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KEYNOTE LECTURE

MATHEMATICAL MODELING IN PUBLIC HEALTH SUCCESSES & CHALLENGES

Professor Dr Nicolaas Jan Dirk Nagelkerke
Adjunct Professor, University of Manitoba, Canada

Decision making in Public Health, e.g. regarding disease screening or vaccination strategies, should be evidence based. Evidence can come from clinical trials, epidemiological studies, and routinely collected data. Yet, available empirical evidence in Public Health is rarely sufficient or specifically tailored towards a specific decision problem. The solution is to use mathematical modeling to integrate all available evidence and understanding regarding a problem. This use of modeling can be traced back to Daniel Bernouilli (1766) who used mathematical modeling to argue that the benefits of variolation against smallpox exceeded its risk. Later Ross used mathematical modeling to argue that there is a threshold >0 in mosquito density below which malaria transmission would be interrupted. Currently, mathematical modeling is an active and extensively researched field that has been successfully applied in many areas of public health. Its greatest successes are in the area of infectious diseases where the complexities of spread – e.g. vaccinating one person may protect his contacts- make “intuitive” arguments unreliable. Yet, challenges remain. Empirical knowledge is rarely without gaps and simplifications are always needed. Ensuring that such simplifications do not affect the conclusions drawn from the model is as much an art as a science.

PLENARY

IMPACT DRIVEN RESEARCH

Professor Dr Zabidi Azhar bin Mohd Hussin
Vice Chancellor, Perdana University

Research is, by definition, an attempt to find out the truth, not discovered previously. The newly discovered truth will subsequently be rigorously challenged by peers and community at large and if accepted, will add to the body of new knowledge. Meaningful research is surely one that gives a significant impact to the community, both scientific and the lay public. This impact is usually measured by the number of times that particular research findings are cited by other researchers in related fields. However, the real impact of research can only be gauged if the findings make the slightest difference to the community at large and not just to the community of peers. Its challenges are therefore to find ways to bridge the gap between the community and the scientific peers and also to translate complicated research jargons to common and understandable phrases that will produce important impacts. Some of the strategies to achievethis include greater involvement of the general public in Research and Ethics Committees in order to make researchers fully accountable to the community. A powerful audit mechanism to serve as checks and balances is also needed.

RESEARCH INNOVATION IS THE KEY TO THE FUTURE

Tan Sri Dato' Dr Abu Bakar Suleiman
President, International Medical University

Research at IMU is now integrated under the IMU Institute for Research, Development and Innovation (IRDI). IRDI serves as a platform to support all research activities at IMU. A brief outline of IRDI's areas of priorities, research and other output will be presented. As countries invest in research to improve the country's competitiveness in various arenas, the consideration of rate of return to investment becomes a relevant measure of progress. A report prepared for the Department of Business, Innovation and Skills in the UK have shown positive rates of return to investment in science and innovation. In the USA, the Centre for American Progress has also showed positive returns for publicly funded research. The types of returns reported will be described. In the UK, there was some evidence that R & D funding channelled through research councils lead to higher social returns than R & D conducted by government departments or channelled through higher education. The lag time between private R & D and commercialisation was 1-3 years, while for public R & D, the lag time was much longer. Some exciting opportunities in the biomedical research area include making greater advantage of high-throughput technologies, greater focus on accelerating translational research and getting research results into health, completely transforming healthcare, and giving more support into biomedical research. Communicable disease and antibiotic resistance remain major challenges as non-communicable diseases become a major burden. About 50% of Malaysians are overweight or obese, depression and mental health and seeking effective, personalised therapies for cancer are among the priority areas for research. The performance of the Malaysian healthcare delivery system and related issues will be discussed in relation to priority areas for research.

CHANGING THE WORLD THROUGH INTERDISCIPLINARY RESEARCH AND COLLABORATION

Senior Professor Dato' Dr Khalid Yusoff
Vice Chancellor and President, UCSI University

The Helsinki Declaration Section 6 stipulates that the primary purpose of medical research is the improvement of treatment. The question is whether it is possible for a researcher in Malaysia or even in this university to contribute to the world in medicine and health, thus enhancing medical practice worldwide, and hence change the world for the better. Malaysia is well-endowed with a rich display of flora and fauna. Malaya had contributed to medical practice in the field of tropical medicine, and latterly Malaysia in cardiology. Our rich genetic and cultural diversity, and current sophisticated well-trained personnel add further value to our inherent competitive advantages. But we need to raise our aspirations and break the glass-ceiling. Doing research should not just to satisfy employment requirement or justify a position. Doing research is to satisfy one's own curiosity and to satisfy a wish to make a difference. And there are ways to expedite and facilitate one's research endeavours. Interdisciplinary research and collaboration is one sure way. This will be elaborated and exemplified in this lecture.

SYMPOSIUM

PERSONALIZED MEDICINE IN TREATING CANCER PATIENTS

Professor Dr Woo Yin Ling
Department of Obstetrics and Gynaecology, Faculty of Medicine, Universiti of Malaya

Precision medicine or personalized medicine is increasingly adopted into the management of gynaecological cancers. To incorporate personalized medicine into meaningful clinical care, physicians need to have a basic understanding of the science. In the era of genetics, epigenetics, metabolomics, proteomics, bioinformatics, how does a clinician keep abreast with the rapid development of techniques? In this brief talk, some of the current issues surrounding personalized medicine will be highlighted.

CARDIOVASCULAR DISEASE MANAGEMENT: TARGETING THE ROOT CAUSES

Senior Professor Dato' Dr Khalid Yusoff
Vice Chancellor and President, UCSI University

Cardiovascular disease is multifactorial in aetiology and multidimensional in manifestation. Its increasing prevalence, great impact on life and living but highly amenable to intervention. Yet it continues to extract excessively huge morbidity and mortality toll, and imposes astronomical financial burden and resources. It cannot but draw a sustained attention. This complex milieu calls for not just a concerted but a sophisticated, all-inclusive effort on the individual carers and the caring system. Addressing the manifestation of disease alone is not enough, a demonstrable improvement in prognosis by the intervention is required. But attention has to focus on the delivery system too, which includes the healthcare and the financial systems. Patient education is necessary, so are the prevailing views about the disease and its treatment. The patient is central to patient-doctor interaction, but so is the family and even the society. Tackling the issue piecemeal is like adding salt to sea, and expect the sea to be saltier.

PHARMACOGENOMICS AND FUTURE CLINICAL PRACTICE

Professor Dr Gan Siew Hua
Human Genome Centre, Universiti Sains Malaysia

It has been estimated that at least one third of money spent on prescription drugs (or > USD100 billion/year) is wasted yearly in the United States alone. Unfortunately, even in the modern years, a considerable proportion of patients are still prescribed medications that are either dangerous or ineffective. It has been reported that on average, only 25 - 60% patients respond positively to their treatment, thus implying that a large percentage of patients still do not receive proper medication or suffer from significant therapeutic delays. As a result, medicines are switched from one drug to another until some clinical benefits are attained. Pharmacogenetics is predicted to help solve some of these issues in the near future. However, many challenges in its implementation into clinical practise exist to varying degrees on several parties.

ROLE OF METABOLOMICS IN DISEASE MANAGEMENT

Dr Richard Muhammad Johari James
Research Fellow, iPROMISE, Universiti Teknologi MARA

Metabolomics is a rapidly growing field that can simultaneously quantify numerous of small molecules present in biological samples such as cells, tissues and biofluids. This enables simultaneous quantification of several metabolites to identify metabolic perturbances that might provide insights into disease. It is a powerful approach towards understanding regulation of metabolic pathways and metabolic networks of a biological system. Personalized medicine, the ultimate customization of healthcare, requires metabolomics for quick medical diagnosis to identify disease. In healthcare, classical biochemical tests are currently used to measure individual metabolite concentrations to identify disease states (e.g. the blood-glucose level in the case of diabetes). Metabolomics offers the potential for the rapid identification of hundreds of metabolites, enabling the identificationof disease states much earlier. Biomarker discovery is another area where metabolomics informs decision making. Biomarkers are objective indications of medical state observed from outside the patient - which can be measured accurately and reproducibly. In metabolomics, biomarkers are small molecules (metabolites) that can be used to distinguish two groups of samples, typically a disease and control group. For example, a metabolite reliably present in disease samples, but not in healthy individuals would be classed as a biomarker. Samples of urine, saliva, bile, or seminal fluid contain highly informative metabolites, and can be readily analyzed through metabolomics fingerprinting or profiling, for biomarker discovery.

SOCIAL MEDIA IN PROMOTING PUBLIC HEALTH: PROS & CONS

Dr. Feisul Idzwan Mustapha
Public Health Division, Ministry of Health Malaysia, Putrajaya, Malaysia

Public health promotes and protects the health of people and the communities where they live, learn, work and play. To accomplish the aims of public health practice and policy today, new forms of communication and education are being applied. In this regard, social media are increasingly relevant for public health. Social media is used to support, promote and increase the spread of information and data in order to improve both personal and community health practices. Social media is fast, inexpensive and efficient. Furthermore, it encourages two-way communication, sharing information and feedback from both sides, improve trust and it is proven to be as a novel surveillance tool. However, there can also be risks in using social media in disseminating health information in public health. Potential to breach the public privacy, spreading of medical myths and validations of social media information are among the risks that public health practitioners need to anticipate. Incorrect use of social media can potentially create negative feedback and tarnish public health practitioners' reputation. In conclusion, social media is becoming more prominent in disseminating health information right now and in the future. As a public health practitioner, it is important to have adequate skills and knowledge in handling social media

USE OF TECHNOLOGY IN MEDICAL EDUCATION: RECENT ADVANCES

Professor Dr Suneet Sood
Jeffrey Cheah School of Medicine, MONASH University

Technological advances influencing education may be categorized into a. systems that improve delivery, and b. systems that teach or assess. Examples of the former are learning management systems (e.g. Moodle), podcasts (e.g. online lectures), online collaboration sites (social media, online boards), and mobile learning facilities (laptops, smartphones). Examples of the latter are the online resources (informative websites, youtube), Teaching Electronic Health Records (tEHRs) (de-identified EHRs), electronic portfolios, virtual patients (manikins), assessment systems (online exams, clicker systems), and feedback systems (including online feedback systems). (There is some overlap between the two categories.) Virtually every advance directly or indirectly involves computers. The technologies have helped in three ways, by making education easier, better, and different. Most of us are quite aware of two ways in which technology has changed education: by making things a. easier, and b. better. For example, the internet and podcasts have made life easier for students and teachers by removing, to a degree, the constraints of physical space and time. PowerPoint has made slide presentations better by allowing animations and embedding of audio and video files, simulation may have made clinical medicine better by lowering patient risk, and software has improved assessment standardization. However, we often disregard the third manner in which technology has changed education: by making it different. With almost unlimited learning resources quite literally available in a student's palm, the teacher should probably downgrade the time-honored role of imparter of information. The teacher's role should now, arguably, focus on assessment, feedback, and standard-setting.

ETHICAL ISSUES AND CHALLENGES IN ANIMAL RESEARCH

Professor Dr Harbindar Jeet Singh
Faculty of Medicine, Universiti Teknologi MARA

The use of animals in biomedical research stretches back to about 500 BC. However, at that time no philosophical or moral objections seem to have been voiced, probably because the animals were considered non-sentient. This view however changed by the middle of the 19th century with the formation of anti-vivisectionist movements and legislations on animal use in research in some countries. The current utilitarian-based view maintains that some animal experimentation may be morally permissible because of the potential benefits to medical science. Ethical issues in animal experimentation, however, centre on the suffering endured by the animals during experimentation and the poor translation of animal research to medical practice. In recognition of the fact that a significant amount of animal research that is being done might not be beneficial to humans the 3R (Replacement, Reduction and Refinement) practice has been introduced. It is hoped this will help reduce the use of animals and improve care of research animals. Translation from basic research to clinical practice could be improved by ensuring that only necessary studies are done. A systematic review must be done before any animal study is proposed. Only when there are no other alternatives available that animal studies should be permitted. In addition, it has to be ensured that the experimental designs are correct with adequate power, right animal models are used, research is published and no publication bias. As Altman in his report in 1994 stated "we need less research, better research and research done for right reasons".

FREE COMMUNICATIONS

Page

FREE ORAL COMMUNICATION

POSTER PRESENTATIONS

FREE ORAL COMMUNICATIONS

O-001

Tobacco Quitting Status and its Relation to Sociodemographic Characteristic among Coronary Heart Disease Patients

Nor Faridah Ahmad Roslan, Waqar Abd Al Qahar Al Kubaisy, Nadia Mohd Mustafah, Aliff Zhafran Nordin, Nurul Huda Othman, Nur Hanis Sanusi

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Introduction: To identify the relation between tobacco quitting status and sociodemographics of CHD patients. **Methods:** A cross sectional study was conducted at UiTM Specialist Centre among patients with coronary heart disease who are still smoking or quit smoking after CHD diagnosis. All patients were interviewed face to face. **Results:** Majority of 180 CHD patients were (85%) males. Their mean age was 59.88 ± 11.41 years, 128 (71.1%) were quitters. Quitters were significantly older than non-quitters [62.23+10.75 vs 54.08 + 10.99], P = 0.001. Female quitters were significantly greater in number, almost 2 times, than males (OR 1.95 95% CI: 0.697-5.464). Married patient and those above 40 years of age had significantly higher rate of quitting (p = 0.037, 0.001 respectively). No significant association was observed with ethnicity, education level and comorbidities. Single vessel blockage and multiple vessels occlusion were detected in 52 and 116 patients respectively. Significant association was found between duration of smoking and number of occluded vessels (p= 0.019). **Conclusion:** Old age, marital status and longer duration of smoking are significant factors for quitting smoking among CHD patients.

KEYWORDS: Tobacco, Coronary Heart Disease, Quit Smoking, Cessation

O-002

Resibufogenin Prevents Leptin-Induced Increases in Blood Pressure and Markers of Endothelial Activation During Pregnancy in Sprague Dawley Rats

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Introduction: Leptin administration has been shown to increase systolic blood pressure (SBP), urinary protein excretion and markers of endothelial activation during pregnancy in rats. Marinobufagenin (MBG) has been implicated in hypertension and proteinuria of pregnancy. The link between leptin-induced increase in blood pressure and marinobufagenin is unknown. It is also unknown if resibufogenin, an MBG antagonist, could prevent these. This study investigated the effect of resibufogenin on

leptin-induced raised blood pressure during pregnancy in the rat. **Methods**: Forty-eight female Sprague-Dawley rats, aged 12 weeks were randomized into Group 1 (normal saline control), Groups 2, 3 and 4 (given 120µg/kg/day of leptin (LEP), 120µg/kg/day of leptin +30µg/kg/day of resibufogenin (L+RBG) and 30µg/kg/day of resibufogenin (RBG) respectively from Day 1 of pregnancy). SBP, body weight and 24-h urinary protein were measured at Days 0 and 20 of pregnancy. Animals were euthanised on day 21 of pregnancy for estimation of fetal number, fetal weight and placental weight and for serum analysis of VCAM-1, ICAM-1, E-selectin and Endothelin-1. Data were analysed using ANOVA. **Results**: Compared to the control group, SBP, urinary protein excretion, serum VCAM-1, ICAM-1 and Endothelin-1 were significantly higher whereas fetal weight was significantly lower in LEP ($p<0.05$). No significant differences were evident in these between control and L+RBG groups. No significant differences were evident in the rest of the parameters between the four groups. **Conclusion:** Resibufogenin prevents leptin-induced increases in SBP, proteinuria, markers of endothelial activation and decreases in fetal weight implicating the possible involvement of MBG in these.

KEYWORDS: Leptin, resibufogenin, hypertension

O-003

Possible Involvement of RAAS in the Blood Pressure Lowering Effect of *Ficus deltoidea kunstleri* in Spontaneously-Hypertensive Rats

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Introduction: Our previous studies have shown that oral administration of FDK reduces blood pressure in spontaneously hypertensive rats (SHR). However, the precise mechanism for this remains unclear. This study therefore examined the changes in renin-angiotensin-aldosterone system (RAAS) and serum and urinary electrolytes concentrations in FDK-treated SHR. **Methods:** Six groups of male SHR were orally administered with vehicle (group 1), FDK 500, 800, 1000 and 1300 mg/kg (groups 2- 5, respectively) or losartan 10 mg/kg (Group 6) for 4 weeks. Blood pressure (BP) and body weight were measured weekly. Twenty-four-hour urine was collected at weeks 0 and 4 for electrolytes analysis. At week 4, the FDK extract group with maximal anti-hypertensive effect was chosen for measurement of RAAS components in serum as well as electrolytes concentration in serum and urine. **Results:** FDK extract at 1000 mg/kg dose showed maximal antihypertensive effect in SHR and this effect was associated with significant increase in angiotensinogen concentration and reduction in both angiotensin II and aldosterone concentrations. No changes were found in concentrations of other RAAS components or in serum and urinary electrolytes. No significant differences in body weight were evident between the groups. **Conclusion:** It is likely that the anti-hypertensive effect of FDK involves the

renin-angiotensin aldosterone system. There is possibility that the anti-hypertensive effect of FDK might also involve other pathways such as the anti-oxidant system or endothelial functions.

KEYWORDS: *Ficus deltoidea kunstleri*, Hypertension, Spontaneously hypertensive rats

O-004

Discordance Between Asthma Control and Perceived Symptoms in Patients with Asthma

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Introduction: Studies have shown that asthma patients tend to underestimate their asthma symptoms and overestimate their level of control. The main objective of this study was to assess and classify asthma control based on the Asthma Control Test (ACT) scores compared to the patients' perceived control. **Methods:** This study was conducted in the Respiratory clinics at UiTM Selayang and Sungai Buloh campuses. A total of 165 patients were included in this study between 1st April and 30th November 2016 during recruitment for the S-WAAP study (Symptoms-Written Asthma Action Plan study). The ACT scores were used to classify asthma and levels of control. Patients rated their perceived asthma control based on whether they perceived it was "controlled", "partly controlled" or "uncontrolled". Baseline patient characteristic during recruitment visits were recorded. All data were analyzed using SPSS version 22. **Results:** This study showed 50.6% of the patients were classified as having controlled asthma (ACT 20-25), 26.5% had partly controlled asthma (ACT 16-19) and 22.9% of the patients had uncontrolled asthma (ACT <16). There was a significant difference between patient perceived asthma control and ACT scores (p 0.001) with a trend to overestimate their asthma control. There were higher numbers of emergency visit, hospital admission and days off work in partly controlled asthma (ACT 16-19) compared to controlled asthma (ACT > 20). **Conclusion:** Majority of our asthma patients have controlled asthma as defined by ACT scores. However, patients tend to overestimate their asthma control and underestimate asthma symptoms.

KEYWORDS*:* Asthma, Asthma Control Test, patient perceived asthma control

O-005

Effectiveness of NIV in Acute Respiratory Distress Children in a Tertiary Centre Without a PICU

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Introduction: Hospital Selayang is a tertiary referral center for paediatric nephrology, rheumatology, hepatobiliary/gastrointestinal unit and general paediatrics. Being a center without a paediatric intensive care unit (PICU), all children with acute respiratory distress needing mechanical ventilation were either admitted to adult ICU or transferred to other hospitals depending on bed availability. This contributes to an overall increase in length of hospital stay of patients, cost and use of resources. PHDU was set up in Hospital Selayang in January 2017. It is a 4-bedded unit, which functions as a level 3 critical care area for children. It offers the use of non-invasive ventilation (NIV) as a means of mechanical ventilation. The objectives of this study were to (1) evaluate effectiveness of NIV in reducing the need for endotracheal intubation, ICU admissions and transfer to other tertiary centres (2) determine if NIV reduced length of hospital stay (3) determine the cost effectiveness of NIV usage pre and post PHDU setup. **Methods:** A prospective observational cohort study of all paediatric patients requiring mechanical respiratory support from August 2016 till May 2017. PHDU setup is the intervention. **Results:** A total of 169 patients were admitted with 74 patients in respiratory distress. The rate of invasive ventilation reduced by 80% post-intervention. The rate of non-invasive ventilation increased by 1025%. 7 patients requiring invasive ventilation were transferred pre-intervention none post intervention. **Conclusion:** NIV is effective in reducing the need of endotracheal intubation, ICU admission and the length of hospital stay. NIV usage is cost effective.

KEYWORDS: NIV, respiratory distress, PICU

O-006

The Effects of Indoor Rowing Exercise on Mid-Thigh Intermuscular Adipose Tissue Volume in Obese Subjects

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Introduction: Intermuscular adipose tissue (IMAT), located in spaces between skeletal muscle bundles and beneath muscle fascia, is a fat depot with health implications. Studies have shown that IMAT volume decreased following either aerobic or resistance exercise training in obese subjects. Rowing is a form of combined aerobic and resistance exercise. However, the effect of indoor rowing exercise on IMAT volume is not known. This study determines the effect of a 12-week indoor rowing exercise program on mid-thigh IMAT volume in young obese subjects. **Methods:** Twelve young obese males and females (aged 18-35 years, BMI ≥30kg/m^2) self-divided into an Intervention and a Control Group (n=6 respectively). The Intervention Group performed a 20-minute indoor rowing exercise session at moderate to high intensity (60-85 % HR_{max}) 3 times per week for 12 weeks. Subjects in the control group continued with their daily physical activities as per their normal routine. Bilateral mid-thigh (quadriceps) IMAT volume in both groups was determined using MRI scans at week 0 and 12. IMAT volume was then quantified using Matlab software. **Results:** There was no significant difference in IMAT volume between control and exercise groups either before or after exercise. In addition, there were also no significant changes in IMAT volume following indoor rowing exercise.

Conclusion: Indoor rowing exercise at moderate to high intensity did not seem to significantly affect mid-thigh IMAT volume in young obese subjects. This could be due to the small sample size, gender mix, exercise regimen or lack of dietary restriction among these subjects.

KEYWORDS: obesity, IMAT, indoor rowing, resistance exercise, aerobic exercise

O-007

Screening of Anti-Dengue Virus Activity of N-Substituted 5-Phenylaminouracil Derivatives on Vero 76 Cells

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Introduction: Dengue fever which is caused by dengue virus (DENV) is a global health concern. Novel N-substituted 5-(phenylamino) uracil derivatives have recently demonstrated positive activity against HIV and Hepatitis C Virus (HCV). The similarities in genomes of DENV virus and HCV suggest the potential anti-dengue virus effect of these compounds. However, their activity against DENV has not been assessed so far. The objective of this study is to assess anti-dengue virus activity of N-substituted 5-phenylaminouracils compounds in Vero-76 cells. **Methods:** Vero-76 cells were seeded in 96 well plates and incubated in Dulbecco's modified Eagle's medium (DMEM) overnight at 37°C with 5% CO_2. Then, DENV type-2 with the MOI of 0.5 and each of the tested 11 compounds in concentrations ranged from 1.5 to 100 µM were added into each well in triplicates, and the plates were incubated for 96 hrs at the conditions described above. Vero-76 cells cultured in DMEM only, either cells cultured in DMEM and DENV-2 (MOI 0.5) or DMEM and tested compounds were used as positive and negative control groups. After 96 hrs percentage of cell viability was determined by using MTS assay. Morphological observation of cytopathic effect and statistical analysis were also performed. **Results:** Vero-76 cells cultured with DENV2 showed significant ($p<0.001$) reduction in cell viability compared to that treated with DMEM only. None of the tested compounds demonstrated ability to significantly increase cell viability of Vero-76 cells treated with DENV2. **Conclusion:** Novel N-substituted 5-phenylaminouracil derivatives failed to inhibit dengue virus activity in cultured Vero 76 cells.

KEYWORDS: N-substituted 5-(phenyl)aminouracil derivatives, dengue virus, Vero 76 cells

O-008

Effectiveness of Dengue Campaign Towards Knowledge, Attitude and Perceptions: A Case Study At Taman Selasih, Kulim and Taman Muslim, Kuala Ketil, Kedah

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Introduction: This study attempts to evaluate the level of knowledge, attitudes and perceptions of public on dengue campaign. A cross sectional survey was conducted in Kedah focusing on cluster and non-cluster dengue area. The Taman Selasih and Taman Muslim has been chosen to represent cluster and non-cluster area respectively. **Methods:** A systematic random sampling has been employed in selecting respondents. The data was collected using self-administered questionnaires. 84 samples from Taman Selasih and 77 samples from Taman Muslim have been collected. The questionnaire consists of five sections; demographic profiles, methods of dengue campaign, level of knowledge, attitude and perceptions. Partial Least Squares (PLS) approach to Structural Equation Modelling (SEM) has been used to test the hypotheses of this research. **Result:** The result for non-cluster area shows that electronic media, social media and talks affect attitude at 5 percent significant level and the path coefficients values were 0.000, 0.019 and 0.048 respectively. On the same area, the electronic media, social media and talks also have a significant effect towards knowledge since the path coefficients value are 0.000 and 0.048 respectively. However, electronic media has a significant effect towards knowledge, attitude and perceptions in cluster area. Whereas, printed media has significant effect towards perceptions. **Conclusion:** The level of knowledge, attitude and perceptions of public are influenced by electronic media in both area. Electronic media play important role to spread news on dengue.

KEYWORDS: attitude, cluster area, dengue, knowledge, non-cluster area

O-009

PI3K Pathway Inhibitor Prevents Leptin Induced Adverse Effects on Sperm Count and Morphology

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Introduction: Exogenous leptin administration exerts adverse effects on sperm count and morphology in rats. However, the exact mechanism for this is still unknown. The PI3K signalling pathway is among the probable pathways through which these effects might be mediated. This study therefore examines the effects of PI3K pathway

inhibitor, LY294002, on sperm count and morphology in leptin-treated rats. **Methods:** Male Sprague-Dawley (SD) rats, aged 14-16 weeks, were given intraperitoneally either 0.1 ml of normal saline (Control-G), or 60 µg/kg of leptin (Leptin-G), or 60 µg/kg of leptin + 1.2 mg/kg of PIK3 inhibitor, LY294002 (Leptin-I-G) for two weeks. Body weight and food intake were recorded at days 1 and 14. Animals were euthanized at day 15. The epididymides and testes were excised and weighed. Total sperm count and percentage of sperm with abnormal morphology were determined. Data were analysed using ANOVA. **Results:** There were no significant differences in body weight, organ weight, or food intake between the groups over the 2 weeks. Sperm count was significantly lower in the Leptin-G when compared to that in the Control-G ($P<0.05$) and Leptin-I-G ($P<0.001$). The fraction of sperm with abnormal morphology was significantly higher in Leptin-G when compared to that in Control-G ($P<0.05$) and Leptin-I-G ($P<0.01$). **Conclusion:** PI3K pathway inhibitor when given via the intraperitoneal route at a dose of 1.2 mg/kg/day for 14 days prevents the adverse effects of leptin on sperm parameters; suggesting the involvement of the PI3K signalling pathway in the adverse effects of leptin on sperm parameters.

KEYWORDS: Leptin, Phosphatidylinositol 3-kinase (*Pi3K*) pathway, LY294002

O-010

Identification of Potential Serum Biomarkers for Molar Pregnancy and Gestational Choriocarcinoma Using 2D Gel Electrophoresis/MALDI-TOF

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Introduction: Gestational trophoblastic disease (GTD) is a condition in which there is an abnormal growth of the placental trophoblastic tissue after conception. It comprises group of disorders of benign conditions such as hydatidiform moles, molar pregnancy and the malignant forms such as invasive mole, choriocarcinoma (CC), placental site trophoblastic tumour (PSTT) and epithelioid trophoblastic tumour (ETT). Currently, GTD is diagnosed by high hCG level, ultrasound, and histopathological examination. This study aims to investigate the potential serum biomarkers for GTD especially molar pregnancy and choriocarcinoma. **Methods:** Briefly, serum samples collected from 24 normal pregnancy women, 12 molar pregnancy patients and 4 choriocrcinoma patients were subjected to measurement of hCG levels using ELISA, followed by 2D-Gel Electrophoresis. The results obtained were compared against normal pregnancy and analyzed by using Progenesis Samespot software (Totallab). Differentially expressed protein spots were then excised and identified using MALDI-TOF Mass Spectrometry. **Results:** The findings showed that 8 different proteins have been identified from the comparisons made against normal pregnancy. Alpha-1-acid glycoprotein, Apolipoprotein A-1, Ig gamma-1 chain C region, Ig kappa chain C region and clusterin were upregulated in both molar pregnancy and gestational choriocarcinoma. However, serotransferrin, Ig gamma-3 chain C region, and human serum albumin were downregulated. **Conclusion:** Early identification of the presence

of specific serum markers in gestational trophoblastic disease will enable the physicians for early diagnosis, treatment and complete remission of the disease. Extensive studies should be done to further investigate the roles of these proteins in the pathogenesis of GTD.

KEYWORDS: gestational trophoblastic disease, biomarkers, molar pregnancy, gestational choriocarcinoma, proteomics

O-011

Tocotrienol Prevents Impairment of Epididymal Sperm Fertilizing Capacity of Corticosterone-Treated Rats

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Introduction: Excess corticosterone increases reactive oxygen species levels leading to oxidative stress. This study aims to investigate the protective role of tocotrienol, a potent chain-breaking antioxidant, on epididymal sperm fertilizing capacity of corticosterone-treated rats. **Methods:** Epididymides of fertile male rats were surgically-separated at the testis-caput junction. Twenty-four hours post-surgery, animals received the following treatment daily for seven days: Tocopherol-stripped corn oil (Control), corticosterone 25 mg/kg s.c. (CORT), CORT 25 mg/kg s.c. + tocotrienol-rich fraction (TRF) 100 mg/kg orally (CORT+TRF) or TRF 100 mg/kg orally (TRF). On day eight, the males were co-habited with cyclic proestrus females. A sperm-positive vaginal smear indicated pregnancy. Males were euthanized and central blood collected for analysis of testosterone, malondialdehyde and antioxidant enzymes activities. Reproductive organs were weighed. On pregnancy day 8, females were laparotomized to count the number of blastocyst implantations. Surgical site was sutured and pregnancy continued until term. The number of pups delivered was determined. Data were analyzed using one-way ANOVA. **Results:** Administration of TRF+CORT decreased MDA levels ($p<0.01$), increased GPx and SOD activities ($p<0.01$ and $p<0.05$ respectively) and increased testosterone levels ($p<0.05$) compared to CORT. The weight of testes, epididymides, seminal vesicles and vas deferens were increased in CORT+TRF compared to CORT ($p<0.001$). The number of blastocyst implantations and live pups from females mated with CORT+TRF males were significantly higher compared to CORT. **Conclusion:** TRF supplementation reversed CORT-induced oxidative stress on the parameters studied and restored the fertilizing capacity of epididymal sperm, thus exhibiting a beneficial effect on the male reproductive potential.

KEYWORDS: Tocotrienol, epididymal sperm, corticosterone

O-012

Effect of AMPK Pathway Inhibitor on Leptin-Induced Adverse Effects on Sperm Parameters in Sprague-Dawley Rats

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Introduction: Exogenous leptin administration has been shown to adversely affect sperm parameters in Sprague-Dawley rats, possibly through oxidative stress. However, the exact mechanism remains unclear. This study therefore investigates the effects of dorsomorphin, an AMPK pathway inhibitor, on leptin induced changes in sperm parameters. **Methods:** Male Sprague-Dawley rats weighing 400-450 grams were divided into 3 groups. Control Group was treated with 0.1 ml normal saline, Leptin Group with leptin, 60 µg/kg/day and Leptin+Dorsomorphin Group (dorsomorphin, 5 mg/kg/day) for 14 days intraperitoneally. Body weight and food intake were recorded on days 1 and 14. Animals were euthanized on day 15. The epididymides and testes were harvested and their weights recorded. Sperm count and percentage of sperm with abnormal morphology were determined. Data were analyzed using ANOVA. **Results:** No significant difference was observed in body and organ weights, and food intake between the three groups. Sperm count decreased significantly in leptin and leptin+dorsomorphin treated groups when compared to that in the control group. Percentage of sperm with abnormal morphology was significantly higher in leptin and leptin+dorsomorphin treated groups in comparison to the control group. **Conclusion:** Dorsomorphin when administered intraperitoneally at 5 mg/kg/day for 14 days does not prevent the adverse effects of leptin on sperm parameters. Therefore, it can be concluded that either the dose and/or duration of dorsomorphin was insufficient, or the AMPK pathway is not among the possible pathway(s) through which leptin exerts these effects.

O-013

Child and Adolescent Mortality Across Malaysia's Epidemiological Transition: A Systematic Analysis of Global Burden of Disease Data

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Introduction: A rapid epidemiological transition in developing countries in South East Asia has been accompanied by major shifts in the health status of children and adolescents. We aimed to describe mortality estimates in Malaysian children and adolescents from 1990 to 2013 to illustrate these changes. **Methods:** All-cause and cause-specific mortality estimates were obtained from the 2013 Global Burden Disease Study. Data were extracted from 1990-2013 for the developmental age range from 1 to 24 years, for both sexes. Trends in all-cause and cause-specific mortality for the major epidemiological causes were estimated. **Results:** From 1990 to 2013, all-cause mortality decreased in all age groups. Reduction of all-cause mortality was greatest in 1-4 year olds (2.4% per year reduction) and least in 20-24 year olds (0.9% per year reduction). Accordingly, in 2013, all-cause mortality was highest in 20-24 year old males (129 per 100,000 per year). In 1990, the principal cause of death for 1-9 year boys and girls was vaccine preventable diseases. By 2013, neoplasms had become the major cause of death in 1-9 year olds of both sexes. The major cause of death in 10-24 year old females was typhoid in 1990 and neoplasms in 2013, while the major cause of death in 10-24 year old males remained road traffic injuries. **Conclusion:** The reduction in mortality across the epidemiological transition in Malaysia has been much less pronounced for adolescents than younger children. The contribution of injuries and non-communicable diseases to adolescent and child mortality suggests where public health strategies should focus.

KEYWORDS: Trend, mortality, childhood, adolescence, young adults, Global Burden Disease study, Malaysia

O-014

Does Socio-Demographic Characteristics of Dietary Supplement Intake Differ Between Future Athletes and Non-Athletes Student

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Introduction: Dietary supplement (DS) intake is common worldwide among athletes. Many professional athletes use DS because they claimed to be an important factor in athletic performance. The aims of this study were to determine the prevalence of DS intake among future athletes and compare it with non-athletes and to detect the relationship between DS and socio-demographic factors. **Methods:** A comparative cross-sectional study was conducted in UiTM Shah Alam. A sample of 273 students composed of 136 from Faculty of Sports Science and Recreation (FSSR) and 137 from Faculty of Engineering (FE) participated and each of them were interviewed face-to-face using a validated questionnaire. This questionnaire contains information regarding, socio-demographics characteristics, usage, duration and source of getting DS, reasons for using or not using DS, and personal beliefs and behavior towards DS. **Results:** The overall prevalence of DS intake among all students was 17.2%. Students from FSSR showed insignificant lower rate (14.2%), of DS intake than those in FE (20.4%). More than two third (68.1%) of the 47 DS users were females. Interestingly DS intake was significantly higher among females than male, whether in both faculties (23.9%), or in FE (30%), with p=0.004 and 0.005 respectively. The DS

user in FSSR have their mean body mass index of (24.10 ± 5.01) which is significantly higher than those in FE with a p=0.009. Other socio-demographics factors had no significant relation with supplement intake. **Conclusions:** The overall prevalence of DS was low, this prevalence is higher among FE and female students.

KEYWORDS: DS, Future Athletes, Future Non-Athletes, socio-demographic factors

O-015

Personal Beliefs Towards Dietary Supplements and Reasons for Using and Not Using Them; A Comparative Study Between Future Athletic and Non-Athletic Students in UITM

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Introduction: Many athletes believe using dietary supplements (DS) improves their athletic performance. About 71% adults are taking DS to improve overall health. The aims of this study were to identify and compare the reasons for using and not using DS in both faculties and to assess the beliefs of users towards DS. **Methods:** A comparative cross-sectional study was conducted in UiTM Shah Alam. A sample of 273 participants was collected that was composed of 136 participants from Faculty of Sports Science and Recreation (FSSR) and 137 participants from Faculty of Engineering (FE). Face -to face interview was conducted for each participant, using a validated questionnaire, containing information about socio-demographics characteristics, reasons for using or not using DS and personal beliefs of DS users. **Results:** Out of 47 DS users, for highest number of participants (70.2%) the reason was to improve health. This finding was similar for both faculties (FSSR =68.4%, FE=71.4%). Out of 226 non-users, 52.7% stated that DS was not needed. Other reasons found between the two faculties were not significant except for the reason that taking the DS is considered as cheating. This was found to be higher in non-users form FSSR (p=0.047). Regarding personal beliefs, safe for consumption was significantly higher in FE, (p=0.048), while provide more energy and bring harmful effects were significantly higher in FSSR, (p=0.032 and p=0.003 respectively). **Conclusions:** A majority of users consumed DS to improve health. The main reason for not taking DS was because they do not need it and it was not necessary.

KEYWORDS: DS, Future Athletes, reasons, personal beliefs, Future Non-Athletes

O-016

Dual-Task Costs on Gait Performance in Children with Traumatic Brain Injury

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Introduction: Children with traumatic brain injury (TBI) may have a wide range of cognitive and functional mobility impairment. Therefore, walking under dual-task may require greater attentional resource which could adversely affect their walking performance. Improper gait modification during walking while performing dual-task may contribute to fall in this population. Thus, the purpose of this study was to identify the dual-task costs (DTC) on gait parameters in children with TBI compared to typically developing (TD) children. **Methods:** Data were collected from 16 children with TBI (aged 11.63 ± 1.89 years) and 22 TD controls (aged 11.41 ± 2.24 years). Each participant was asked to walk under three different conditions: (1) single task, (2) dual motor task, and (3) dual cognitive task. Gait speed, stride length, and stride time were assessed using the APDM® Mobility Lab. DTC for each gait parameter was calculated using specific formula. A descriptive analysis was used to analyse the data. **Results:** Children with TBI had higher negative DTC in all gait parameters compared to TD controls which indicated that this group had more interference and deterioration of walking performance under dual-task conditions. Both dual-tasks (motor and cognitive) led to deterioration of walking performance in all parameters evidenced by negative DTC in both groups. **Conclusion:** These findings suggested that walking performance was compromised under dual-task conditions for children with TBI. Thus, gait training under dual-task conditions may be incorporated into routine gait rehabilitation to ensure a successful recovery.

KEYWORDS: children, dual-task costs, dual-task, gait, traumatic brain injury

O-017

Application of Artificial Neural Network in Diagnosing and Predicting The Progression of Noise Induced Hearing Loss

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Introduction: Noise-Induced Hearing Loss (NIHL) has been reported to be the highest occupational disease among workers in Malaysia. Nonetheless, studies on predictors of NIHL are limited and inconclusive. Artificial Neural Network (ANN), an advanced computer technology might be a useful tool to predict the progression of NIHL. The objective of this study is to test the application of ANN in diagnosing NIHL and develop a prediction model. **Methods:** This web-based application was developed by using (i) SQL, (ii) Hypertext Preprocessor (PHP), (iii) Hypertext Mark-up Language (HTML), (iv)

Bootstrap and (v) JavaScript programming language as an object-oriented language used in designing and developing the web templates. This web based application was developed as a medium to collect, save and process the data. **Results:** ANN can be applied to identify the risk factors and predictors of NIHL. Nonetheless, the level of severity of the disease needs to be properly classified to obtain a good prediction model. **Conclusion:** This research found that this method is capable in creating predictive model for NIHL with high accuracy.

KEYWORDS: Noise Induced Hearing Loss, Predictive modelling, Artificial Neural Network

O-018

Effect of Magnesium Acetyltaurate Against Nmda-Induced Retinal Oxidative Stress

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Introduction: Retinal ganglion cell apoptosis in glaucoma results from elevation of calcium ion (Ca^{2+}) intracellularly due to NMDA receptor over-activation Consequently, increase in reactive oxygen species activates proteases leading to neuronal death. Magnesium, a natural calcium antagonist, has gained attention as a neuroprotective agent as it blocks glutamate from binding to NMDA receptors and halts the entry of calcium. Hence, Mg inhibits reactive oxygen species production and activation of proteases. Taurine also possesses antioxidant properties. Hence, in this study, we investigated the effects of Magnesium Acetlytaurate (MgAT) on NMDA-induced retinal oxidative stress in rats. **Methods:** *Sprague Dawley* rats (n=6) were divided into 5 groups and given intravitreal injections. Group 1 received vehicle (PBS); group 2 was injected with NMDA while groups 3, 4 and 5 were injected with NMDA, 24 hours before, in combination and 24 hours after MgAT. After 7 days, the rats were sacrificed and their eyes were enucleated and processed for histopathological studies and retinae were isolated for measurements of retinal oxidative stress. **Results:** TUNEL staining revealed minimal number of apoptotic cells in MgAT pre-treatment group compared to NMDA group ($p<0.001$). Retinal oxidative stress was also significantly reduced in MgAT pre-treatment group compared to NMDA group as indicated by retinal glutathione, catalase and superoxide dismutase. Similar effects were also observed in MgAT co- and post-treatment groups; however, extent of reduction in retinal oxidative stress and retinal cell apoptosis was lesser compared to pre-treatment group. **Conclusions:** MgAT reduces NMDA-induced retinal cell apoptosis by reducing retinal oxidative stress.

KEYWORDS: Retinal ganglion cell (RGC), Excitotoxicity, Magnesium Acetyltaurate (MgAT)

O-019

Neuroprotective Effect of Brain-Derived Neutrophic Factor on Amyloid-Induced Cognitive and Spatial Memory Impairment in Sprague Dawley Rats

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Introduction: Amyloid-beta (Aβ) plays an important role in the pathophysiology of Alzheimer's disease (AD). The accumulation of Aβ is associated with loss of neuronal cells in AD. The accumulation of Aβ peptide is associated with significant reduction of brain-derived neurotrophic factor (BDNF) in the brain. Endogenous BDNF is required for long-term memory. However, the effect of BDNF on memory impairment induced by Aβ 1-40 peptide (Aβ40) remains unclear. The purpose of this study was to evaluate the effects of BDNF on memory impairment in rats after intrahippocampal injection of Aβ40. **Methods:** In this study, *Sprague-Dawley* rats were divided into 3 groups of 6 rats each. Group 1 (control group) was given intrahippocampal injection of PBS; group 2 was injected with Aβ40 while group 3 was injected with Aβ40 and BDNF. Fourteen days after injection, all groups were subjected to activity cage meter, Morris water maze and probe test. **Results:** In our study, all rats showed the same habituation pattern and no significant changes were observed across groups in activity cage meter. In Morris water maze test, the latencies to find the platform for Aβ40-treated group were significantly higher ($p>0.05$) as compared to control and BDNF-treated groups. In probe test, the number of crossing the visual platform were significantly lower ($p>0.05$) in Aβ40-treated group as compared to control and BDNF-treated group. **Conclusion:** the Aβ40-treated rats showed deficits in both cognitive and spatial memories while treatment with BDNF attenuated memory deficit induced by administration of Aβ40.

KEYWORDS: Amyloid-beta, BDNF, Morris Water Maze, Cognitive memory, Spatial memory

O-020

Modified PLGA Nanoparticles With Apo E & Apo B100 Show Increased Uptake of the Particles into Human Brain Microvascular Endothelial Cells

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Introduction: Poly (lactide-co-glycolide) (PLGA) nanoparticles (NPs) have been proven to be useful in transporting neuroprotective drugs across blood brain barrier (BBB). Brain derived neurotropic factors (BDNF) delivery across BBB may provide

neuroprotection. Apolipoproteins serve as receptor ligands for lipid and cholesterol uptake and metabolism, and it was suggested that apolipoprotein-modified NPs enhance transport of drugs across the BBB. **Methods:** BDNF-loaded PLGA NPs were coated with Apo E, B100, A1 or C2. The Apo-coated NPs were incubated with primary HBMECs and cellular uptake of the NPs by HBMECs was investigated using coumarin 6 as a fluorescent probe. The number of NPs entering the cells was measured using confocal microscopy. Cell viability was determined using MTS-assay. BDNF release into cells was quantified using ELISA method. **Results:** No cytotoxicity of Apo-coated PLGA NPs was observed. The fluorescent intensity was found to be significantly higher for ApoE-coated NPs compared to ApoA1-coated NPs (1.32 folds, $p<0.01$) and non-coated NPs (2.17 folds, $p<0.001$). The fluorescent intensity of ApoB100-coated NPs was significantly higher compared to non-coated group by 2.06 folds ($p<0.001$). There was no significant difference between ApoE- and ApoB100-coated NPs. Significantly higher concentration of BDNF was found in HBMECs after treatment with ApoE- and ApoB100-coated NPs compared to control group (by 1.94 folds ($p< 0.001$) and 1.74 folds ($p<0.001$) respectively). ApoE and ApoB100 were the most efficient additions to the PLGA NPs with regards of particle uptake. **Conclusion:** coating NPs with ApoE and ApoB100 is a promising strategy in targeted BDNF delivery across BBB.

O-021

Protective Effect of Taurine Against Endothelin-1-Induced Retinal Oxidative Stress

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Introduction: Endothelin-1 (ET-1), a potent vasoconstrictor, is involved in retinal vascular dysregulation and resultant oxidative stress in glaucomatous eyes. Taurine, a naturally occurring free amino acid, is known for neuroprotective and antioxidant properties. Hence, we evaluated effects of taurine against ET-1-induced retinal oxidative stress in rats. **Methods:** Among five groups of rats (n=6), groups 1 and 2 were intravitreally administered with vehicle and ET-1 (2.5 nM), respectively. Groups 3 and 5 were intravitreally injected with taurine (320 nM) 24 hours before and after ET-1 injection (taurine pre- and post-treatment groups), respectively. Group 4 was intravitreally administered with ET-1 and taurine simultaneously (taurine co-treatment group). Seven days post-injection, rats were sacrificed and retinae were processed for determination of retinal oxidative stress by measuring GSH, CAT and SOD level. **Results:** ET1-treated group ($p<0.001$) showed significantly lower retinal GSH compared to group 1 whereas the same was higher in groups 3 ($p<0.001$), 4 ($p<0.01$) and 5 ($p<0.001$) compared to group 2. CAT activity was significantly lower in groups 2 ($p<0.001$) and 4 ($p<0.05$) compared to group 1 but it was higher in groups 3 ($p<0.01$), 4 ($p<0.05$) and 5 ($p<0.001$) compared to group 2. SOD activity in groups 2, 4 and 5 were significantly lower compared to group 1 ($p<0.01$, $p<0.01$ and $p<0.05$,

respectively). Among all taurine groups, only group 3 showed significantly greater SOD activity compared to group 2 ($p<0.05$). **Conclusions:** Intravitreal taurine protects against ET-1-induced retinal oxidative stress in rats and taurine pre-treatment provides greater effectiveness compared to co- or post-treatment.

KEYWORDS: retinal ganglion cell, endothelin-1, taurine

O-022

Intraocular Pressure (IOP)-Lowering Effect Of Imidazo[1,2-A]- and Pyrimido[1,2-A]Benzimidazole Compounds in Ocular Normotensive and Hypertensive Rats

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Introduction: In an effort to find new ocular hypotensive drug, a total of 28 imidazo[1,2-a]- and pyrimido[1,2-a]benzimidazole compounds were screened for their IOP lowering activity in ocular normotensive and hypertensive rats. **Methods:** IOP lowering activity was determined by assessing maximum IOP decrease from baseline and control, duration of activities and area under the curve (AUC). During initial screening of 28 compounds, four compounds RU 551, RU 555, RU 839, and RU 615 showed significant IOP lowering activities in ocular normotensive rats. On the next step, IOP lowering effect of unilateral single drop application of all four compounds was tested at 0.1% concentration and then lead compound was similarly tested for dose-dependent effect at 3 different concentrations (0.1%, 0.2% and 0.4%) in ocular hypertensive rats. This was followed by evaluation of ocular hypotensive effect of bilateral multiple drop administration of smallest effective concentration of lead compound for 3-weeks in ocular hypertensive rats. **Results:** It was observed that single drop of RU-615 produces significantly greater IOP lowering effect in ocular hypertensive rats when compared to RU-551, RU-555, and RU-839. There were no significant differences among all tested concentrations, hence the lowest concentration was selected for chronic treatment. Chronic topical application of RU615 caused significant IOP reduction from baseline thoughout the 3 weeks treatment period with max IOP reduction of 30.31 % at day 15 and it remained constant on days 18 and 21. **Conclusion:** RU-615, a novel N9-imidazobenzimidazole derivative, exhibits significant IOP lowering effect in both normotensive and ocular hypertensive rats.

KEYWORDS: Intraocular Pressure, Lowering Effect, Imidazo[1,2-A]-, Pyrimido[1,2-A], Benzimidazole, Ocular Normotensive Rats, Screening

O-023

Antiapoptotic Effect of Magnesium Acetyltaurate Against Nmda-Induced Retinal Damage

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Introduction: Glutamate-mediated excitotoxicity through NMDA receptors may be an important cause of retinal ganglion cells (RGCs) death in glaucoma. Magnesium (Mg) and taurine (TAU) are claimed to have neuroprotective properties. The objective of this study was to investigate the anti-apoptotic effect of Mg acetyltaurate (MgAT) against NMDA-induced retinal damage. **Methods:** Sprague-dawley rats were divided into 5 groups with 6 rats in each group. Group 1 (control group) was injected with PBS; group 2 (NMDA group) was injected with NMDA while groups 3, 4, and 5 were injected with MgAT, 24 hours before (pretreatment), in combination (co-treatment) or 24 hours after (post-treatment) NMDA injection. NMDA and MgAT were injected intravitreally in PBS at doses 160 nmol and 320 nmol, respectively. After 7 days rats were euthanized, eyes were enucleated and processed for TUNEL assay and Caspase-3 immunostaining. The number of positive cells was counted as the number of apoptotic cells per 100 μm^2 in ganglion cell layer (GCL). Further test was performed on the estimation of pro/anti- apoptotic factors (Bax/Bcl-2) and active-caspase-3 through ELISA. **Results:** In NMDA-treated group, the number of apoptotic cells was significantly increased compared to PBS group ($p<0.001$), meanwhile, pretreatment and co-treatment with MgAT significantly inhibit the apoptotic response to NMDA. The apoptotic markers caspase-3 and BAX/Bcl2 ratio were significantly decreased in MgAT-treated groups. However, pretreatment with MgAT resulted in more significant decrease in retinal Bax/Bcl-2 ratio and caspase-3 activity. **Conclusion:** Our data revealed that pretreatment and co-treatment but not post-treatment with MgAT prevents RGC apoptosis induced by NMDA.

KEYWORDS: RGC apoptosis, NMDA, excitotoxicity, magnesium acetyltaurate

O-024

Effects of *Trans*-Resveratrol on Secretion of Matrix Metalloproteinase (MMP)-2 and -9 by Human Trabecular Meshwork Cells (HTMCs)

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Introduction: Matrix metalloproteinases (MMPs) degrade extracellular matrix (ECM) in the trabecular meshwork (TM). Reduced MMP secretion, particularly MMP-2 and -9, is associated with increased ECM deposition in TM, which causes intraocular pressure (IOP) elevation in glaucomatous eyes. Hence the objectives of this study were to investigate the effects of trans-resveratrol on MMP-2 and-9 secretion by human TM cells (HTMCs). **Methods**: HTMCs were cultured in DMEM and divided into 11 groups that received treatment with DMSO 0.1%, dexamethasone 100 nM, and *trans*-resveratrol 3.125, 6.25, 12.5, and 25 µM in the presence and absence of dexamethasone for 2, 5 and 7 days. MMP-2 and -9 expressions were estimated using Western Blot and ELISA. **Results:** Dexamethasone reduced MMP-2 and -9 expressions 5 and 7 days post-treatment, compared to untreated group ($p<0.05$). Five days incubation with 6.25 and 12.5 µM *trans*-resveratrol increased MMP-2 level compared to dexamethasone-treated group ($p<0.05$) but in the presence of dexamethasone this effect was observed only at 12.5 µM concentration ($p<0.05$). Seven days post-treatment, *trans*-resveratrol at all concentrations increased MMP-2 level ($p<0.05$), however, in the presence of dexamethasone, 3.125-12.5 µM *trans*-resveratrol increased MMP-2 ($p<0.05$). MMP-9 level increased after 2 days only at 12.5 µM concentration in the presence and absence of dexamethasone ($p<0.05$). After 5 days, 12.5 and 25 µM concentrations increased MMP-9 ($p<0.05$). All concentrations of trans-resveratrol increased MMP-9 level in the presence of dexamethasone 7 days post-treatment ($p<0.05$). **Conclusion:** *Trans*-resveratrol attenuates the dexamethasone-induced reduction in MMP-2 and -9 secretion by HTMC after 5 and 7 days of treatment, particularly at 12.5 µM concentration.

KEYWORDS: *Trans*-resveratrol, matrix metalloproteinases, trabecular meshwork

O-025

Dose and Time Dependent Effects of Renin-Angiotensin System Inhibitors on Production of Metalloproteases (MMPs) by Dexamethasone Treated Human Trabecular Meshwork Cells

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Introduction: Reduction in matrix metalloproteinases (MMPs) production leads to excessive extracellular matrix (ECM) deposition and increase in intraocular pressure. Renin angiotensin system inhibitors (RASIs) are known to increase MMPs in various tissues however their effects on MMPs production by human trabecular meshwork (HTM) were not investigated. The objective of this study is to evaluate dose and time-dependent effects of RASIs on production of MMPs by dexamethasone-treated HTM cells. **Methods:** Group-1 contained HTM cells cultured in medium (DMEM) only; group-2 in DMEM with dexamethasone 10^{-7} M. Groups 3-6 were co-treated with dexamethasone 10^{-7} M and losartan or enalaprilat in concentrations of 10^{-4} and 10^{-7} M

for both drugs. All groups were incubated for 7 and 14 days. MTS assay was done to exclude cytotoxic effect, and western blot was performed to measure MMPs. **Results:** None of the groups showed reduction in cell viability. The dexamethasone treated group showed decreased production of MMPs compared to DMEM treated cells at all time points, however the difference was significant only at day 14 for both MMP-2 (2.57 folds) and MMP-9 (2.69 folds). Co-treatment with RASIs in both tested concentrations attenuated effects of dexamethasone on MMPs production more significantly at day 14. Compared to dexamethasone-treated group, MMP-2 and -9 levels in enalaprilat-treated group showed an increase by 3.08 and 3.78 folds, respectively. MMP-2 and -9 levels in losartan co-treated group were 2.93 and 4.10 folds higher compared to dexamethasone treated group. **Conclusion:** RASIs significantly increased secretion of both MMP-2 and MMP-9 by dexamethasone-treated HTM cells in time-dependent manner.

KEYWORDS: Metalloproteases, Extracellular matrix, human trabecular meshwork cells, renin-angiotensin system inhibitors

O-026

Stat Dose of Reserpine Lowers The Expression of Tumour Promoter and Tumour Suppressor Genes in The Stomach of Female Sprague-Dawley Rats

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Introduction: Reserpine-treated animals have been shown to develop tumours of adrenal and mammary glands. It is also being used to induce gastric ulcer in animal models. However, it is unknown if reserpine alters the expression of tumour promoter and tumour suppressor genes in the stomach. This study therefore examined the expression of tumour promoter and tumour suppressor genes in the stomach 24 hours after a stat dose of reserpine. **Methods:** Sixteen, 6-week old female rats were divided into two groups (n=8). After a 24-hour fast, the experimental group was given a stat dose of 20 mg/kg reserpine intraperitoneally (Group A), and group B acted as controls. Body weight was measured before and 24 hours after treatment, and the rats were then immediately euthanized. Stomachs were collected for histopathological examination, and expressions of tumour promoter (Lmyc, PGC) and tumour suppressor (E-Cadherin, FAT4, APC) genes in the stomach were determined using RT-qPCR. Data were analysed using one-way ANOVA. **Results:** Haemorrhagic gastric ulcer developed after 24 hours of reserpine treatment. Microscopy showed superficial ulceration with degenerated necrotic mucosa and the presence of inflammatory cells. Expression of tumour suppressor (E-cadherin, APC, FAT4) and tumour promoter (PGC, Lmyc) genes were significantly lower in reserpine-treated rats. Body weight of reserpine-treated rats was significantly lower compared to that in controls. **Conclusion:** In view of the decreased expression of tumour suppressor genes, it appears that reserpine might promote gastric carcinogenesis. However,

other tumour promoter genes might be involved in reserpine-induced gastric carcinogenesis that need to be examined.

KEYWORDS: Reserpine, Gastric ulcer, Tumour promoter, Tumour Suppressor

O-027

Systemic Immune Responses Elevated in Mice Immunised against Symptomatic and Asymptomatic Isolates of *Blastocystis hominis* Subtype 3

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Introduction: *Blastocystis hominis (B.hominis)* is an intestinal protozoan parasite, implicated to cause acute gastrointestinal disorders if left untreated. Few treatment options do exist but these are toxic, costly and ineffective against resistant strains. This study aims to identify the type of protective immunity that arises in immunised Balb/c mice against symptomatic and asymptomatic *B.hominis* subtype 3 isolates.
Methods: Splenocyte proliferation, Th1/Th2 cytokine responses and IgG/IgG1/IgG2a antibodies were assessed. **Results:** Total IgG antibody responses in sera from mice immunised with asymptomatic and symptomatic groups were (0.736±0.033) and (0.426±0.025) respectively, significantly higher compared to PBS control ($P<0.05$). Mixed IgG1/IgG2a response with predominant IgG1 secretion in sera from asymptomatic group (0.148±0.016) and predominant IgG2a secretion in sera from symptomatic group (0.355±0.021) compared to PBS control ($P<0.05$). This data was supported by high Th1 (IFNγ and IL-2) cytokine response in symptomatic group (393.56±49.21) and (628.89±31.06); high Th2 (IL-4 and IL-10) cytokine response (93±7.85) and (103.22±11.33) in asymptomatic group after *in-vitro* splenocyte stimulations. Proliferation of stimulated splenocyte was significantly high in both the groups compared to PBS control. The present results show the first time that, ST3 symptomatic and asymptomatic *B.hominis* immunization could enhance protective immunity in the vaccinated host by increasing the splenocyte cells proliferation rate and mediate a balanced systemic immune response with no significant variations among the isolates of asymptomatic and symptomatic groups. **Conclusion:** Therefore, this method could be use to increase the immunological memory in host infected with *B.hominis* ST3 in order to confer resistance by triggering a stronger and faster immune response.

KEYWORDS: Blastocystis, subtype 3, immunization, asymptomatic, symptomatic

POSTER PRESENTATIONS

P-001

Relationship Between Knowledge, Confidence Level and Willingness to Use Automated External Defibrillator (AED) among Nursing Students in Universiti Teknologi Mara, Puncak Alam, Selangor

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Introduction: An impaired blood supply to the myocardium can lead to lethal arrhythmias, pulseless ventricular tachycardia and ventricular fibrillation which contribute to sudden deaths. Early defibrillation in combination with cardiopulmonary resuscitation has increased the survival rate in sudden cardiac arrest. This study is to investigate the relationship between knowledge, confidence level and willingness to use Automated External Defibrillator (AED) by nursing students in UiTM Puncak Alam, Selangor. **Methods:** It was a cross- sectional, correlational study with convenient sampling and included 132 final year and Long-Distance Learning Programme (e-PJJ) nursing students in UiTM, Puncak Alam, Selangor. Relationship between knowledge and confidence level to use AED was analyzed using Spearman's Correlation Coefficient and Chi-Square test. **Results:** Level of knowledge among final year and EPJJ nursing students was inadequate with only 10.6%, (n=14) passing the knowledge test. However, most of the students were willing to use AED (n=109, 82.6%) with a mean of 3.09, (SD=1.092, n=132) for confidence level. Statistical analysis identified that there is fair positive correlation between knowledge and confidence level, $r = .495$, $p < .05$. **Conclusion:** The level of knowledge regarding use of AED among final year and e-PJJ nursing students was inadequate. The available evidence suggests that frequent training and course is necessary for nurses and nursing students to improve their knowledge regarding AED and build up the confidence during resuscitation to increase the survival rate of patient with sudden cardiac arrest.

KEYWORDS: **Defibrillation, Resuscitation, AED Knowledge, AED Confidence, Willingness to Use AED**

P-002

Prader-Willi and Behavioural Disturbances: A case report

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Introduction: Prader-Willi Syndrome (PWS) is a genetically determined neurodevelopmental disorder occurring in 1 in 15,000 births. PWS is a rare case in Malaysia and the successful approach to its management has not been well reported. **Case Report:** We report a case of 13-year-old boy of Prader-Willi Syndrome with prominent behavioural disturbances characterized by temper tantrums, compulsive

food intake, stubbornness, stealing and impulsivity complicated by underlying morbid obesity, poorly controlled Type 2 Diabetes Mellitus, hypertension, dyslipidemia, Obstructive Sleep Apnea Syndrome and intellectual disability. **Conclusion:** Due to the wide range of problems and variability of symptom severity across individuals with PWS, management of PWS is age-dependent, multidisciplinary, and utilizes a problem-based approach to cater to each individual. Hence each patient with PWS may need a different weightage of approach. In this case, multidisciplinary approach involving child and adolescent psychiatry, occupational therapy, counsellor and family therapy had shown an improvement in patient's weight, glucose and blood pressure control and most importantly in behaviour disturbances. Moreover, family therapy and behaviour modification were observed to be strong tools for treatment. In addition, low dose of tablet Quetiapine seems to reduce anger outbursts.

KEYWORDS: adolescent, anger, glucose control, obesity

P-003

Post Mortem Troponin T Analysis in Sudden Death: Is It Useful?

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Introduction: Cardiac-related diseases contribute approximately fifty to sixty percent of sudden natural death cases. This study aimed to describe the cardiac troponin T (cTnT) findings in post mortem subjects irrespective of the cause and manner of death, hence the possible use of postmortem serum cTnT as a modality in investigating sudden natural death. **Methods:** The study samples comprised of 140 subjects aged 18 to 50 years with natural and unnatural causes of sudden death brought to Department of Forensic Medicine Hospital Sungai Buloh (HSgB) and Hospital Sultanah Aminah Johor Bahru (HSAJB) for a period of 12 months. The subjects were categorized into 5 groups; CVD (cardiovascular disease), SUD (sudden unexplained death), TT (thoracic trauma), NTT (non-thoracic trauma) and OD (other diseases). **Results:** Troponin T level (mean±SD) in cases of CVD, SUD, TT, NTT, and OD are 3.8±49.4 µg/L, 1.2±18.3 µg/L, 4.8±72.2 µg/L, 3.4±53.6µg/L, 0.47±3.1 µg/L respectively. We found no significant difference of troponin T level among groups with different causes of death ($p \geq 0.05$). NTT group had the highest median score with 0.90µg/L, SUD (sudden unexplained death) group showed the lowest median score with 0.17µg/L. **Conclusion:** Troponin T is not a specific and promising cardiac biomarker for post mortem sample, therefore, it cannot be used as a diagnostic tool at autopsy.

KEYWORDS: Sudden unexplained death; Cardiac death; Troponin T; Post mortem biochemistry

P-004

Digital Autopsy: A Popular Tool For an Unpopular Procedure

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Introduction: Digital Autopsy (DA) is the future of post mortem examination of human body through digital visualization. Imaging modalities using x-rays and magnetic fields like computerized tomography and magnetic resonance image scanners are commonly used to visualize different structures within the human body. **Methods:** Images from DA were obtained in a DICOM (Digital Imaging and communication of Medicine) format. Analysis is done in both two and three dimensional perspectives. Investigation performed during DA involves analysis of the human anatomy and pathological findings. **Results:** This procedure is automated and improved via image processing features. Images are in grey-scale consisting information in every slice taken during the scan, which will be rendered and visualized as a full body in a digital format during DA. The result of the visualization is a three dimensional body presented in the exact colour format based on each structure of the human organ system. **Conclusion:** DA is a non-invasive solution to empower Forensic Pathologists to play a better role in criminal justice system. Advantage of DA is the availability of the data to be easily and securely transferred to a different DA facility at a different location.

KEYWORDS: Digital Autopsy, Post-Mortem CT, DICOM, Forensic Pathology

P-005

Freezing Effect on Tissue Density in Post Mortem Computed Tomography

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Introduction: Cadaveric Post Mortem Computed Tomography (PMCT) is being widely utilized to facilitate autopsy finding in forensic studies. Cadavers may be subject to cooling preservation to sustain their tissues integrity. However, freezing effect that initiated within the cadaver alters the tissues structures which are giving impact on CT attenuation values. This study aimed to investigate the CT attenuation values of gelatin phantom as human soft tissue simulants by PMCT in terms of tissue density affected by the cooling mechanism in forensic imaging. **Methods:** Different gelatin based phantoms were created by using recommended formula (10% w/w). Two phantoms (A1 and B1) were placed in the refrigerator storage at temperature of 4°C and another two phantoms (A2 and B2) were placed in the freezer storage at temperature of -20°C. Initial CT scanning was done on each phantom as control study before all of them were kept in refrigeration and freezing for certain time points. At each time point, CT densities for both gelatin phantoms were compared using the Wilcoxon signed-rank test. **Results:** Phantoms at refrigerator storage (4°C) showed no

significant difference in CT density at all time points. In contrast, phantoms stored at -20°C showed multiple appearances of air bubbles and a significant low CT density post freezing compared to pre freezing at all time points. **Conclusion:** The freezing effect could be a valuable information taking into consideration for interpretation of causes of death in cadaveric PMCT for accurate investigation in forensic imaging.

KEYWORDS: Post Mortem Computed Tomography (PMCT), CT density, gelatin phantom, freezing effect

P-006

NIPE (Neonatal Infant Parasympathetic Evaluation) for a Sedated and Paralyzed Child with Acute Respiratory Distress Syndrome (ARDS)

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Introduction: Heavy sedation and muscle paralysis (MP) are often needed for ARDS patients. A balance between sedation and MP; with cardiovascular stability is needed. Comfort scale for sedation is not feasible in a paralysed patient. We illustrate a child with severe ARDS using NIPE to guide the sedation. **Case Report:** A four-month old Down's syndrome boy was admitted with coryzal symptoms for two days. His symptoms worsened requiring mechanical ventilation. His initial oxygenation index (OI) was 7 that progressed to 28 at day 5 requiring high frequency oscillation ventilation. The setting was MAP 24, amplitude 45, frequency 7 and FiO2 1.0. He had spontaneous breathing on high pressure ventilation. Hence was sedated and paralysed with fentanyl 5 mcg/kg/hour, midazolam 4 mcg/kg/minute and rocuronium 7.5 mcg/kg/hour. BP was supported with two inotropes, fluid restriction and prone positioning. However, he deteriorated with an OI of 32. At this point, third inotrope was warranted due to low BP. His heart rate was in the range of 100-110 beats/minute. Echocardiogram showed normal heart with adequate volume. We started NIPE monitoring with readings between 50-60%. Sedation was lowered to fentanyl 2 mcg/kg/hour and midazolam 2 mcg/kg/min. After 4 hours, the BP and heart rate stabilised, leading to single inotrope. OI improved to 15 but unfortunately, he developed ventilator-associated-pneumonia and succumb at day 11 of illness. The viral respiratory PCR revealed RSV. **Conclusion:** A clinical balance between sedation and cardio-respiratory failure is important in ARDS patient. We used NIPE as a guide to avoid over-sedation and hypotension.

KEYWORDS: paediatric comfort score, pain, PICU

P-007

Effect of Nicotine on Estrous Cycle and Ovulation in Rats

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Introduction: The changes in the nicotine-induced menstrual cycle irregularities are associated with the disruption of the hypothalamo-pituitary-ovarian axis. In rats however, various studies have shown that nicotine administration resulted in conflicting levels of pituitary and ovarian hormones that ultimately affects the rats' estrous cycle. This study aims to investigate the effects of nicotine on the duration of estrous cycle, the number of ova released and the corresponding pituitary and ovarian hormone levels. **Methods:** Unilateral ovariectomy (ULO) was performed on cyclic female Sprague Dawley rats during estrous phase and the number of ova flushed was counted. Nicotine tartrate 7.5 mg/kg/day was administered subcutaneously twice a day for five days starting on the day of ULO. Estrous cycle was monitored daily and the animals were sacrificed on the next estrous phase; number of ova flushed from the remaining fallopian tube was counted and blood taken for hormonal analysis. Non-parametric tests were used to analyse the data. **Results:** Nicotine administration was shown to significantly prolong ($P < 0.001$) the duration of estrous cycle. However, the number of ova flushed was insignificantly different. The plasma levels of pituitary hormones (follicle-stimulating hormone (FSH) and luteinizing hormone (LH)) and plasma levels of ovarian hormones (estrogen and progesterone) also showed insignificant differences. **Conclusion:** This study concludes that while the pituitary and ovarian hormonal levels were surprisingly normal, nicotine administration did prolong the duration of estrous cycle in rats. From the present study it is tempting to elucidate whether other hormones such as prolactin and inhibin levels had any roles on the present finding.

KEYWORDS: Nicotine, Estrous cycle, Ovulation, Rats

P-008

Anti-Cancer Effect of Nisin Against MG-63 Osteosarcoma Cells

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Introduction: Osteosarcoma is a highly malignant cancer, often diagnosed at a late stage and with a significant resistance to chemotherapy. Nisin, a known bacteriocin, has been found to have anti-cancer properties in head and neck tumour studies. No studies on osteosarcoma have been done. The aim of this study is to determine the apoptotic effect of nisin in MG-63, osteosarcoma cells. **Methods:** Approximately 6,000 MG-63 cells were seeded into each well of a 96 well plate with 100 µl of Dulbecco's modified Eagle's medium (DMEM/F-12) containing 10% FBS and 1 % Pen Strep. Nisin

A at 10 different concentrations (0 to 3000 µg/ml) were added to the cells for 48h after which the cell viability measured as mitochondrial activity using the MTS assay. Briefly, 10 µl of MTS was added to each well and incubated for 90 minutes. The absorbance of the cell supernatant was measured at 490 nm using a spectrometer and the cell viability was calculated using untreated cells as reference. The change in cell morphology with and without nisin addition was observed by microscopy throughout the test. **Results:** Increasing concentration of nisin resulted in a continuous reduction of cell viability. Cell death is approximately at 3.09% when treated with 200 µg/ml of nisin and achieved 36.02% with 3000 µg/ml nisin. Live cell microscopy indicated evidence of cell death with changes of cell morphology. **Conclusion:** Nisin causes cell death of MG-63 osteosarcoma cells. These results will require further investigations with regards to the underlying mechanism of cell death.

KEYWORDS: osteosarcoma, MG-63, nisin, cell death

P-009

Testicular Histomorphometry of Aged Mice Treated with Procyanidin C1 and Bisphenol-A

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Introduction: Advanced paternal age has been associated with infertility due to the increase of oxidative stress in the male reproductive system. Bisphenol-A (BPA) is an endocrine-disrupting chemical which is widely used in the production of polycarbonate plastics. It has been shown to inhibit spermatogenesis. On the other hand, procyanidin C1 (PCY-1) is an antioxidant with anti-inflammatory and anti-glycaemic properties. We hypothesize that PCY-1 is able to negate the effect of BPA in spermatogenesis. The objective of this study is to evaluate the effect of PCY-1 on spermatogenesis of BPA-treated aged mice. **Methods:** Male C57BL/6 mice aged 20 months were divided into 4 groups (n=6), treated with ultrapure water (control), BPA (15mg/kg/bw), PCY-1 (20µg/kg/bw) and BPA 15mg/kg with 20 µg/kg of PCY-1, for 35 days. Testes were collected on Day-36, fixed in 4% formalin, and prepared for histomorphometry, which was measured by Image J software. Statistical significance was determined by one-way ANOVA. **Results:** PCY-1 treatment significantly ($p<0.05$) increased seminiferous tubule diameter (63.50±1.17µm) and epithelial height (45.55±1.01µm), compared to control. BPA treatment significantly decreased seminiferous tubule diameter and epithelial height (37.71±1.09µm and 20.54±0.82µm) ($p<0.05$) compared to control. However, BPA+PCY-1 treatment significantly increased seminiferous tubule diameter and epithelial height (46.08±1.60µm, 28.95±1.13µm, $P< 0.05$) compared to BPA-treated group. **Conclusion:** Increase of seminiferous tubule diameter and epithelial

height indicate that PCY-1 enhances spermatogenesis in aged male mice exposed to BPA.

KEYWORDS: Bisphenol-A, Procyanidin, Spermatogenesis, Testis, Seminiferous tubule

P-010

MITF The Key Determinant for Periorbital Hyperpigmentation

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Introduction: Periorbital hyperpigmentation (POH) is an ill-defined major cosmetic condition and is notoriously resistant to treatment. The key to a successful treatment is to determine the primary cause and to comply with maintenance and preventive regimens. This present study hypothesizing that dysregulation of pigmentation-related gene expression contributes to POH. **Methods:** This study was approved by Medical Research & Ethics Committee (NMRR-13-1267-16770). Forty-nine (n=49) healthy volunteers who requested for blepharoplasty were randomly recruited into the study. The excised eyelid skins were collected in 10% formalin solution for histological analysis or RNA later solution for gene expression assays (microphthalmia-associated transcription factor, MITF; proopiomelanocortin, POMC; melanocortin 1 receptor, MC1R; tyrosinase, TYR and tyrosinase related protein 1, TYRP1). Based on the histological results, the subjects were categorized into low, moderate or high level of melanin deposits. **Results:** MITF expression was significantly higher in subjects with moderate level of melanin deposit ($p<0.05$), and high level of melanin deposit ($p<0.01$), compared to those with low level of melanin deposit. There was no significant different in expression of POMC, MC1R, TYR and TYRP1 among subjects with low, moderate and high melanin deposits. Interestingly, Pearson's correlation test showed that upregulation of MITF expression was positively associated with POMC, MC1R and TYR ($p<0.001$ respectively). **Conclusion:** The study concludes that MITF is the master regulator for melanin deposition in POH subjects, and upregulation of MITF is associated with POMC, MC1R and TYR. These findings are important in proposing a new therapeutic approach in treating POH.

P-011

Metabolomics Profiling of Colorectal Cancer

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Introduction: Diagnosis of colorectal cancer (CRC) involves invasive techniques such colonoscopy and histopathology. Other screening tests are either not accurate or specific for CRC. Early diagnosis is critical for survival, but is often challenging because the symptoms of CRC are subtle and become apparent only during advanced stages of the disease. In this study, we aim to identify serum biomarkers for detecting early stage of CRC using metabolomics. **Methods:** In this study, we performed metabolomic profiling of serum from 50 healthy controls and 50 colorectal cancer patients. The samples were deproteinized with acetonitrile and then analyzed using liquid chromatography-quadrupole time-of-flight mass spectrometry (LC-QTOFMS, Agilent USA). The data were analyzed using Mass Profiler Professional (Agilent, USA) software. Partial least squares discriminate analysis (PLS-DA) models generated LC-QTOFMS metabolic profile data showed robust discrimination from CRC patients and healthy controls. **Results:** A total of 12 metabolites were identified to be distinguishable from controls. Altered levels of tyrosine, methionine, bilirubin, uric acid, lysophosphatidylethanolamine, lysophosphatidylcholine hypoxanthine, glycocholic acid, xanthine, malic acid, 2-Hydroxy-3-methylbutyric acid and caffeine were found in more than 50% of CRC samples. **Conclusion:** The metabolic pathway aberrations reveal perturbations of purine metabolism associated with increased growth and proliferation of CRC cells. These results suggest that serum metabolomics profiling has great potential in identifying biomarkers for CRC and helping to understand its underlying mechanisms.

KEYWORDS: Metabolomics, Colorectal cancer, LC-QTOFMS, Biomarkers, Serum

P-012

Oxidized High Density Lipoprotein Induces The Formation of Mineralized Nodules in Vascular Smooth Muscle Cells

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Introduction: Formation of mineral nodules by vascular smooth muscle cells (VSMCs) is one of the pathological indicators for the occurrence of vascular calcification. Vascular calcification event could be suppressed by the presence of high density lipoprotein (HDL) that inhibits the osteogenic differentiation of VSMCs. However, HDL is prone to oxidation which changes the biological characteristics of HDL into a pro-

inflammatory and pro-atherogenic molecule. However, it is still not clear whether oxidised HDL can lead to vascular calcification. The objectives of this study are to investigate the effects of oxidized HDL in the formation of mineral nodules and incorporation of calcium in human aortic vascular smooth muscle cell (HAoVSMs). **Methods:** Oxidized HDL (10, 25, 50, 100 ug/ml) was incubated with HAoVSMs for 14 days and were stained with 2% alizarin red for detection of mineral nodules. Calcium incorporation inside the cell was analysed by using calcium colorimetric assay. **Results:** Oxidised HDL induced formation of mineral nodules and production of calcium in HAoVSMs in a dose dependent manner compared to negative controls ($p<0.05$). **Conclusion:** This study suggested the ability of oxidized HDL to induce vascular mineralisation and calcification in human vascular smooth muscle cells. Therefore, it can be suggested that preventive measures should be taken into account especially in patients exposed to HDL oxidation i.e. coronary artery disease.

KEYWORDS: Oxidized HDL; Mineralisation; Calcification; Vascular

P-013

Effect of Palm Tocotrienol-Rich-Fraction (TRF) Supplementation on Preimplantation Development of Vitrified Murine Embryos

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Introduction: Vitrification plays an important role in the storage of excess embryos for Assisted Reproductive Technology (ART). However, preimplantation development could be affected by cryoinjury from vitrification. Studies have reported that palm tocotrienol-rich fraction (TRF) improves preimplantation development of murine embryos. However, there are no reports on the use of palm TRF to improve embryonic vitrification outcomes. The aim of this study is to compare the developmental competence of non-vitrified and vitrified embryos from females supplemented with palm TRF. **Methods:** The C57Bl/6 females from control and treatment groups were given oral gavage of 60 mg/kg body weight per day of corn oil stripped of alpha-tocopherol (control), TRF or alpha-tocopherol, respectively for 7 days. They were superovulated, mated and euthanized to acquire 2-cell stage embryos. For vitrification, normal 2-cell embryos were equilibrated with EFS20 and vitrified with EFS40 before immersion into liquid nitrogen. After sequential warming, the 2-cell embryos were cultured *in vitro* to the blastocyst stage. **Results:** The non-vitrified 2-cell embryos developed to 4-cell stage was found significantly highest in TRF treated group when compared with control group (97% vs 89.2%). Meanwhile. the development of vitrified 2-cell embryos was found highest in the alpha-tocopherol group compared with control

group (58.1% vs 56.5%) (p<0.001). **Conclusion:** These observations suggest that palm TRF maternal supplementation improves the quality of harvested 2-cell embryos, while vitrified embryos from alpha tocopherol supplementation demonstrate better cryotolerance.

KEYWORDS: Palm TRF, embryo development, vitrification, morphology assessment

P-014

Effect of Palm Tocotrienol-Rich Fraction (TRF) on Liver & Kidney Functions in Wistar Rats

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Introduction: Tocotrienol rich fraction (TRF) are known to markedly improve male reproductive functions by acting against free radicals. This study was aimed to ascertain whether TRF causes hepatic and renal dysfunction in Wistar male rats. **Methods:** TRF doses of 30, 60 and 90 mg/kg body weight were given to rats by oral gavage for seven days, n=6. The negative control group received distilled water while the positive control group received corn oil. Rats were then euthanized and blood collected was sent for liver and kidney function tests for the measurement of aspartate aminotransferase (AST), alanine aminotransferase (ALT), bilirubin, albumin, protein, urea, and creatinine levels. **Results:** No significant elevation in serum AST and ALT activities were found in all treatment groups. The 60 mg/kg TRF treatment group showed a significant reduction in bilirubin levels compared to the negative control (0.35+0.21 vs 1.2+0.00) ($p < 0.05$). The group treated with 60 mg/kg also showed significant reductions in albumin levels compared to controls (37.75+0.07 vs 41.75+1.34 and 42.55+0.49) ($p < 0.05$). Protein levels in the 30 mg/kg group were significantly reduced compared to the negative control (62.30+0.28 vs 66.05+0.64) ($p < 0.05$) and the group treated with 90 mg/kg showed significant reductions in protein compared to controls (59.95+1.34 vs 66.05+0.64 and 65.10+0.14) ($p < 0.05$). There were no significant differences of urea and creatinine levels in all treatment groups. **Conclusions:** The results indicate that supplementation of TRF at the given doses does not cause hepatic and renal dysfunction thus can be recommended to safely improve male fertility.

KEYWORDS: Tocotrienols, Kidney Function Tests, Renal Function Tests, Wistar rats, Fertility

P-015

Low Level of Line-1 DNA Methylation as a Potential Marker for Type 2 Diabetes

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Introduction: Long Interspersed Nucleotide Element 1 (LINE-1) comprises about 17% of the human genome. DNA methylation of LINE-1 has been proposed as a biomarker for type 2 diabetes (T2D). We evaluated whether LINE-1 DNA methylation status was associated with T2D. **Methods:** Global LINE-1 methylation levels between T2D and non-diabetic control (NDC) subjects were quantified using pyrosequencing technology. The selected primer covers 3 CpG sites in the LINE-1 sequence. Pearson correlation was used to determine correlation between LINE-1 DNA methylation levels and T2D risk factors. **Results:** DNA methylation levels were lower in T2D patients when compared to those in NDC subjects in all 3 CpG sites (84.36% vs 84.83%, p=0.560; 77.11% vs 78.09%, p=0.203; 77.23% vs 79.41%, p=0.018), respectively. No significant difference was found in the distribution of LINE-1 methylation between men and women. Interestingly, LINE-1 DNA methylation was found to have average correlation with levels of serum creatinine among diabetes patients (r=0.378, p=0.010). However, LINE-1 DNA methylation levels were independent of T2D risk factors, such as hyperglycaemia, dyslipidaemia, blood pressure and obesity. We also investigated the relationship between smoking and DNA methylation, but no association was found. **Conclusion:** This study is the first to report the LINE-1 DNA methylation levels in Malays with T2D. Lower level of LINE-1 DNA methylation was found in the T2D patients compared to NDC. Future studies are required to replicate and extend these findings. It would be interesting to compare LINE-1 DNA methylation levels between NDC, T2D and diabetic nephropathy patients.

KEYWORDS: DNA methylation, epigenetic, LINE-1, type 2 diabetes

P-016

Identification of Metabolites as Possible Biomarkers for Colorectal Cancer Staging Using Systematic Review

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Introduction: Colorectal cancer (CRC) is among the most common cancers worldwide. Early diagnosis and accurate staging of CRC is crucial to improve patient outcomes. Currently, metabolomics is a potential technique to identify changes in metabolite profiles in the different stages of the cancer. In this systematic review, we aim to identify common reported metabolite changes in human tissues samples associated with early and late stages of CRC. **Methods:** Broad systematic review of

the literature was carried out up to April 2017 from selected databases. We screened and reviewed the titles, abstracts, and full text articles according to the inclusion and exclusion criteria. Quality assessment was conducted on the selected articles which met the criteria. **Results:** Three studies met the inclusion criteria and data showed that the metabolomics patterns in general differ according to study population, sample preparation, analytical platforms and the statistical tools used. **Conclusion:** This systematic review highlights the need for more studies on CRC in different populations.

KEYWORDS: colorectal cancer, metabolomics, stages, tissue, systematic review

P-017

Breast Cancer-Associated Genes: *In Silico* Identification of Transcription Factors Interactions on the Promoter Regions

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Introduction: The incidences of breast cancer cases are increasing nowadays with the report on the probability that 1 in 8 women will develop disease over their lifetime. Following that, this study was executed with the aim to identify the transcription factor binding site motifs in the particular promoter regions of the genes associated with breast cancer. **Methods:** This study implemented the use of the HOCOMOCO and EPD new databases independently to obtain the promoter groupings of the genes of interest, and the findings were mapped against the possible limiting motifs using the FIMO tool. **Results:** The results of these were then mapped to identify the course of action of transcription factors (TFs), using the genes of interest retrieved from the ChEA database. From the ChEA database, a set of TFs targeting the genes *pten*, *pik3cb*, *pik3ca*, *pdpk1*, *hprt1*, *Gsk3β*, *GAPDH*, *cdkn1b*, *ckdn1a*, *cdk6*, *cdk2*, *ccne1*, *ccnd1*, *atm*, *akt1* and *actb* were identified to be associated with breast cancer. **Conclusions:** *In silico* analysis indicated that only 7 genes (*akt1*, *actb*, *atm*, *ccne1*, *cdk2*, *cdk6*, and *hprt1*) were shown to have the interaction with the transcription factors on respective locations on the promoter regions, and the interactions were through overlapping or gap by specific base pair (≤ 50bp). Such interactions were not observed in the other studied genes. In conclusion, there are 7 interactions predicted on the respective promoter regions. Further studies are required for more understanding on the relationships of these genes to the breast cancer development.

P-018

Elucidating Methylation Landscape of Colorectal Cancer with Mucinous Adenocarcinoma Subtype

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Introduction: The majority of colorectal cancers (CRCs) are classified as adenocarcinoma not otherwise specified. On the other hand, mucinous adenocarcinoma (MC) is a distinct form of CRC and is found in 10–15% of patients. Mucinous adenocarcinoma differs from adenocarcinoma (AC) in terms of both clinical and histopathological characteristics, and has long been associated with poor response to treatment, reduced survival, poor prognosis, advanced stage at presentation and early onset of disease. However, little is known about the epigenome-wide methylation profile associated with this type of malignancy. This study aims to determine differentially methylated genes in MC and to correlate with the clinicopathologic features. **Methods:** We used the TCGA-generated methylation microarray of 460 colon adenocarcinoma (COAD) cases. The patients' information were obtained from GDC Data Portal while the methylation data based on Illumina Methylation 450 beadchip in β value format was retrieved from cBioPortal. Students' unpaired t-test with a Benjamini Hochberg (BH) false discovery rate (FDR) multiple testing correction was performed using Bioconductor in R. **Results:** We identified 1336 genes which were significantly demethylated in MC versus AC; 788 were hypermethylated and 548 were hypomethylated with 295 and 131 genes had $\Delta\beta \geq 0.1$ and ≤ -0.1, respectively. The most significantly hypermethylated gene was EIF6 (22.8% hypermethyation; p = 9.92E-07) while the most significantly hypomethylated gene was BAG3 (20.8% hypomethylation, p = 1.65E-03) and both genes were involved in carcinogenesis processes. **Concluions:** This preliminary findings suggest that the aberrant DNA methylation of *EIF6* and *BAG3* might be involved in MC development.

P-019

Serum Metabolomic Profiling for Identification of Female Reproductive Aging Biomarkers

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Introduction: Reproductive aging in female is characterized by a progressive decline in fertility attributed to the loss of follicles from the ovary and a decrease in the quality of oocyte. As new approaches, serum metabolites have been used to understand the biochemical changes during aging and to identify age-related biomarkers that are related to reproductive aging. **Methods:** In this study, female *Mus musculus* mice were

divided into two groups. Six weeks old mice were used as young group (n=8) and eight months old were used as aging group (n=8). Mice from both groups were humanely sacrificed and the serums were collected. A non-targeted metabolomics analysis was performed using liquid chromatography/mass spectrometry quadrupole-time of flight (LC/MS Q-TOF) on the serum of young and aging mice. **Results:** From metabolomics analysis, 52 metabolites were identified to be significantly different ($p < 0.05$) between the two groups. Some metabolic pathways that were reflected in the female reproductive system include those of fatty acids, glycerophospholipids, steroid hormone biosynthesis and amino acids metabolism. **Conclusion:** Changes that were detected in many metabolic pathways revealed that aging has an impact on cellular energy storage, energy metabolism and reproduction, as well as response against oxidative stress that affect female fertility. Thus, by identifying the potential metabolites and revealing the metabolic pathways that may be related to aging and fertility, it is hoped that the mechanisms involved in long term physiological and biochemical changes associated with female reproductive system and how it affects fertility may be determined.

P-020

Isolation of *Helicobacter Pylori* from Gastric Biopsies with Selective and Non-Selective Media

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Introduction: *Helicobacter pylori* (*H. pylori*) is a Gram negative, microaerophilic and spiral-shape bacterium. It is an important aetiological factor for chronic gastritis and peptic ulcer disease and is often associated with gastric cancer and lymphoma. *H. pylori* infects approximately 50% of the population globally and has coexisted with humans for many years. The aim of this study was to isolate *H. pylori* from gastric biopsies of patients undergoing endoscopy at Universiti Teknologi MARA (UiTM), Sungai Buloh, using selective and non-selective media. **Methods:** Gastric biopsy samples were collected from 40 patients that underwent endoscopy at Universiti Teknologi Mara (UiTM), Sungai Buloh, Selangor. The samples were homogenised and cultured on non-selective blood agar and *H. pylori* selective media supplemented with Dent supplement containing vancomycin, trimethroprim lactate, cefsulodin and amphotericin B. The culture plates were incubated micro-aerobically at 37^{o}C for 5 to 10 days. **Results:** Five (13%) of the 40 biopsies were found to be *H. pylori* positive when *H. pylori* selective media was used. Morphologically colonies appeared small, circular and smooth. However, none were successfully isolated using non-selective media. **Conclusion:** The results demonstrate that isolation of *H. pylori* from gastric biopsies requires selective media in order to obtain positive culture isolate of *H. pylori* for further study purposes and subjected to molecular study.

KEYWORDS: *Helicobacter pylori*, gastric biopsies, endoscopy, culture

P-021

Screening of Hookworm in Domestic Animal Stool Samples in the Vicinity of Negrito Orang Asli Settlements

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Introduction: Hookworm is a common soil transmitted helminth (STH) inhabiting the guts of human and animals such as cats and dogs. It is prevalent in tropical countries where the climate, moisture and temperature are most suitable for the development of hookworm's eggs and larvae. Hookworm can be classified into human hookworm and animal hookworm. Several studies have shown that animal hookworm can also be found in human stool samples. Zoonotic transmission of animal hookworm to human may occur if a barefooted person walks in an environment containing filariform larvae of hookworm. We conducted a study to determine the presence of hookworm eggs in stool samples of domestic animals such as cats and dogs living in the environment of Negrito Orang Asli settlements in Malaysia. **Methods:** A total of 21 animal stool samples consisting of 10 from cats and 11 from dogs were collected. Iodine direct smear was performed to observe the hookworm eggs microscopically. **Results:** Preliminary results show that one sample (10%) from cat and three samples (27.2%) from dogs were positive for hookworm eggs. This study showed that the presence of hookworm in stool samples of dogs were higher than in cats. **Conclusion:** Further work to identify the species of the hookworm is being performed. Information on the species of the hookworm that prevails in domestic animals in Orang Asli communities will be useful for prevention and appropriate treatment of hookworm infections in the Orang Asli.

KEYWORDS: ***Hookworm, Negrito, Orang Asli, domestic animals, settlements***

P-022

Recent Case of Human Lingual Sarcocystosis in Malaysia

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Introduction: Sarcocystosis is a parasitic infection and an emerging disease caused by intracellular protozoan of the genus *Sarcocystis* spp. It requires two hosts to complete its life cycle which are intermediate and definitive host. The parasite can be seen in two forms i.e., muscular and intestinal. **Case Report:** A forty eight-year-old male subject was brought in dead to the Department of Forensic Medicine, Hospital Sungai Buloh in October 2015. A medico-legal autopsy was performed and the cause of death was concluded as hypertensive heart disease. Tissue samples from skeletal

muscles namely the diaphragm, pectoral and tongue were obtained as part of parasitic disease screening. Histopathology examination revealed presence of a banana-shaped bradyzoites measuring 76.44 x 52.38 µm in the tongue tissue. The wall was radially striated with villous like projections measuring 1.71 µm in thickness. These features are in line with those of sarcocyst of *Sarcocystis* sp. Subsequent molecular analysis for species identification yielded high possibility of *S. singaporensis.* Indirect fluorescent antibody test (IFA) which was performed on the blood drops on filter paper was also positive for sarcocystosis at 1:50 dilution. **Conclusion:** While human muscular sarcocystosis is endemic in Malaysia, little is known on lingual sarcocystosis. Serology, microscopy and molecular analysis are important and should be incorporated in future studies of this particular parasitic infection.

KEYWORDS: Sarcocystosis, sarcocyst, histopathology, autopsy

P-023

Evaluation of Platelet Concentrate Discard Rate and Its Causes: A Retrospective Analysis

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Introduction: Platelet concentrates are blood product used to treat and prevent bleeding in patients with thrombocytopenia or functional platelet disorders. Our transfusion unit obtained platelet concentrates from Pusat Darah Negara (PDN) based on clinical requirement and as standby to cover for procedures as we do not produce our own. Due to this, there is a concern that the inventory of these platelet concentrates was in excess, leading to wastage. The objective of this study is to determine the discard rate of platelet concentrates and identify the cause. **Method:** Data on number of platelet concentrate availability and its usage, rate and reasons for discard was obtained from Blood Bank Information System (BBIS) of the UiTM Clinical Training Centre (CTC) from January to December 2016. **Result:** Out of 425 units of platelets collected, 163 units (38.3%) were discarded. Coronary artery bypass grafting procedure showed the highest discard rate with 139 units (85%) followed by minimally invasive cardiac surgery with 24 units (15%). The reason for high discard rate was expired products. **Conclusion:** The reason for high discard rate was expiry due to non-utilization or 'unclaimed platelet' reserved to cover cardiothoracic surgeries. Considering the logistic factor between PDN and our centre, the types of surgery being conducted in addition to a short platelet shelf life of 5 days, the wastage is inevitable. Measures to minimize the discard rate were implemented including close monitoring on platelet reservation, continuous medical education (CME) to staffs and users, and judicious use of platelet concentrates.

KEYWORDS: Platelet concentrate, discarded, wastage

P-024

Detection of Antibiotic Resistance Plasmid in Two Strains Of Non-Typeable *Haemophilus Influenzae*

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Introduction: Non-typeable *Haemophilus influenzae* (NTHi) is an opportunistic pathogen residing in human upper respiratory tract responsible for several non-invasive diseases such as sinusitis, otitis media, and conjunctivitis. There are reports worldwide documenting emergence of antimicrobial resistance strains of NTHi that further complicate the treatment from its infections. Plasmids have been recognised to play a role of spreading antibiotic genes among NTHi strains. Therefore, we aim to detect presence of plasmid in two strains of NTHi and determine the genes responsible for the antibiotic resistance. We hypothesized that in the presence of integrative and conjugative plasmid (ICE), a strain could harbour multiple drug resistance genes. **Methods:** Antibiotic susceptibility test (AST) against ampicillin, tetracycline, co-trimoxazole (SXT) and cefuroxime were performed on H607 and H152 strains. PCR was performed to detect *attP* gene that indicate the presence of ICE, and blaTEM, tetA, dfrA, folP and *sul2* genes which were responsible for their resistance pattern. **Results:** Strain H607 was resistant to ampicillin, tetracycline and SXT, while H152 was only resistant to SXT. None were resistant to cefuroxime. Strain H607 showed the presence of ICE while H152 did not have any plasmid. The multiple drug resistance in H607 was supported by the presence of bla_{TEM}, *tetA* and *sul2* genes while none of the resistance genes could be detected in H152. **Conclusion:** The presences of ICE harbouring multiple resistance genes were responsible for the multidrug resistance in NTHi strain H607.

KEYWORDS: Non-typeable *Haemophilus influenzae*, multiple drug resistance, co-trimoxazole, plasmids, antimicrobial agents

P-025

Knowledge and Reasons Hindering Blood Donation among Undergraduate Students of a Public University in Malaysia

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Introduction: The demand for blood exceeds supply as reported by Malaysian National Blood Centre where only 2.2% of Malaysians donated blood in 2015. Blood donor pool should be sustained with young and loyal donors. Therefore, this study aims to investigate the knowledge and the reasons hindering blood donation among undergraduate students in a public university in Malaysia. **Methods:** A cross-sectional study was conducted in Universiti Teknologi MARA (UiTM), Kuala Pilah Campus, using validated questionnaires from previous studies to assess the level of knowledge

and the reasons hindering blood donation among students. All completed surveys were analysed using Statistical Package for Social Science (SPSS) software version 22.0. A p-value of less than 0.05 was considered as statistically significant. **Results:** A total of 304 respondents had a mean age of 19.28±0.71 years. Majority were females (82.9%) and only 18.4% of the respondents had history of blood donation. More than half of the non-blood donor (51.6%) agreed that fear of needles and seeing blood refrain them from donating blood. Other factors were time constraint (48%), beliefs that blood donation procedure is painful (45.6%) and difficulty to access blood donation centers (35.1%). The mean total knowledge of those with history of blood donation and non-blood donor was 3.64±1.54 and 3.10±1.42 respectively (t=2.53, p-value=0.012). **Conclusion:** The prevalence of blood donors among undergraduate students in a public university is still low as compared to non-blood donors. Therefore, specific health awareness should be conducted to address the reasons for not donating blood among these students.

KEYWORDS: blood donors, awareness, young adults, needle phobia

P-026

Storage Temperature and Type of Transport Medium Affect the Recovery of *Acinetobacter Baumannii*

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Introduction: The importance of recovering *Acinetobacter baumannii* from transport medium (TM) for culture of the bacterium in laboratory diagnosis is indisputable. Optimum storage temperature and type of TM are two factors to ensure good bacterial growth for accurate diagnosis. In this study, the optimum conditions for recovery of viable *A. baumannii* from TM was sought. **Methods:** A suspension of 10^8 CFU/ml of *A. baumanni* was used to moisten cotton swabs and were immediately inserted into two TM, i.e., Amies Charcoal and Stuart. Both media were then stored at three temperatures (room temperature, 4^{o}C and -20^{o}C) for 48 hours. At every six hours interval, swabs from each of the TM were cultured onto ChromoAgar® and viable bacteria were enumerated the following day. **Results:** At room temperature (26^{o}C), the number of viable bacterium in Amies Charcoal TM was constant for up to 48 hours, however in Stuart TM, the number declined rapidly after 6 hours. At 4^{o}C, the viable count in Amies Charcoal TM remained constant for 24 hours but in the Stuart TM, the viability reduced immediately after storage. Samples in both TM stored at -20^{o}C, resulted in immediate reduction in the viability. **Conclusion:** Recovery of *A. baumannii* from Amies Charcoal TM was significantly higher than Stuart TM. For optimum recovery of *A. baumannii* from Amies Charcoal TM, it is recommended to culture the samples within 24 hours of collection. If immediate processing is not feasible, the TM can be kept at 4^{o}C for less than 42 hours but storage at -20^{o}C should be avoided.

KEYWORDS: Acinetobacter baumannii, transport medium, storage, recovery

P-027

Detection of Unexpected Red Cell Antibody among Patients in UITM Specialist Medical Centre : A Seven-Year Experience

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Introduction: Red cell antibody screening is one of the procedures routinely performed during pre-transfusion testing to reduce risk of transfusion reactions. Positive red cell antibody screening leads to delay in issuing packed cells as various procedures need to be carried out in the blood bank in order provide compatible packed cells to the patients. The aim of this study was to analyze the positive antibody screening tests during pre-transfusion testing. **Methods:** This was a cross sectional study done in the Transfusion Medicine Unit, CPDRL UiTM Specialist Medical Centre from 2011 to 2017. A total 8653 patients' blood samples who requested for pre-transfusion testing during the study period were analyzed. Antibody screening was done using an indirect antiglobulin test method. The positive samples were subjected for further antibody identification. **Results:** Antibody screening tests were positive in 124 patients out of 8653 samples (1.4%). Autoantibodies and alloantibodies were detected in (35/124, 28.2%) of samples. Total 13 alloantibodies were identified and seven of the samples (7/124, 5.6%) were positive for autoantibodies. Combination of autoantibodies and alloantibodies were observed in 7 samples (20.0%). The most common alloantibody detected was probable anti- Mia (31.4%), followed by anti-Le^a (25.7%), anti-Le^b(17.1%), anti-E and anti-Jk^b 11.4% respectively. Multiple alloantibodies were detected in (10/124, 8.0%) samples. The most common combination of alloantibodies in this study were anti Le^a and anti Le^b (17.1%). **Conclusion:** Screening of antibody towards red cell antigens in the patients' blood who require packed cells transfusion is important in order to provide safe and compatible blood and to avoid antibody related adverse transfusion reactions. Arrangement for patients known to have antibodies need to be anticipated early to ensure adequate, safe and timely blood supply.

KEYWORDS: antibody screening, autoantibody, alloantibody, pre-transfusion testing

P-028

Intestinal Barrier Function in Health and Disease

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Introduction: In addition to digestion and absorption of food, intestinal wall acts as a barrier known as intestinal barrier (IB) in between the lumen of the intestine and internal organs of the body. A healthy IB functions to prevent the passage of harmful materials such as microorganisms, luminal antigens, inflammatory and proinflammatory materials from the intestinal lumen into the systemic circulation.

Dysfunction of the IB leads to higher intestinal permeability (IP) and uncontrolled passage of the above materials from the intestinal lumen. Recently, IB dysfunction and higher IP has been considered to be the primary event in the pathogenesis of several inflammatory reactions, which ultimately lead to various intestinal and extra intestinal pathology and diseases. Objective: To discuss the causes and underlying pathophysiology of IB dysfunction in health and diseases. **Methods:** Pubmed, scopus and google were searched with the key words intestinal barrier function, intestinal barrier dysfunction matched with various physiological and pathological conditions such as diet, ageing, exercise, inflammatory bowel disease, diabetes mellitus, autism etc. from the year 1980 till September 2017. **Results:** In healthy individuals, IB is formed and strengthened by the mucus layer, enterocytes, tight junction proteins etc. and prevents excessive passage of harmful materials from the lumen. Disruption of IB occurs with ageing, consumption of high fat diet, in inflammatory bowel disease, autoimmune diseases etc. **Conclusion:** Understanding the pathophysiology of IB dysfunction in different conditions might help us to find preventive or therapeutic measures for the prevention and treatment of different diseases.

KEYWORDS: intestinal barrier, intestinal barrier function and health, intestinal barrier dysfunction and disease

P-029

The Impact of Life Events on Depression among Community Dwelling Elderly in Kelantan

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Introduction: Life events are believed to be associated with depression. With increasing age, elderly population who faces more events in their life is vulnerable to develop depression. This study aimed to determine the prevalence of depression among community dwelling elderly in Kelantan and to identify the association between life events and depression in elderly. **Methods:** This cross sectional study was conducted in Kelantan from April till August 2016 using stratified random sampling method on 422 elderly. Malay Geriatric Depression Scale was utilized to detect depression while Social Readjustment Rating Scale (SRRS) for the life events occurring within twelve months period prior to the study. **Results:** The prevalence of depression among community dwelling elderly in Kelantan is 22%. There is significant association between SRRS level and depression among elderly in Kelantan (OR 3.03, 95% CI:1.17,7.84, p=0.023).Death of spouse (95% CI:1.45, 26.34, p=0.014) and serious illness (95% CI :1.15,7.84, p=0.025) were among the identified predisposing events to develop depression in the elderly. **Conclusion:** The positive association between life events and depression in elderly indicates that elderly population is more emotionally susceptible to develop depression with occurrence of life events. Therefore, there is a need to detect early signs of depression especially in those who face certain life events and to properly channel for further intervention.

KEYWORDS: life events, depression, elderly

P-030

Parents' Perception and Relationship of Physical Activity with Obesity in Children 5 To 12 Years of Age

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Introduction: Childhood obesity rate is increasing in Malaysia and worldwide; in tandem with the rates of prediabetes and Type 2 Diabetes Mellitus (T2DM). Early identification of childhood obesity is therefore vital to early detection of T2DM hence preventing the diagnosis of T2DM in children. This study evaluated parents' perception on their children's body mass index (BMI) and was designed to determine the association between physical activity and obesity in children. **Methods:** A total of 80 children aged between 5 to 12 years old admitted to Hospital Sungai Buloh were recruited into the study following written informed consent. Demographic details, socio-economic status, lifestyle and environmental information were collected via questionnaire. For each participant, BMI was calculated and classified into either normal or overweight/obese (BMI > 85th percentile). **Results:** A total of 59 (73.8%) participnats were normal weight while 29 (26.2%) were overweight/obese. Seventy-six percent parents of overweight/obese children have the perception that their children's BMI is normal. Forty percent of normal children and only 19% of overweight/obese children are active during Physical Education class in school (p=0.05). Activity during recess is significantly different between children with normal BMI and children that are overweight/obese (p=0.003). Children with a normal BMI are significantly more active compared to overweight or obese (p=0.025). **Conclusion:** Most parents of high BMI children are not aware that their children are overweight. Childhood obesity is associated with daily physical inactivity, suggesting that intervention is needed to prevent future adverse health effects in these children.

KEYWORDS: Childhood obesity, Body mass index, Parents' perception, Physical inactivity

P-031

Exploring the Attitude of Preschool Parents on Immunisation Program

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Introduction: Vaccines have been historically proven to play a vital role in disease prevention in children. However, with recent growing parental concern of vaccine safety, world is witnessing a rise in vaccine refusal, which leads to the emergence of some vaccine-preventable diseases. As children are not capable of making informed decision, parents' awareness on the children immunization program will have a huge impact on their children's immunization status. The objective of this study is to

determine the level of attitude towards vaccination among parents of preschool children in Selangor. **Methods:** A cross sectional study was conducted in Selangor involving five preschools from rural and urban areas. A total of 97 respondents were randomly sampled and following informed consent, answered validated and well-constructed questionnaires on socio-demography and questions reflecting the level of attitude towards vaccination. **Results:** The study showed that up to 82.47% of the respondents fall into the poor attitude groups while the remaining (17.53%) were classified into good attitude group. A significant association was found between the level of attitude with different races (p=0.001), religion (p=0.001), level of education (p=0.001), employment status (p=0.003), and total family income (p=0.038). Highest percentage of good attitude group mainly comes from Chinese and Buddhist (47.1%), SPM holder (70.6%), employed respondent (52.9%) and total family income of RM2001-RM3000 (5.2%). **Conclusion:** A high proportion of parents still have poor level of attitude towards vaccination. Factors that influenced the level of attitude towards vaccination are race, religion, educational level, employment status and total family income.

KEYWORDS: Preschool, immunization, parents

P-032

Internet Addiction and its Relation with Anxiety, Depression and Stress in UITM Medical Students

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Introduction: The use of internet is inevitable and has become a necessity in most circumstances. However, there is a concern of excessive use among students. The aims of this study are to determine the prevalence of internet addiction among UiTM preclinical undergraduate medical students and to assess the relationship between internet addiction and mental health disorders namely, anxiety, depression and stress. **Methods:** A cross-sectional study was performed involving 226 preclinical students from Faculty of Medicine UiTM. Each student participated by answering a written set of validated questionnaires which consist of three sections including demographic information, Internet Addiction Test (IAT), and Depression Anxiety and Stress Scale (DASS 21). Data were analyzed using Statistical Package for the Social Sciences (SPSS version 23) software. Only completed questionnaires were analyzed (201 out of 226 participants). **Results:** All students used internet daily with Facebook (21%) being the most frequently visited. Out of these students, 19.4% showed normal level of internet usage, 39.8% showed mild level of internet addiction and 40.8% showed moderate level of internet addiction. No one suffers from severe dependence on internet. The mean score of the internet addiction was 44.30 ± 15.98 which correlates with mild internet addiction. There is a significant relationship between internet addiction with depression, anxiety and stress. **Conclusion:** The overall prevalence of the internet addiction is 80.6% among UiTM preclinical medical students. This investigation also reports that internet addiction directly affects depression, anxiety,

and stress. Limitations of the study include the small sample size and cross-sectional study.

KEYWORDS: Internet addiction, depression, stress, anxiety

P-033

Perception of Media in Reporting Domestic Violence in Malaysia

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Introduction: Domestic violence is a major public issue in Malaysia. Local empirical studies and official records provide limited information about number of cases, methods, risks and preventive measures of domestic violence, Further, little is known of how media describes this violent act in Malaysia. **Methods:** This study aimed to review and investigate the perception of media in particular online newspapers ondomestic violence. Data were gathered from the archives (2003 until 2017) of 8 local online newspapers. Thematic and content analysis were carried out. **Results:** A total of 124 articles and 47 photos that met the selection criteria were retrieved and analysed. There were five main themes emerged from the searched articles; i) secondary source of information; ii) background of survivors and perpetrators; iii) types and methods of violence; iv) complications of violence; and v) strategies or interventions related to domestic violence. **Conclusion:** Media have provided beneficial information on domestic violence, but informed by prerogative views of professionals and lacked voices of women survivors. Stories of domestic violence should be presented in a more comprehensive manner to enhance awareness of the public, increase support system, improve policy and ultimately end this violent behaviour.

KEYWORDS: Media, Online newspapers, Domestic Violence, Malaysia

P-034

Relationship Between Physician-Patient Interaction Satisfaction with Single Item Self-Report Medication Adherence Question and Diabetes Control in Type 2 Diabetes Patients in Primary Care

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Introduction: Medication adherence has been found to be an important determinant in achieving glycaemic targets in Type 2 Diabetes (T2DM) patients. In other patient populations, physician-patient interaction satisfaction was found to influence medication adherence. It is then important to identify if this is also a factor amongst

T2DM patients on insulin as poor adherence was associated with increased all-cause mortality. **Methods:** This was a cross sectional study involving 197 T2DM patients on insulin from 2 government primary health clinics in Gombak. Physician-patient interaction satisfaction was assessed using Skala Kepuasan Interaksi Perubatan (SKIP-11) consisting of 3 subdomains (Distress Relief, Rapport and Interaction Outcome). Medication adherence level was measured using a single item self-report question. Data analysis for descriptive, inferential and multivariate analysis statistics were performed. **Results:** The mean age of the study participants was 57.12 (SD: 9.27). Majority were Malay, female, unemployed with mean BMI of 27.5. Majority reported full adherence (62.9%). High scores in the Interaction Outcome domain was associated with better adherence. Factors associated with high scores in this subdomain included number of oral hypoglycaemic agent and type of insulin regime taken. Fully adherent patients were found to have better glycaemic control compared to those who were not fully adherent ($p<0.05$). **Conclusion:** Physician-patient interaction satisfaction is an important factor in achieving better medication adherence which then leads to better glycaemic control in this group of patients. There is a need to identify strategies to improve satisfaction in this domain to improve patient adherence.

P-035

Characteristics and Symptoms Burden Among Advanced Heart Failure Patients

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Introduction: Patients with advanced heart failure have an unpredictable clinical course with progressive debilitating symptoms. A better understanding of their characteristics and symptoms burden may help physicians plan better healthcare delivery to this cohort of patients. **Methods:** Patients with advanced heart failure were selected from the General Cardiology Clinic in Pusat Perubatan Universiti Teknologi Mara (PPUiTM) to attend a dedicated heart failure clinic. Data collection was from January to June 2017. Patients' clinical and socio-demographic details were recorded. The Brief Fatigue Inventory (BFI), Edmonton Symptoms Assessment System (ESAS-r) and the McGill Quality of Life Questionnaire were used to evaluate their symptoms. **Results:** 90 of 639 (14.1%) cardiology patients have advanced heart failure. Mean age was 56.93 years ($\pm$11.16) with a mean Body Mass Index (BMI) of 27.75kg/m^2 (+ 7.12). 14 (15.6%) were female. Of the patients, 66 (73.3%) were Malay, 13 (14.4%) were Indian and 10 (11.1%) were Chinese. Mean Ejection Fraction (EF) was 25.99 ($\pm$ 7.78) with 44.4% has arrhythmias on electrocardiography (ECG). At initial visit, 72 (80%) patients were in New York Heart Association (NYHA) class II and others were in class III. 54 (58.9%) has Diabetes Mellitus and 67 (73.3%) has hypertension. The majority (82.2%) has low financial income with, 77 (85.6%) were unemployed. Tiredness was the most common symptoms (61.1%) followed by poor appetite (47.8%) and drowsiness (46.7%). Mean BFI were 2.40 (SD 2.39) while MQOL mean was 6.88. **Conclusion:** Prevalence of patients with advanced heart failure attending PPUiTM was higher than previous local data (14.1% compared to 6.7%). They are usually obese, Malay, men with low financial income and unemployment. Tiredness is

the main complaint with moderate quality of life. Future research should aim to help manage fatigue and inexpensive interventions to improve quality of life.

P-036

Validation of the Malay Version Fertility Quality Of Life (FertiQoL)

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Introduction: FertiQoL questionnaire was developed and validated in 2011 and has been widely translated. It is used extensively to measure quality of life (QoL) in all people experiencing fertility problems. The objective of this study is to validate the FertiQoL (Malay). **Methods:** A preliminary study was conducted among those attending the fertility clinic PPPUiTM and LPPKN. Demographic details were collected and participants answered the FertiQoL (Malay) that underwent a robust translation process by the original authors. The questionnaire consist of 24 Core questions and 10 Treatment questions. Exploratory factor analysis and internal consistency were measured using SPSS v24. Ethical approval was obtained from the Ethics Committee UiTM. **Results:** A total of 174 subjects included 56.9% females and 43.1% males with mean age of 32.26 ±3.61. KMO measures of sampling adequacy were > 0.80. For treatment questions, factor loadings were between (0.320 and 0.849) with no cross loadings with Cronbach alpha of 0.720 which are divided into environmental (0.728) and tolerability (0.633). For Core questions, factor loadings were between (0.284 and 0.776) with cross loadings between mind-body, emotional and social domains. Cronbach alpha for specific domains were mind-body (0.803), emotional (0.579), relational (0.554) and social (0.657). Cronbach alpha for emotional domain improved to 0.725 if Q7 was omitted and for social domain improved to 0.738 if Q14 was omitted. **Conclusion:** FertiQoL (Malay) is useful to measure impact of fertility problems on QoL among Malaysians. Cross cultural research can be done to assess discrepancies and low Cronbach alpha in some domains.

P-037

Occurrences of Drugs in Urban River Water. Case Study: Kerayong River, Selangor, Malaysia

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Introduction: Drugs contained in the river can affect aquatic ecosystems and indirectly can cause serious effect such as the existence of antibiotic resistant bacteria, hepatic gene expression and endocrine disruptions in fish for the long-term

exposure. This study is done to investigate the occurrence of drugs in urban surface water (Kerayong River, Malaysia). **Methods:** Five different sampling stations were chosen along Kerayong River. Samples have been taken and brought to the laboratory for sample filtration and sample concentration. Then, the samples analysed using liquid chromatography coupled with quadrupole-time-of-flight tandem mass spectrometry (LC-Q-ToF/MS) for compounds tracing purposed. **Results:** From the result obtained, several pharmaceutical compounds have been detected in river water. All the drugs detected were classified based to their therapeutic usage. The residues detected including antidepressants, anti-inflammatories and analgesics, antihypertensive, beta-blockers, anesthetic, psycoanaleptic, oral contraceptives and hormone replacement therapies. **Conclusion:** The water surface of Kerayong River was contained the several types of drugs, which contributed by various sources. Further analysis need to be achieved to ensure the quality of river water, which still under control. Besides, the method used in this analysis was accepted to trace the existing of the compounds in water samples.