescent of hypertensive patients.

Key Words: Insulin resistance, beta cell function, adolescents, hypertension

3. Urbanization: Its Association With Noise Pollution And Compromised Hearing Capability And Its Impacts On Blood Pressure: A Comparative Cross Sectional Study

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Background: Urbanization is the escalating issue of recent years and the noise pollution especially the traffic noise is one of the major issue impacting the quality of life in terms of generally behavioral problems and particularly health issue in human. Eras are the most vulnerable organs to noise pollution. The aim of the current study thus was to correlate the traffic noise with hearing loss in noisy urbanized areas versus quiet remote and calm rural areas. The study also focuses the association of hearing loss with systolic, diastolic and Pulse pressure.

Methodology: A survey based comparative cross sectional study was conducted from July 2017 to January2018 (6 months). Young adults (male/female) 18 to 25 years of age were randomly recruited. The sample size (n) was 205.

Results: The hearing frequency in rural female (29.34Hz±8.04) was significantly (p=0.0001) less than the Urban female (49.09Hz±7.76). Similarly, the hearing frequency in rural male (5.28Hz±0.45) was also significantly (p= 0.0001) less than that of urban group (.40.56Hz±7.6). The systolic and pulse pressure (106.2mmHg±4.35and 38.88mmHg±4.8) was recorded significantly (p= 0.0001) lower in rural than Urban areas (114.2mmHg±6.03and45.76±4.8).

Conclusion: The study concludes an association of hearing capabilities with noise in urban areas.

Keywords: Urbanization, noise pollution, hearing impairment, blood pressure.

4. Association Of Anthropometric Indices With Cvd Risk Factors In Healthy Adults

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Background: Heart diseases are the major cause of morbidity and mortality in all over the world. However, Millions of peoples die each year due to Cardio Vascular Diseases (CVDs), underdeveloped countries like India and Pakistan have one of the highest risk factors of cardiovascular disease in the world. CVDs cannot be identified until it reaches at its severe stage.

CVDs can be predicted and even prevented if CVD factors are known before the diseases take place. CVD risk factors are physical inactivity, unhealthy diet, hypertension, hypercholesterolemia, diabetes and obesity. Obesity is measured with anthropometric indices, these indices are BMI, waist circumference and waist hip ratio. The association of anthropometric indices has not been extensively studied.

Methodology: In order to find out the association of anthropometric indices with CVD risk factors the cross sectional study was carried out in the district Hyderabad and Jamshoro from august 2016 to august 2017. Total 304 participants were randomly recruited from the selected region. Out of 304 participants 161 were men and 143 were women. The data was collected through interview based questionnaire; questionnaire was comprised of various sections divided into different elements. Blood sample collected for the biochemical analysis of blood sugar fasting and lipid profile. Blood Sugar Fasting recorded on Glucometer and lipid profile were performed on Merck Micro lab 300 in department of physiology university of Sindh. The informed consent was taken from the participants before collection of Data.

Results: According to BMI men were found more obese (17.4%) then women (11.9%), hence Waist circumference indicates women to be more obese (41.3) then men (26.7%). Like WC waist hip ratio are also showed more women to be obese then men. The finding presented here reflect BMI to be more reliable indicator in men to assessing CVD risk factor however in women WC was more reliable indicator for assessing CVD. WHR in both men and women is comparatively less reliable indicator for assessing CVD and directly related to WC.

In Men, BMI was positively correlated with FBS, Cholesterol, Triglyceride, LDL and VLDL, where no correlation of BMI was found with HDL. Waist Circumference was correlated with all parameters except LDL, However WC was negatively correlated with HDL. WHR was positively correlated with all parameters except LDL and HDL. The data of women respondents indicate that BMI was positively correlated with all parameters except LDL and HDL. WC was positively correlated with all parameters and WHR was positively correlated with all CVD risk factors except HDL.

Conclusion: High morbidity and mortality rates are associated with cardiac diseases. Many people die every year in Pakistan due to many cardiac diseases. This will give a piece of information on CVD risk factors on the other hand it will render valuable community service to avoid these disease. This study is often fruitful in making public health policies and give awareness to people about CVDs and risks may leads toward the CVDs.

5. Cardioprotective Efficacy Of Fenofibrate In Isoproterenol-Induced Heart Failure Rats Via Abrogation Of Oxidative Stress And Inflammation

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Background: Heart failure (HF) is a global pandemic with an estimated prevalence of >37.7 million individuals worldwide and confers a substantial burden to the health-care system. Therefore in the present study, we aimed to evaluate the cardioprotective effect of fenofibrate against isoproterenol (ISO) induced HF in Wistar rats.

Methods and results: The rat model of HF was induced by ISO administration (85 mg/kg, s.c.) at an interval of 24h on 0 and 1st day. Fifteen days post ISO injection, rats were sacrificed and rats showed significant abnormalities in ECG profile along with increased serum levels of cardiac injury markers (CK-MB), oxidative stress (MDA) and inflammatory markers (TNF-α). Treatment with fenofibrate (100mg/kg orally) significantly improved the ISO-induced ECG alterations and serum levels of CK-MB, MDA, and TNF- α.

Conclusion: Our results indicate that the fenofibrate has the cardioprotective potential as it efficiently improved the ISO-induced cardiac electrical conduction defects and cardiac injury which could be attributed to its anti-inflammatory and anti-oxidant property.

Keywords: Heart Failure (HF), Isoproterenol (ISO), Electrocardiography (ECG).

6. Association Of Diet With Cardiovascular Diseases Risk Factors In Young Adults Of District Larkana, Sindh Pakistan

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Background: Cardiovascular diseases are the cause of the mortality not only in developed but also in developing countries. Cardiovascular diseases are caused by number of factors, which are divided into modifiable and non-modifiable factors. The non-modifiable factors are age, gender, heredity and ethnicity. The modifiable factors include dyslipidaemia, hyperglycaemia, hypertension, obesity and diet. Various reports from across the globe have been documented on association of CVD risk factors with diet. However no previous study has been reported from Pakistan. This was cross-sectional study carried out in the populations living in District Larkana.

Methodology: Data was collected through interview based structured questionnaire, which had various sections divided into different elements. The blood was drawn while the participants were fasting in the morning. Systolic blood pressure and diastolic blood pressure along with anthropometric measurements were taken on the spot, whereas the biochemical analysis of the

blood for CVD risk factors was carried out in the Lab using commercial kits and protocol was followed according to manufacturer's instructions. All the participants were informed and verbal consent was obtained.

Results: SPSS 18 was used for the statistical analysis. The mean age of the participant was 29.37±8.05, Age was positively correlated (r=.488, P <.01) with fasting blood sugar. The Triglycerides and the total lipid were positively correlated with age (r= .758 P <.01, r= .477, P <.01), the increasing BMI was also correlated with CVD risk factors. In addition, the longer sleep hours had cardio protective effects. The participant consuming frequent non leafy vegetables had higher prevalence of dyslipidaemia, whereas those eating leafy vegetables did not have cardio protective effects. Fruits had positive effect on lowering CVD risk factors.

Conclusion: In conclusion, our data indicate that the age and BMI are the risk factors for cardiovascular and in addition the non-leafy vegetables increase the risk of CVDs.

Keywords: Cardiovascular diseases (CVD), risk factors, anthropometric measurements.

7. Correlation of Serum Magnesium with Hs CRP in Diabetic Patients with Ischemic Heart Disease: A Causative Factor for Progression of Ischemic Heart Disease in Diabetic Patients

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Background:*Hypomagnesaemia* and increased level of hs CRP may be an outcome of diabetic complications.

Methodology: Study was designed to find out the correlation of serum magnesium with hs CRP in diabetic patients with ischemic heart disease.This study was carried out at Sheikh Zayed Hospital, Lahore from August 2016 to October 2016. A total of 200 cases were included in the study after satisfying the exclusion and inclusion criteria. Subjects were divided into groups as A (patients of Diabetes Mellitus type 2), group B (patients of first MI), group C (patients of first MI with Diabetes Mellitus type 2) and group D (controls). Each group contained 50 subjects.

Results: Level of serum magnesium was significant decreased and level of hs CRP was significantly increased in both patients with diabetes mellitus and ischemic heart disease compared to controls.

Conclusion: It is concluded that low level of serum magnesium and increased level of hsCRP in patients with diabetes may increase the risk of ischemic heart disease.

Key Words: Serum magnesium, Hs CRP, diabetes and IHD

8. Learning Of ECG with Puzzles

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Back ground: The students learn effectively well with active learning strategies as compared to traditional approach. The objective of present study was to evaluate the effect on learning outcome of post lecture puzzles.
Methodology: This study was carried out on first year medical students. Initially a lecture on ECG was given. At the end of lecture, assessment of students was done. On the second day whole class was divided into six groups, each group comprising of 12-15 students. Each group was provided with an illustration of ECG waves, cardiac vectors, and ECG leads and were asked to recognize and label those with chips. At the end of this puzzle assessment of students was carried out by filling in the blank questions. At the end student's feedback was taken.
Results: For ECG, pre puzzle and post puzzle scores of participants were 5.23±2.06 and 6.70±2.27 out of 10, respectively. In feedback 79.5% said that it was useful for their better comprehension, 9.6% said that it was necessary and 10.89% students responded that this activity was not necessary but was useful. The passing percentage of Islamic International medical college improved by 23.1%
Conclusion: Post lectures puzzles can lead to better learning outcome. It was well appreciated by the students.
Keywords: ECG, puzzles, quizzes, questionnaire

9. The Effect Of Different Exercise Intensities On Plasma Vascular Endothelial Growth Factor (Vegf) In Healthy Volunteers

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Background: Growth process of the body requires angiogenesis that is balanced by angiogenic and angiostatic mediators in the body. Vascular Endothelial Factor is one of the prominent angiogenic mediators. The marked angiogenic effect of VEGF includes endothelial cell migration, proliferation and apoptosis.Physical activity in health individuals affects the angiogenesis pattern by promoting collateral circulation and increasing muscle mass. Physiological influences of different physical activities on plasma VEGF concentration are controversial and not completely clear. Moreover, correlation of physical characteristics and metabolic predictors during physical activity on circulating VEGF is indistinct and poorly speculated. The study aimed to determine the effects of mild and vigorous exercise on the concentration of VEGF in plasma.

Methodology: 22 participants, 16 males (age = 30.6 ± 7.8 years) and 6 females (age = 26.5 ± 5 years) were recruited. Weekly session of different intensities exercise based on the predicted maximum heart of the participants [60% (low) and 80% (vigorous) were carried out. The duration and work rate for each participant was determined through sub-maximal exercise test. Standardization of the session was done on total energy expenditure of the participants per session. One pre exercise and two post exercise samples were taken at intervals of 10 and 60 minutes.

Results: Pre-exercise mean VEGF was 75 ± 36 ng/dl. Low intensity exercise insignificantly increase the VEGF concentration in plasma at 10 and 60 minutes to 89 ± 47 ng/dl (p= 0.28) and 84 ± 41 ng/dl (p= 0.8) respectively. However, high intensity exercise increased the VEGF concentrations significantly at 10 minutes (p=< 0.017) which was not observed at 60 minutes intervals (p= 0.53). The effects were not significantly influenced by gender, exercise mode (walking vs. running), components of exercise (HR, Speed, Gradients, distance, duration) or metabolism during exercise (VO_2 max, VCO_2, RER, Energy expenditure, rate of carbohydrate or fats oxidation).

Conclusion: There is a huge interpersonal variation in basal VEGF concentration. Low intensity exercises did not influence VEGF concentration. However, high intensity exercises significantly increase VEGF concentration and may have potential benefits.

10. Association of Angiotensin II Levels in Patients of Vasovagal Syncope and Postural Tachycardia Syndrome

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Objective: To evaluate the levels of Angiotensin II in patients of vasovagal syncope and postural Tachycardia syndrome.

Methodology: It was a cross-sectional analytical study.The study took place in Islamic International Medical College, Rawalpindi and in Armed forces institute of cardiology, Electrophysiology department (AFIC) from April 2017 to March 2018.A total of 80 subjects, comprising of 35 each of vasovagal syncope, postural tachycardia syndrome and 10 controls subjects were included in the study. Subjects were selected on the basis of their syncope history and head up tilt test results. After the completion of blood sampling of all subjects, hormonal analysis of Angiotensin II was done by using ELISA method. Results were analyzed on SPSS Statistics 21 by using ANOVA test. p value of < 0.05 was regarded as significant.

Results: Hormonal analysis of Angiotensin II shows that in the vasovagal group, postural tachycardia group and in control group was 152.16 ± 91.40 Pg/ml, 170.93 ± 118.59 Pg/ml,

136.93 ± 43.18 Pg/ml respectively. In the three groups p value was 0.570 which was statistically insignificant.

Conclusion: The study concludes that Angiotensin II plays some role in pathophysiology of syncope due to their high levels in vasovagal and postural tachycardia group as compared to the control group.

Keywords: Syncope, Head up tilt test, vasovagal syncope, Postural tachycardia syndrome, Angiotensin II.

11.Cardiovascular Defects In Rap1a-Null C57bl/6 Mice

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Background: Rap1 signaling has evolved to be of great importance in the cardio vasculature and is suggestive of its role in cardiovascular diseases. The two isoforms of Rap1 are Rap1A and Rap1B with 95% amino acid sequence homology. Studies using a Rap1B-null C57BL/6 mouse model reported elevated blood pressure, increased heart fibrosis, and heart weights (1). However, the role of Rap1A isoform remained unknown.

Objectives: To examine the role of Rap1A in maintaining blood pressure and heart physiology and possible role in development of cardiovascular diseases, using a previously described Rap1A gene knockout C57BL/6 mouse model (2).

Methodology: The mouse colony was established using breeding pairs kindly provided by Mississippi State University, USA. Genotyping identified 7±2 months of male null (n=5), heterozygous (n=5), and wild-type (n=5) mice. Blood pressure was measured through non-invasive tail-cuff method. Heart weights were normalized to tibia bone length, and left ventricle gene expression was assessed by RT-qPCR.

Results: Rap1A-null mice were pre-hypertensive, with reduced heart weights compared to wild-type and heterozygous mice. Gene expression of extracellular matrix structural proteins collagen types I and III was significantly down-regulated in Rap1A-null mice ($p<0.05$).

Conclusion and Future Prospects: These studies support an essential, yet discrete role of Rap1A subtype in the cardio vasculature. Future studies will focus on identifying downstream molecules in Rap1A signaling that may be targeted for the treatment of cardiovascular diseases.

12.Correlation of Ischemic Heart Disease and High Density Lipoproteins

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Background: High density lipoproteins (HDLs) levels are an independent inverse prognostic marker of cardiovascular diseases. Low plasma levels of HDL-C are associated with increased risk of coronary artery disease (CAD).

The purpose of this review is to evaluate the potential protective effects of HDL against ischemic heart disease and the effect of dysfunctional HDL particles.

HDL functionality plays a very important role in atheroprotection. They are heterogeneous in terms of physical, chemical and biological properties and have several cardioprotective functions such as, reverse cholesterol transport; removing excess cholesterol and transporting it to the liver, antioxidative; preventing the oxidation of LDLs, anti-inflammatory; preventing systemic and local inflammatory events responsible for plague formation, maintenance of endothelial protection and integrity, antiapoptotic, antithrombotic and cytoprotective functions.

HDL is an important potential target for therapeutic intervention as preclinical trials have shown that overexpression of the major HDL protein, apolipoprotein (apo) A-I, markedly inhibits progression and even induces regression of atherosclerosis. The physiology of HDL is dependant upon genetic, environmental, and lifestyle factors and may be modified in several disease states leading to dysfunctional HDL particles which may no longer contribute to anti-atherogenicity.

Conclusion: Extensive research is being conducted to identify new agents with a favorable side-effect profile to improve HDL functionality and potentially decrease cardiovascular risk in atherosclerotic and potential IHD patients.

13.Immediate Response Of Cardiovascular System During Post Exercise Period

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Introduction: Patterns of Electrocardiograph (ECG) vary from person to person and even within a person when exposed to different physiological conditions. The current study explored the immediate stress response of cardiovascular system in early post exercise period.

Objective:

1. Investigate the post exercise cardiovascular response of normal adults to exercise.
2. Explore the variations in post exercise cardiovascular response with respect to gender.

Methodology: A prospective cross-sectional study was conducted on 50 students of both genders from 1st and 2nd year MBBS at Physiology Department, Shalamar Medical and Dental College. Heart rate (HR), ECG, Systolic and Diastolic Blood Pressure (BP) of all subjects were taken before and after walking on treadmill for 10 minutes at moderate speed. Statistical analysis was done on SPSS version 21, student t test was applied and p- value less than 0.05 was considered significant.

Results: BP and HR were higher in all subjects after the exercise test. Heart rate increased significantly from 91.30 ±16.78 to 136.81± 19.79 in post exercise period. The increase in heart rate was more in females (103.4±1.92) than males (83.63 ± 17.52) in the immediate post exercise period. The pre exercise Systolic and diastolic blood pressure increase significantly after exercise. There was a significant post exercise increment in diastolic pressure in males (84.5±8.93) than in females (78.94±3.15). QT was significantly decreased in post-exercise period in Female subjects. There was no significant difference observed in post exercise PR interval and QRS complex among males and females.

Conclusion: Heart rate and blood pressure increased significantly both in male and female subjects. QT interval decreased significantly only in females, however changes in PR interval and QRS complex were not significant.

22.Chrysin Supplementation Improves Coronary Risk Ratio (CRR) In Male Albino Rats

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Background: Chrysin is a natural flavonoid commonly found in medicinal herb as well as in many plants. Chrysin is commercially extracted to cure many diseases like inflammation, gout cardiovascular diseases and anticancer treatments.

Aim of Study: The main objective of this study was to investigate the effect of chrysin on serum cholesterol, high density lipoprotein (HDL), low density lipoprotein (LDL) and coronary risk index (CRI) in male albino rats.

Method: Sixteen Albino male rats were divided into control and test group. Control were treated with normal saline whereas 10 mg/kg of chrysin were given to rats in test group for 6 weeks including free access to water and standard rodent diet that was started 4-5 days prior to

experimental procedure. All animals were sacrificed for blood collection and their biochemical test were done by commercially available kits.

Results: Chrysin showed a significant reduction in LDL-c level (**$p < 0.01$), TC level (*$p<0.05$) as compared to control group. HDL-c levels was increased significantly (*$p<0.01$) as compared to control group. CRI ratio in chrysin treated test group was also significantly reduced (**$p < 0.01$) as compared to control group.

Conclusion: This study revealed the protective role of chrysin (flavonoids) and its association with lipid lowering potential which might involve in the prevention of hyperlipidemia and heart diseases.

Future Direction: On the basis of our results further study is needed to consolidate the functional aspects and mode of action of chrysin to treat CVDs.

14.Serum Magnesium Level is Associated With Excerbation of Bronchail Asthma

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Background: Asthma is one of the most common & important diseases worldwide with increasing prevalence. During ionic study of disease Mg^{++} was found to be associated with exacerbation as well as treatment of the disease. Magnesium causes inhibition of smooth muscle contraction by competing with Ca++, histamine release from mast cells by stabilizing outer membrane and acetylcholine release from cholinergic nerve terminals. All these processes results in relaxation of smooth muscles of bronchi which ultimately relieves the symptoms of asthma. Low magnesium level has been associated with asthma.

Material and methods: The aim of the study was to determine the serum Mg levels in asthmatics during stable and acute attack of asthma and its comparison with healthy individuals.110 Subjects were enrolled in the study after their written consent, among them 60 patients diagnosed as asthma (study group), 30 subjects with chronic stable asthma, 30 subjects with acute severe attack of asthma and 50 normal individuals as a control group.

Results: Serum Mg levels were decreased significantly in study group as compared with control group. It was further observed that there is decrease in serum Mg++in asthmatic patients during acute attack of asthma as compared with stable asthmatics. Moreover a positive correlation between serum Mg levels FEV1 and FEV1/FVC ratio was observed in the present study.

Conclusion: There is a strong relationship between asthma and serum magnesium level. It was further concluded that in asthmatics there is further decrease in serum Mg in acute exacerbation of the disease as compared to chronic stable asthma.
There is no conflict of interest between the authors of this article.

15. Effect of Passive Smoking on Neonatal Birth Weight Using Early Neonatal Salivary Cotinine Level

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Background: In obstetrical world, low birth weight has adverse outcome in later life. It is that factor which can be prevented by very small measures during the pregnancy with little effort. Passive smoking by the mother is one of the major factors that lead to low birth weight and if the mother and their house members are aware of this fact they can prevent their baby to have a low birth weight.

Objectives: The objectives of this study were to observe the relationship between cotinine level and its association with low birth weight in different groups of different exposure to smoking with control group of non-exposed mothers.

Materials and Method: This was a cross-sectional comparative study in which neonatal salivary cotinine level were measured and compared in 120 subject divided in four groups i.e. non-exposure, 1-5 cigarette exposure, 6-10 cigarette exposures and more than 10 cigarettes per day

Results: Salivary cotinine levels were raised in all the groups with maximum in group three. Mean cotinine levels in saliva are 1.05 ng/ml.

Conclusion: Salivary cotinine is a valid biomarker for smoke exposure and cotinine level in neonate has inverse relationship with birth weight

Future Prospects: Awareness of SHS hazards shall be made public, especially pregnant mothers shall be advised to take utmost care to avoid exposure not only to active smoking but also to SHS.

16.Impact Of Body Fat Distribution On Respiratory Parameters Among Healthy Adults

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Objective: To assess the impact of waist, hip and thigh circumference on respiratory parameters among the young healthy adults.

Methods: A cross sectional study was carried out in the department of Physiology, Liaquat University of Medical and Health Sciences Jamshoro, Sindh, in 2015 on one eighty volunteers having underweight, normal, overweight and obese people using by non-probability convenience sampling technique. Non-smokers males and females (non-pregnant), aged between 18-40 years with no pulmonary and cardiac disease were included in the study. Waist circumference, mid-thigh circumference and hip circumference of all the participants were recorded by anthropometry while their respiratory parameters were measured by spirometry on Power Lab.

Results: In this study waist circumference was found to have a positive association with forced vital capacity(FVC), Tidal volume (VT), inspiratory reserve volume (IRV), vital capacity (VC), total lung capacity(TLC), and functional residual capacity(FRC) and a negative association with forced expiratory volume in 1st second (FEV1) and FEV1/FVC ratio. There was no significant association found between waist circumference and expiratory reserve volume (ERV). HIP circumference was found to have a significantly positive association with FVC, VT, IRV, inspiratory capacity(IC), VC, TLC and FRC whereas thigh circumference had a significant negative association with FEV1 and FEV1/FVC ratio.

Conclusion: Our study showed that increased waist circumference, hip circumference and thigh circumference had a negative association with FEV1 and FEV1/FVC ratio, Spirometry should be performed in obese and overweight young healthy adults even if they are asymptomatic, as measures can be taken to reduce the resulting morbidity.

Key Words: Anthropometry, Spirometry, obesity, healthy

23. Fasting Serum Resistin and Blood Glucose Levels in Newly Diagnosed Male Patients of Pulmonary Tuberculosis with and without Diabetes Mellitus type 2

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Aim: The aim of this cross-sectional comparative study was to determine and compare the serum resistin and fasting blood glucose (FBG) levels in the newly diagnosed patients of pulmonary tuberculosis (TB) with and without diabetes mellitus type 2 (DM).

Methodology: Eighty four male subjects were divided into three groups. Group 1, healthy controls (n=28), group 2, newly diagnosed patients of pulmonary tuberculosis without DM

(n=28) and group 3 included newly pulmonary TB patients with newly diagnosed DM type 2 (n=28). Serum resistin and fasting blood glucose levels were determined before starting anti-TB and hyperglycemia treatment. Severity of TB was determined by analysis of sputum for bacterial load. Quantitative determination of fasting serum resistin was done by using ELISA and fasting blood Glucose by a glucose oxidase kit.

Results: Statistically significant difference was observed between serum FBG levels of the three study groups (p= 0.000). Serum resistin levels did not show a statistically significant (p= 0.098) difference between the groups. However a significant difference in serum resistin levels (p= 0.029) was observed when the TB patients were divided on the basis of bacterial load reported in sputum smear analysis into mild, moderate and severe groups.

Conclusion: Disease severity can influence serum resistin levels. Hyperglycemia present in the TB non-diabetic patients before starting ATT should be taken into consideration.

24. Serum Resistin levels as a Prognostic Marker in the Course of Anti Tuberculous Treatment

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Objective: To determine the effectiveness of ATT (anti tuberculous therapy) in patients with pulmonary TB by measuring serum Resistin levels.

Methodology: A prospective cohort study was conducted on forty five diagnosed patients of tuberculosis taken from Pulmonology Department, Military Hospital, Rawalpindi and forty five healthy age and sex matched controls were taken for comparison. After informed and written consent the blood samples of cases were taken at initiation of antituberculous therapy and then at intervals of two and four months of treatment and for controls once only at the start of the study. Samples were assessed for serum resistin levels and resistin was measured by enzyme linked immunosorbent assay.

Results: Our results showed that raised resistin levels were significantly raised in cases at time of diagnosis i.e. 43.27 ± 15.65 ng/mL when compared with controls who had serum resistin levels of 10.47 ± 1.50 ng/mL with a P value less than <0.01. After second (15.27 ± 9.55 ng/mL) and fourth month (22.0 ± 10.4 ng/mL) of treatment serum resistin also declined significantly with p value < 0.01.
Conclusion: The data suggested that serum resistin can be used as a marker of inflammation in tuberculosis thus reflecting the effectiveness of antituberculous drugs.

MSK Poster Abstracts

25.Role of Physical Activity in Mental Well Being of Medical Students of Pakistan

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Background: Now-a-days, there is high prevalence of mental disorders among general population. Physical activities improve disease outcomes but it is not an easy task for medical students to manage them in their daily routine.

Aims and Objectives: To formulate the relationship between mental status and physical activities through which we can work for the betterment of health conditions among medical students.

Material and Methods: A cross-sectional qualitative study was conducted among students of Rawalpindi Medical University during January-March 2018. Sample size was 400. Students from all five years of MBBS participated in study (female =275 male=125). The questionnaires administered were Hospital Anxiety and Depression scale (HADS) for mental status assessment and International Physical Activity Questionnaire (IPAQ) for estimating the level of physical activity.
The results were categorized into active, minimally active and totally inactive for estimation of physical activity and four classes as normal (0-7), mild (8-10), moderate (11-15) and severe (16-21) were made for assessment of anxiety and depression. Chi square test was used for establishment of relation between anxiety, depression and physical activity and for comparison of these variables with other factors.

Results: Mean age of participants was 20.54±1.866. Mean value of anxiety was 8.29±3.89 and depression was 5.49±3.31. Non-anxietic students were 43% (n=172) and non-depressed were 74.25% (n=297). Studies of particular year of MBBS also affected mental health of students and had an important role in prevalence of anxiety as shown by their relationship which was significant (p=0.03). Anxiety and depression had significant correlation (p=0.00) which shows that their occurrence among students is linked. Only 68.8% (n=86) males and 56.73% (n=156) females were active. Alliance of gender with levels of physical activity was established (p=0.007). Anxiety and depression were low among active group (p=0.05) and high among inactive group (0.069).

Conclusions: Existence of mental disarray is quite prominent and on the other hand physical activity is scarce and negligible among medical students. Their involvement in some kind of

healthy recreation can contribute to better doctors' output in future for beneficence of human being.

Key words: Medical students, physical activity, mental health, anxiety, depression

26.Role of BMI on Hand Grip Force with Respect to Gender

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Background: Hand Grip Force is due to extreme voluntary force of flexors of figures. Muscle Fatigue causes decline in Grip force. We aim to observe the role of Body Mass Index (BMI) in connection to Maximum and Mean Grip Force in young Boys and Girls through Power Lab.

Study Design: Analytical cross-sectional study. Conducted inShalamar Medical & Dental College, Lahore from November 2014 to February 2017.

Methodology: In this study by the use of convenience sampling technique, thirty participants with equal division of boys and girls were selected. The students gave a research consent after the procedure was explained to them. All were ranging between 20-23 years of age. They were with good health and with no history of present illness or on any medication nor involved in any physical fitness training procedures. Power Lab Model 26T along with hand grip transducer as hardware and Lab tutor as software were selected to get Grip force values for each participant. Direct values in percentages were obtained by following the instructions given on the respective window for recording and calibration. To record weight and height of each subject Adult Weighing Scale ZT-160 was used.

Results: Increased grip force values was observed in boys compared to girls by >300% for Maximum Grip Force, >33% for average grip force and >58% for maximum grip force just before fatigue. A direct relation was observed between BMI and grip force values in boys, although in girls this relation was inverse for Maximum grip force and grip force just before fatigue, while direct relation for average grip force values.

Conclusion: In boys the BMI was directly proportional to Hand Grip Force. However in girls, it was in inverse relation with Maximum value and grip force values just before fatigue; but in directly related with Mean grip force.

Keywords: Hand Grip Force, Power Lab, Hand Grip Transducer
Acknowledgements: We acknowledge the cooperation and support of the laboratory staff of Physiology Department, Shalamar Medical and Dental College, Lahore.

GI&Renal Poster Abstracts

1. Comparison of Liver Function Test in Smokers Versus Non Smokers

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Background: Smoking is one of the most common addictions of modern times. It has been implicated as an etiological agent for various chronic diseases, including a variety of infection, cancers, heart diseases and respiratory illnesses. Cigarette contains over 4000 chemical compounds including at least 200 toxicant. Out of which 80 are known as suspected carcinogens, whereas liver is the main site of metabolism thus liver functions test could possibly be a useful tools in clinical practice to assess potential liver diseases, to monitor treatment responses and to predict prognosis of the patients with liver diseases with the especial reference to cigarette smokers.

Objective: The aim of study is to find out the prevalence of smoking a-nd its association with liver function test.

Methods: The comparative cross sectional and/or case control study was carried out. Data was collected using self-structured questionnaire. The blood sample was collected for liver function test (LFT).The data was sorted out and analyzed by SPSS 20.

Results: Total number of participants (n) were 56.Out of which, smokers were 51.78% (n=29) and nonsmokers were 48.22% (n=27). Total Biliriburin (TB) in smokers was (0.487mg/dl±0.110) not significant (P = 0.25) as compared to nonsmokers (0.45mg/dl±0.129). However; Direct as well as Indirect Biliriburin in smokers was (0.131mg/dl±0.020), (0.398mg/dl±0.144) significantly less (P =0.008, P = 0.0009) as compared to nonsmokers (0.205mg/dl±0.144), (0.539mg/dl±0.1559). Mean Serum Glutamate Pyruvate Transminase (SGPT) in smokers was (59.75u/l±31.84) significantly higher (P = 0.0008) than nonsmokers (35.25u/l±17.00). Gamma Glutamyl Transferase (GGT) in smokers was (24.44u/l±5.741) significantly higher (P = 0.001) than nonsmokers (20.14u/l±3.655). Furthermore; Alkaline Phosphate (ALP) in smokers (264.0u/l±44.37) was not significant (P = 0.97) as compared to nonsmokers (264.4u/l±51.87).

Conclusions: Our initial findings indicate that smokers were at higher risk on liver disease than nonsmoker's .These results are alarming since liver disease might result into number of abnormalities. This study will help in making public health policies.

Key words: Smokers, Alkaline Phosphates, Total Biliriburin.

2. Over prescription of Acid Suppression Therapy in Non Intensive Care Hospitalized Patients

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Background: Proton Pump Inhibitors (PPIs) and Histamine Type 2 Receptor Antagonists (H_2 Blockers) have a high efficacy against gastroesophageal reflux disease, Barrett's esophagus, Zollinger Ellison syndrome, idiopathic chronic ulcer and NSAIDs induced ulcers. PPIs and H_2 Blockers are one of the most prescribed drugs but these are also being frequently over prescribed without clear indications. This raises the recent concern regarding their side effects including potentially life threatening Clostridium difficile enterocolitis, pneumonias and cardiovascular irregularities.

Objective: To determine the pattern of Proton Pump Inhibitor and H_2 Blocker Prescription at a Tertiary Care Hospital.

Methods: A cross sectional study was conducted in medical wards of a tertiary care hospital at Rawalpindi. Patients admitted in medical wards were included via non probability convenience sampling. Data regarding patient's age, gender, PPI or H_2 Blocker prescription and reason for prescription was entered on structured forms. Descriptive analysis was done via IBM SPSS.

Results: 316patients were included in our study out of which 60.1% (n=190) were males and 39.9% (n=126) were females with ages between 13-98 years mean 52.17±19.88 years. 91.1% (n=288) patients were prescribed either PPIs or H_2 Blockers. Out of which 30.2% (n=87) were prescribed PPIs or H_2 Blockers for stress ulcers prophylaxis, 19.4% (n=59) for steroid induced gastritis prophylaxis, 15.3% (n=44) for Upper GI bleeding prophylaxis, 11.1% (n=32) for NSAID induced gastritis prophylaxis, 1.4% (n=4) for GERD or gastritis while 25.3% (n=73) were prescribed without clear indications.

Conclusion: PPIs and H_2 Blockers are over prescribed without clear indications among hospitalized patients.

Keywords: Proton Pump Inhibitors, Histamine Type 2 Receptor Antagonists, over prescription

3. Curative Potential of Quercetin Against CCl_4-induced Hepatotoxicity in Rats

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Background: The metabolism-dependent liver and renal damage is obvious since liver is the site for the metabolism and transformation of various drugs and drug metabolites. This study therefore was designed to experimentally construct an experimental rat model of chronic liver disease (liver cirrhosis) through repeated doses of Carbon tetra chloride (CCl_4) and to assess the protective effects of a flavonoid Quercetin abundantly found in various fruits and vegetables. Exposure to CCL_4 in rats leads to the formation of trichloromethyl and trichloromethyl peroxy radicals that result in the oxidative alteration of proteins, thereby creating oxidative stress.

Methodology: Healthy male Albino Wistar rats weighing 200-250 gm were taken. Quercetin was obtained and extracts was made as per standard procedures. The experimental phase lasted for 60 days. The rats were randomly allotted into one of the four experimental groups: I; (Control: received 2 mL/kg normal saline), II; (CCl_4-treated: received CCl_4, 0.8 mL/kg of body weight, subcutaneously, twice a week) & III; (CCl_4+Quercetin treated: received 1mL/kg b.wt. Quercetin extract daily+ 0.8 mL/kg b.wt. CCl_4 two times a week) & Group IV; (Quercetin treated: received 1mL/b.wt. daily dose of Quercetin extract via gavage). Hematological parameters and liver enzymes were evaluated using standard methods.

Results: The administration of CCl_4 induces hematotoxicity indicated by a reduction in RBCs, PCV and Hemoglobin with significant elevation in WBCs count ($p<0.05$). The supplementation of the treated groups with quercetin extract significantly improved the RBCs, PCV and Hemoglobin levels ($p<0.05$) with a reduction in WBCs count ($p<0.05$).

Conclusion: Our study showed a significant reduction in liver enzymes ($p<0.05$) exhibiting hepatoprotective; and improvement in the hematologic parameters indicative of the anti-hematotoxic potential of quercetin in the treated rats.

Keywords: Quercetin, hematotoxicity, CCl_4, hepatotoxicity

4. Association Of High-Density Lipoprotein Cholesterol With Improvement Of Endothelial Dysfunction Recovery In Renovascular Disease

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Introduction. This study was aimed to assess the ratio of total cholesterol (TC) to high-density density lipoprotein cholesterol (HDLC) and plasma nitrate levels in patients with ischemic nephropathy receiving statins and niacin extended release (NER).

Materials and Methods. Kidney disease patients with a history of at least 5 year of diabetes mellitus or 10 year of hypertension were screened by renal artery Doppler ultrasonography. Participants were randomly assigned into two groups to receive atorvastatin, 20 mg/d, with and without NER, 500 mg/d, for 16 weeks. Serum levels of lipid profile, creatinine, and nitrate were compared before and after the study.

Results. Fifty-four patients received the statin and 51 received statin-NER combination. Both statin and statin-NER groups demonstrated significant decreases in plasma levels of TC and low-density lipoprotein cholesterol. Triglyceride and very low-density lipoprotein cholesterol were significantly lowered only with statin-NER combination. The increase in HDLC level was found in both groups, but significant only with statin-NER combination therapy ($P< .001$). Atorvastatin combined with NER reduced TC/HDLC ratio almost double as compared with that of atorvastatin alone (102% and 36.6% reduction, respectively). A similar pattern was observed for nitrate levels (33% and 65%, respectively).

Conclusions. These findings indicated that a reduction in TC/HDLC ratio improves endothelial function in renovascular disease and use of NER in combination with atorvastatin may provide better outcomes. This could be helpful in attenuating further vascular damage and associated systemic complications.

Key Words: HDL-C, NiacinER, Renovascular disease

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