37TH MSPP SCIENTIFIC MEETING
KUANTAN 2024
9TH MEDICAL RESEARCH SYMPOSIUM

37TH MSPP ANNUAL SCIENTIFIC MEETING

in conjunction with

9TH MEDICAL RESEARCH SYMPOSIUM

ABSTRACT BOOK

INTEGRATING MISSION ORIENTED RESEARCH IN MEDICAL SCIENCES

WED & THU
11 & 12 SEPT 2024

TIME
8:00AM - 5:00PM

VENUE
AC HOTEL BY MARRIOTT
KUANTAN, PAHANG, MALAYSIA

ORAL PRESENTATIONS

S001

The Impact of SGLT-2 Inhibitor Towards Glucose Parameters and Epicardial Adipose Tissue Thickness in T2DM Patients with Coronary Artery Disease

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Introduction: Patients with high comorbidities, typically those with type 2 diabetes mellitus (T2DM) with coronary artery disease, have been found to have a positive correlation with epicardial adipose tissue (EAT). The introduction of sodium glucose co-transporter (SGLT-2) inhibitor has been shown to improve glycemic parameters while also potentially influencing the reduction of EAT thickness. For Malaysian cohorts, however, the correlations between these parameters are still unknown. The current study aims to associate between glycemic parameters with EAT thickness for T2DM patients with coronary artery disease (CAD) treated with SGLT-2 inhibitor. **Materials and method:** During the course of six months, 128 T2DM patients with CAD were recruited using a quasi-experimental cohort approach in a single centre; 64 of them received SGLT-2 inhibitor treatment, and the remaining 64 did not. The fasting blood glucose (FBG) and glycated hemoglobin (HbA1c) were taken, along with echocardiographic measurement of EAT thickness and statistically analyzed compare its association between baseline and 6-month post-treatment. **Results:** Both SGLT-2 inhibitor treatment and non-treatment had shown an improvement of FBG in 6 months (7.9 $\pm$ 7.9 mmol/l to 6.8 $\pm$ 3.0 mmol/l vs. 8.6 $\pm$ 7.1 mmol/l to 7.0 $\pm$ 3.1 mmol/, $p < 0.001$) while SGLT-2 treatment showed a significant improvement of HbA1c (8.1 $\pm$ 3.1%

vs. 7.1 ± 1.7%, p<0.001) and EAT thickness (6.1 ± 1.9mm vs. 4.3 ± 1.2mm, p < 0.001). However, association between FBG and HbA1c were not significant with EAT thickness, being p=0.169 and p=0.199 for non-SGLT group, respectively and p=0.246 and p=0.486 for SGLT-2 group. **Conclusion:** SGLT-2 inhibitors have demonstrated a noteworthy improvement in FBG, HbA1c, and EAT thickness, highlighting its significance as an efficient antidiabetic medication that effectively reduces EAT thickness and improves both short- and long-term glycaemic control.

Keywords: SGLT-2 inhibitor; HbA1c; fasting blood glucose; epicardial adipose tissue thickness; T2DM

S002

Prevalence of Urinary Incontinence and Its Association with Quality of Life among Elderly Women Attending Government Health Clinics in Kuala Kuantan 1

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Introduction: Urinary incontinence (UI) is a prevalent condition among elderly women, impacting various aspects of their quality of life. This cross-sectional study from January 2022 to December 2023 aims to establish the prevalence of urinary incontinence, its associated factors, and its impact on the quality of life (QOL) for elderly women attending government health clinics in Kuala Kuantan 1, Kuantan, Pahang. **Materials and method:** The participants included elderly women aged 60 and above from two selected government health clinics in Kuala Kuantan-1. Data was collected for sociodemographic characteristics and comorbidities. Urinary incontinence and quality of life assessment data were collected using the International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF) and the International Consultation on Incontinence Questionnaire Lower Urinary Tract Symptoms Quality of Life (ICIQ LUTSqol) questionnaire respectively. **Results:** Among 250 respondents, 36% (90) suffered from urinary incontinence (stress incontinence, 36.7%; urge incontinence, 27.8%; and mixed, 25.6%). Among 90 respondents with UI, 62.2%, 30%, and 7.8% reported mild, moderate, and severe UI, respectively. The risk of incontinence is higher among Malay ethnicity (OR 2.578, 95% C.I 1.446-4.598, p=0.001) compared to Chinese. 2-way ANOVA analysis demonstrated a statistically significant association between the severity of UI (p-value < 0.001) with QOL, in which the more severe the UI, the poorer QOL. Those respondents with mixed urinary incontinence have the poorest quality of life score compared to urge and stress types, regardless of the UI severity (p=0.011). **Conclusion:** Around one-third of elderly women attending health clinics suffer from mild-to-severe urinary incontinence. Ethnicity has been identified as a risk factor for UI. This study has shown that mixed-type incontinence substantially impacts the quality of life. Therefore, screening for UI is crucial as early detection of UI enables appropriate treatment options such as lifestyle modifications, pelvic floor muscle exercise, behavioural therapies, medications, or surgery.

Keywords: Urinary incontinence; elderly; quality of life

S003

Prevalence and Hematological Impact of Southeast Asian Ovalocytosis in the Malay Population: A Comparative Study

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Introduction: Southeast Asian Ovalocytosis (SeAO) is a hereditary erythrocyte membrane disorder predominantly found in Southeast Asia. It is an autosomal dominant condition and can cause severe haemolysis during the neonatal period. This study aimed to determine the prevalence of SeAO among Malays in Malaysia and compare red blood cell (RBC) parameters between individuals with isolated SeAO and normal individuals. **Materials and method:** From October 2022 to October 2023, we screened 526 healthy, non-smoking Malays aged 18 to 40 for SeAO and other common hematological conditions affecting RBC parameters, such as thalassemia and anemia. Full blood picture (FBP) and hemoglobin analysis were performed to rule out thalassemia and anaemia. SeAO was diagnosed based on the presence of stomatocytes, macro-ovalocytes, and 25% ovalocytes in the FBP. **Results:** 21 (4.0%) individuals with isolated SeAO (case) and 371 (70.5%) healthy controls (control) were identified from the screening. Significant differences were found in hematocrit level, RBC count, mean corpuscular hemoglobin (MCH), red cell distribution width (RDW), white blood cell (WBC) count, platelet count, and nucleated RBC (NRBC) count ($p<0.05$) between the case and control groups. **Conclusion:** This study identified several blood parameters that could potentially be used to screen for SeAO among the Malay population, thereby reducing the time and cost of diagnosis.

Keywords: Southeast Asian Ovalocytosis; Malay; blood parameters

S004

The Effect of Mobile Application (Calm Harm) in Self Harm Reduction among Young Adults in Sultan Ahmad Shah Medical Centre, Kuantan

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Introduction: The occurrence of self-harm among young adults is a significant public health issue. Traditional mental health treatments face accessibility challenges, necessitating innovative solutions. This study explores the efficacy of the Calm Harm mobile application, an mHealth intervention, in reducing self-harm behaviours and improving emotional regulation and coping mechanisms among young adults at Sultan Ahmad Shah Medical Centre Kuantan. **Materials and method:** A pre-and post-intervention study design was employed over six weeks, involving 33 participants. Self-harm instances were assessed using the Deliberate Self-Harm Inventory (DSHI), emotional regulation was measured with the Difficulties in Emotion Regulation Scale (DERS), and coping strategies were evaluated using the Brief COPE questionnaire. The impact of the Calm Harm app on these variables was analysed. **Results:** The study observed a statistically significant reduction in self-harm frequency ($t=2.28$, $p<0.05$) and improvements in emotional regulation and coping strategies. DERS scores indicated enhanced emotional control, aligning with prior research on mHealth efficacy. Participants showed increased use of problem-focused and emotion-focused coping mechanisms and a reduced reliance on avoidance techniques. **Conclusion:** The Calm Harm app effectively reduces self-harm behaviours and enhances emotional regulation and coping skills among young adults. Despite limitations such as small sample size and lack of a control group, these findings provide valuable insights into the potential of mobile apps for mental health interventions. Future research with larger, more diverse samples and extended follow-up is recommended to confirm these results and explore long-term effects.

Keywords: Self-harm; mHealth; emotional regulation; coping strategies; calm harm app; young adults; mobile intervention; mental health

S005

Gut Microbiota Dysbiosis in the Pathogenesis of PCOS: A Literature Review

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Polycystic ovarian syndrome (PCOS) is currently recognized as a multifaceted condition caused by multiple genes and influenced by environmental factors. Recent research has discovered a connection between PCOS and gut microbiota dysbiosis. Gut microbiota is a complex community of microbes including bacteria, archaea, and eukaryotes, living in the human digestive tract. These microbes produce metabolites like short-chain fatty acids, which interact with the host cells and influence the immune response. PCOS has been associated with a shift in the overall makeup of the gut microbiota, including a decrease in its diversity and alteration of specific bacterial. The gut microbiota plays an important role in regulating various aspects of health, including hormone balance, glucose and lipid metabolism, and responses to stress through interactions with the endocrine, immune and nervous systems. Gut microbiota dysbiosis results in increased intestinal permeability, known as "leaky gut", allowing lipopolysaccharides to pass through the permeable gut wall and enters the bloodstream, causing a chronic low-level inflammation which disrupts the function of insulin receptors, leading to insulin resistance and excessive androgen secretion. Gut microbiota dysbiosis may impact the regulation of follicle development, sex hormones, and metabolic rate, thereby contributing to the development of PCOS. Interventions on gut microbiota such as fecal microbiota transplantation, prebiotics and probiotics, and lifestyle modifications aimed at restoring a healthy gut microbiota may be novel therapeutic strategies for PCOS. Our review of 30 articles revealed decreased alpha diversity, increased beta diversity, higher relative abundance of *Bacteriodetes* and *Proteobacteria*, as well as lower relative abundance of *Firmicutes* and *Actinobacteria* in PCOS compared to healthy controls.

Keywords: Dysbiosis; gastrointestinal microbiome; polycystic ovary syndrome

S006

The Role of Docosahexaenoic Acid (DHA) in Underweight Pregnant Women: Insights into the Insulin Resistance Pathway (Glucose, Insulin, HOMA-IR)

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Introduction: Underweight pregnant women can cause metabolic problems, posing risks to maternal and fetal health. Docosahexaenoic acid (DHA), an omega-3 fatty acid abundant in algae, has shown promising effects on insulin resistance. However, its specific impact on glucose, insulin, and the Homeostatic Model Assessment of Insulin Resistance (HOMA-IR) in underweight pregnancy requires further study. **Materials and method:** Using a cohort-experimental research design, this study investigates the effects of DHA from algae supplementation on glucose metabolism and insulin resistance in underweight pregnant women, using a one-group pretest-posttest approach. A randomized controlled trial allocated underweight pregnant women (BMI<18.5 kg/m and UAC<23.5 cm). Sampling was conducted using non-probability techniques, specifically quota and purposive sampling. 21 underweight pregnant women received 100 mg/day DHA supplementation and underwent insulin assessments before and after the intervention for 2 months. **Results:** The DHA supplementation group exhibited significant after 2 months. In the pre-DHA and post-DHA supplementation analyses, glucose levels significantly decreased ($p = 0.002$, < 0.05). Similarly, significant decrement was noted in pre-HOMA-IR and post-HOMA-IR tests ($p = 0.001$, < 0.05). Relationship analysis between insulin and glucose yielded a significant p-value of 0.001 (< 0.05), with a strong positive relationship ($r=0.650$). The relationship between insulin and HOMA-IR was found significant ($p = 0.000$, < 0.05), with a powerful positive relationship ($r=0.924$). Furthermore, the relationship analysis between glucose and HOMA-IR also yielded a significant p-value of 0.000 (< 0.05), with a powerful positive relationship ($r=0.808$). **Conclusion:** Our findings suggest that DHA supplementation from algae holds promise in ameliorating glucose metabolism and insulin resistance in underweight pregnant women. Algae DHA supplementation could serve as a potential treatment to improve maternal and fetal health outcomes.

Keywords: DHA; underweight pregnancy; insulin resistance

S007

Effects of Transcranial Direct Current Stimulation on Serum Superoxide Dismutase Levels in Ambulatory Stroke Patients: A Randomized Pilot Study

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Introduction: Stroke is a leading cause of disability and a significant public health burden. Oxidative stress, characterized by an imbalance between free radical production and the body's antioxidant defences, exacerbates stroke pathology. This study aims to evaluate the effect of transcranial direct current stimulation (tDCS) on serum superoxide dismutase (SOD) levels in ambulatory stroke patients with mild cognitive impairment. **Materials and method:** This randomized pilot study included 30 ambulatory male and female stroke patients with mild cognitive impairment, divided into two groups: control (conventional therapy, CT) and intervention (tDCS combined with conventional therapy, tDCS+CT). Each group underwent treatment for 30 minutes per session, three times a week, for four weeks. Serum SOD levels were measured pre- and post-intervention using SOD Activity Assay Kit. The paired t-test was employed to assess the pre- and post-test effects of tDCS intervention, comparing them to those of the control group. Independent t-test was utilized to evaluate the between-group effects of the intervention and its impact on risk factors. **Results:** The tDCS intervention significantly increased serum SOD levels ($p = 0.001$). Mean post-treatment serum SOD levels rose in both the control (216.67 (SD = 45.02) u/l) and intervention groups (289.02 (SD = 64.94) u/l). However, no significant differences in SOD levels were observed concerning the studied stroke risk factors, including body mass index, systolic and diastolic blood pressures. **Conclusion:** tDCS combined with conventional therapy significantly enhances serum SOD levels compared to conventional therapy alone. Both groups demonstrated significant improvements in serum SOD levels after the intervention, highlighting the potential of tDCS as an adjunctive treatment for oxidative stress in stroke patients.

Keywords: Antioxidant; neuromodulation; oxidative stress; stroke rehabilitation

S008

A Comparative Study of Specific Spinal Exercises Derived from *Solah* Postures versus Conventional Physiotherapy for the Improvement of Subacute and Chronic Non-Specific Low Back Pain

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Introduction: Non-specific low back pain (NSLBP) is a prevalent musculoskeletal disorder. While conventional physiotherapy is common, interest in alternative therapies, such as *Solah*-based interventions, is growing. *Solah*, or Muslim prayer, emphasizes posture, flexibility, and strength, potentially benefiting spinal health. This study compares the effectiveness of specific spinal exercises (SSE) derived from *Solah* postures with conventional physiotherapy for subacute and chronic NSLBP. **Materials and method:** This randomized, single-blinded study included individuals aged 18-65 years with NSLBP for over six weeks. Exclusions were specific spinal diseases, cognitive impairments, or medical conditions preventing exercise participation. Randomization was done using computer software. The assessor was blinded, but the therapist was aware of the treatment group. The intervention group performed SSE based on *Solah* postures, with six manoeuvres for at least 12 cycles daily. The control group received conventional physiotherapy, with nine exercises performed eight cycles daily. The primary outcome measure was LBP intensity using the visual analogue scale (VAS). Secondary outcomes included physical disability and quality of life (QOL), assessed with the Oswestry Disability Index (ODI) and Short Form 12 (SF-12). **Results:** Thirty-two patients met the criteria. After attrition, 29 participants completed the study (15 intervention, 14 control). Both groups had a mean age under 50 years, with equally matched demographic and clinical backgrounds. Both showed significant ODI score improvements at six weeks ($p<0.0001$). Similar improvements were seen in SF-12 scores ($p<0.0001$). The intervention group also had a significant reduction in sick leave days from baseline ($p=0.004$), with a significant different when compared between the two groups ($p=0.0074$). Adjustments for age and gender did not alter these outcomes significantly ($p=0.530$ and $p=0.460$, respectively). **Conclusion:** The SSE program derived from *Solah* postures effectively manages NSLBP, significantly improving pain, disability, QOL, and reducing sick leave. It is comparable to conventional physiotherapy for treating NSLBP.

Keywords: Exercise intervention; pain management; spine rehabilitation; *solah*-based exercises; therapeutic exercise

S009

Gut Microbiota Dysbiosis as a Predictive Factor of Staghorn Calculus Formation

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Introduction: The annual prevalence of urolithiasis is 3-5% and the approximate lifetime prevalence is 15-25%. Recurrence rates of urolithiasis are approximately 10% in a year, 50% over a period of 5-10 years, and 75% over a 20-year period despite current treatment. Correlation between gut microbiota and urolithiasis has been studied with inconsistent findings. **Materials and method:** This is a single-centre, prospective case-control study conducted from June 2022 till January 2024 to study gut microbiota profile in staghorn calculus and healthy individual. A total of 60 patients recruited into the study, 30 patients with staghorn calculus were enrolled into disease group and 30 healthy participants without urolithiasis were enrolled into control group. Urine samples were collected to send for cultures, while fecal samples were collected to send for microbiota DNA analysis. **Results:** At phylum level, staghorn group have more abundant *Proteobacteria* (14.2%) and *Bacteroidota* (4.2%) versus control group 2.8% and 0.4% respectively. At species level, staghorn group has more abundant *Escherichia* 11.8% versus non-staghorn group 2.5%, meanwhile control group has more abundant *Bifidobacterium adolescentis* 11.3% versus staghorn group 1.8%. The alpha diversity showed species richness is significant difference between staghorn group and control group, where control group has reduced diversity compared to staghorn group. The beta diversity shows dissimilarity of microbiota composition between staghorn group and control group. LEfSe analysis confirmed that *Megamonas funiformis* was the most enriched in staghorn patients (LDA score -4.19), while *Bifidobacterium adolescentis* was the most enriched species found in control group (LDA score 3.9). **Conclusion:** This study found that gut microbiota of patient with staghorn calculus is different from the control group (healthy group), support the relation of dysbiosis gut microbiota with staghorn calculus formation. *Megamonas funiformis* is the most abundant species found in patient with staghorn stone.

Keywords: Urolithiasis; staghorn calculus; microbiota DNA analysis; proteobacteria; *Bacteroidota*; *Escherichia*; *Bifidobacterium adolescentis*; *Megamonas funiformis*

S010

Ethical and Legal Implications of Video-Recorded Informed Consent: Perspectives from Experts

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Introduction: Informed consent (IC) is an important process of physician-patient interaction. In the age of medical litigation war, interactions may need to be kept for future reference. Video recording is a tool that can preserve more than just conversations in an interaction. It has the potential to be transparent, time-saving, and justifiable medical evidence. This qualitative research analyses the implications related to the use of video-recorded IC in clinical practice. **Materials and method:** This study employs qualitative analysis using grounded theory. Convenience sampling is utilized with in-depth semi-structured interviews of 10 experts from various specialities including, clinicians, healthcare administrators, medical ethics, legal, and technical experts. These backgrounds are chosen for a more robust sampling to obtain significant results. Interview data is transcribed, and coded, and themes aligned with the research concept and theory are formed. **Results:** Four main themes were identified. (i) privacy and confidentiality, (ii) consent of recording, (iii) legal standards of the video recording and (iv) resource constraint. Privacy and confidentiality concerns surrounding patient information necessitate careful handling of recorded data. The practice of obtaining consent before recording elicits a range of views from the participants. Opinions vary on the efficacy of video recording in aiding physicians in ethically and legally completing the IC process. However, most participants acknowledge the potential of video recording to enhance documentation and serve as legal evidence if managed appropriately. Yet, implementation barriers persist, primarily related to technological resources requiring facilitation, training, and cost. **Conclusion:** Despite its potential benefits, addressing these challenges is crucial for the successful integration of video-recorded IC. Moving forward, collaborative efforts between stakeholders are imperative to navigate these complexities and ensure the ethical, legal, and practical integrity of video-recorded IC in medical practice.

Keywords: Informed consent; video recording; clinical ethics; jurisprudence; confidentiality

S011

Leading the Way in Osteoporosis Management: A Comparative Study of Fracture Liaison Services Accredited Hospital and Standard Care

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Introduction: Osteoporosis, characterized by low bone mass and microarchitectural deterioration, is a significant public health concern. Orthopedic care clinicians in tertiary care settings are often the first line of treatment for patients with fragility fractures, highlighting their critical role in osteoporosis management. However, despite the existence of updated and comprehensive guidelines, osteoporosis often remains undermanaged worldwide. This study aims to compare the adherence to guidelines and barriers to osteoporosis management between clinicians in Fracture Liaison Services (FLS) accredited hospitals and standard care facilities in Malaysia. **Materials and method:** A validated online survey was developed and conducted among orthopedic clinicians from three East-Coast tertiary hospitals and an FLS-accredited hospital in Malaysia. The gathered data were then analyzed using a range of statistical methods, including the Mann-Whitney U test. **Results:** Analysis of 135 completed surveys revealed significant differences in guideline adherence across five key areas between FLS and standard care hospitals: diagnosing osteoporosis ($p=0.046$), monitoring treatment effectiveness through bone mineral density assessments ($p<0.004$), promptly initiating anti-osteoporosis medication post-fragility fractures ($p<0.001$), reassessing fracture risk in patients on bisphosphonate therapy ($p=0.034$), and considering anabolic agents for high-risk patients ($p=0.018$). Significant barriers between FLS and standard care included limited choice of anti-osteoporosis medication ($p<0.001$), insufficient post-fracture care staff ($p<0.001$), limited doctor-patient time ($p=0.042$), and patients' financial constraints due to socioeconomic status ($p=0.027$). **Conclusion:** This research underscores the outstanding of FLS hospital in adhering to essential domains of osteoporosis guidelines. The barriers identified in standard care likely contribute to its lower adherence compared to FLS hospitals. Addressing these barriers is vital for enhancing the quality of osteoporosis patient care and bridging the adherence gap to evidence-based guidelines between the two healthcare models.

Keywords: Osteoporosis; fracture liaison service; guideline adherence; barriers

S012

Development and Validation of a Questionnaire to Assess Healthcare Professionals' Attitudes Towards Antenatal Pertussis and Influenza Vaccinations in Malaysia

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Introduction: Despite the established benefits of antenatal pertussis and influenza vaccinations in protecting both mothers and their infants, uptake rates remain suboptimal in many regions, including Malaysia, where the government has yet to implement free antenatal vaccination programs. Understanding healthcare professionals' attitudes towards these vaccinations is crucial for addressing barriers and enhancing vaccination rates. This study aims to develop and validate a questionnaire to assess healthcare professionals' attitudes towards antenatal vaccination. **Materials and method:** The questionnaire items were developed based on an extensive review of the literature, vaccination guidelines, and expert suggestions. Content and face validity were assessed by nine and 30 reviewers, respectively. A pilot study was conducted with 196 respondents, and reliability, item-model fit, and the questionnaire's ability to discriminate between positive and negative attitudes were assessed using Rasch analysis. Principal component analysis (PCA) was performed using Rasch analysis and exploratory factor analysis (EFA) to evaluate the questionnaire's dimensionality. **Results:** The initial attitude questionnaire consisted of 11 items, with a person separation index of 1.77 (reliability 0.76) and an item separation index of 7.00 (reliability 0.98). After removing three items due to concerns over their fitness indices, the refined questionnaire included eight items with improved metrics: a person separation index of 2.10 (reliability 0.81) and an item separation index of 7.07 (reliability 0.98). The Kaiser-Meyer-Olkin (KMO) measure was 0.859, and Bartlett's test of sphericity yielded $\chi^2 = 917.60$, $p < 0.0001$. The final eight items accounted for more than 59% of the variance when PCA was performed using both Rasch analysis and EFA. **Conclusion:** The developed questionnaire is a reliable and valid tool for assessing healthcare professionals' attitudes towards antenatal pertussis and influenza vaccinations in Malaysia, as demonstrated by Rasch measurement model and EFA results.

Keywords: Attitude; antenatal vaccination; exploratory factor analysis; rasch analysis

S013

The Effect of Administering DHA (Docosahexaenoic Acid) Supplements to Underweight Pregnant Women on SOD (Superoxide dismutase) Antioxidant Levels

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Introduction: In 2021, 53,455 out of 618,207 pregnancies in East Java were affected by chronic energy deficiency (CED). CED and underweight during pregnancy stem from inadequate energy and protein intake, increasing susceptibility to oxidative stress. Superoxide Dismutase (SOD) is a crucial antioxidant enzyme that helps mitigate oxidative stress. This study investigates the impact of DHA supplements on SOD antioxidant levels in underweight pregnant women, offering a potential nutritional intervention for maternal and fetal health. **Materials and method:** Conducted at the Made Community Health Center in Surabaya, this research employed a quantitative approach using an experimental single-group pre-post-test design. Twenty-one underweight pregnant women participated in a one-month DHA supplementation regimen. Blood samples collected before and after the intervention were analyzed with the BioVision ELISA Kit to measure SOD antioxidant levels. **Results:** Initial univariate analysis indicated an average SOD level of 15.57 ng/mL before DHA supplementation. Bivariate analysis using paired t-tests revealed a significant increase in SOD levels post-supplementation ($P = 0.013$), demonstrating a positive effect of DHA on SOD antioxidant levels in underweight pregnant women. Additionally, DHA supplementation significantly influenced body weight ($P < 0.001$), BMI ($P = 0.003$), MUAC ($P = 0.003$), and fundal height ($P = 0.001$), while no significant changes were observed in height, systolic BP, and diastolic BP ($P > 0.05$). **Conclusion:** This study concludes that administering DHA supplements to underweight pregnant women effectively enhances SOD antioxidant levels, potentially mitigating oxidative stress associated with underweight during pregnancy. The findings suggest broader health benefits, including improvements in anthropometric measures, which are crucial for maternal and fetal well-being. These results underscore the role of DHA supplementation in supporting antioxidant levels and improving health outcomes in underweight pregnancies.

Keywords: DHA; underweight pregnancy; SOD

S014

The Effect of Administering DHA (Docosahexaenoic Acid) Supplements to Underweight Pregnant Women on IL-6 (Interleukin-6) Inflammatory Mediator Levels

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Introduction: Chronic energy deficiency (CED) is a condition of chronic insufficient food intake and lack nutrients. Basic Health Research 2018 reported that 17.3% of pregnant women experienced the risk of chronic energy deficiency (CED) in Indonesia. The Ministry of Health in 2020 stated that the percentage of mothers experiencing CED in 2020 was 9.7%. CED and underweight condition in pregnant women can disrupt the growth and development of the fetus. This research examines the effect of giving docosahexaenoic acid (DHA) supplementation for 2 months to underweight pregnant women on one of the inflammatory mediators, namely interleukin 6 (IL-6). **Materials and method:** The study used an experimental design involving one group pre- and post-test, using samples from 21 underweight pregnant women with body mass index (BMI) <18.5 kg/m^2 at the Made Community Health Centre, Surabaya. Treatment was carried out by providing DHA supplementation for 1 month duration. Fluorescence immunoassay was used to determine the level of IL-6. **Results:** DHA supplementation led to reduction in levels IL-6 ($p = 0.008$), but increased body weight ($p = 0.000$), MI ($p = 0.000$), upper arm circumference (LILA) ($p = 0.003$), and fundal height (TFU) ($p = 0.001$). However, there was no significant effect of DHA supplementation on systolic blood pressure ($p = 0.108$) or diastolic blood pressure ($p = 0.631$). **Conclusion:** This study found that providing DHA supplements to underweight pregnant women can reduce the production of inflammatory cytokines thereby decreasing IL-6 levels, also provide benefits in increasing BMI and LILA.

Keywords**:** DHA; underweight pregnancy; IL-6

S015

Early Postpartum Alterations in Blood Pressure, Vasoactive Mediators, and Inflammatory Markers in L-NAME-Induced Hypertensive Rats

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Introduction: Hypertensive disorders of pregnancy (HDP) affect 5% to 10% of pregnancies globally and increase the risk of cardiovascular disease (CVD) in women, despite postpartum blood pressure normalization. The mechanisms underlying this elevated risk remain unclear. This study investigates blood pressure variations, vasoactive mediator levels, and inflammatory markers in L-NAME-induced hypertensive rats during the early postpartum period. **Materials and method:** Normal control and L-NAME-induced hypertensive rats were monitored for blood pressure changes before pregnancy, at gestational day 19, and postpartum days 7 and 30. L-NAME, an inhibitor of nitric oxide (NO) synthesis, was utilized to induce hypertension. At postpartum day 30, rats were euthanized, and blood samples were analysed for various vasoactive mediators and inflammatory markers using ELISA. **Results:** The mean arterial pressure of the L-NAME group significantly increased and peaked at day 13 of pregnancy and reduced post-delivery. The mean concentrations of endothelin-1, interleukin-8, and C-reactive protein were higher in the L-NAME group compared to the control group, although these differences were not statistically significant. The mean concentrations of NO and plasminogen activator inhibitor-1 were lower in the L-NAME group compared to the control group, yet these differences were also not statistically significant. **Conclusion:** L-NAME- induced hypertensive rats demonstrate elevated blood pressure during pregnancy, with partial normalization postpartum. Despite the absence of statistically significant differences in vasoactive mediators and inflammatory markers between hypertensive and control groups, the observed trends underscore the need for further investigation. Elucidating the molecular pathways and mechanisms by which hypertensive disorders of pregnancy contribute to early- onset cardiovascular disease is crucial for advancing our understanding and improving clinical outcomes.

Keywords: Hypertensive disorders of pregnancy; cardiovascular disease; endothelin-1; nitric oxide; plasminogen activator inhibitor-1; C-reactive protein; interleukin-8

S016

Bridging Allergic Asthma and Conjunctivitis via PI3K/Akt Pathway

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Introduction: Allergic asthma and conjunctivitis are two types of allergy disorder frequently associated with inflammation and cytokine production. The PI3K/Akt pathway has been extensively studied in the context of allergic asthma, with growing evidence implicating its role in regulating key cellular processes such as apoptosis. Although the PI3K/Akt pathway is known to play a crucial role in allergic asthma, its role in allergic conjunctivitis remains less understood. Given the role of PI3K/Akt in allergic asthma, this systematic review investigates its activation in conjunctivitis, focusing on its impact on inflammatory responses, cytokines productions and apoptosis. **Materials and method:** A comprehensive literature search was performed using PubMed, WoS, and Scopus databases. Relevant articles published in English between 2007-2024 were identified and reviewed, with a focus on studies that examined the modulation of the PI3K/Akt pathway in allergy asthma and conjunctivitis. One hundred and fifty-eight studies were screened based on "Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA)" from January 2007 until June 2024. Following inclusion and exclusion, 18 studies were included in this review. Results encompass evidence of PI3K/Akt modulation in animal models, displaying regulation of this pathway in allergic asthma and conjunctivitis. **Results:** Findings show several similar inflammatory markers and cell death pathways that could link allergic asthma and conjunctivitis. While our review highlighted the significant role of PI3K/Akt in allergic asthma, research on its role in allergic conjunctivitis remains insufficient. **Conclusion:** Data suggests a potential role in mast cell activation and inflammatory mediator released. Further research is needed to explore PI3K/Akt activation in this context. This review highlights the need for further research to elucidate the potential role of PI3K/Akt signalling to explain the regulated cell death in both allergic asthma and conjunctivitis conditions.

Keywords: PI3K-Akt; allergic asthma; conjunctivitis; apoptosis

S017

Antioxidant Potential of Aqueous Extract from *Garcinia Parvifolia (Miq.)* Dried Fruit Pericarp

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Introduction: *Garcinia parvifolia (Miq.)* is a tropical plant indigenous to Borneo, and is known for its various health benefits including antioxidant, antibacterial, antiplasmodial, and antiviral properties. Previous studies have demonstrated the potent antioxidant and antibacterial effects of the plant's dried fruit skin or pericarp extracted using organic and inorganic solvents. However, this extraction method is not suitable for direct consumption. To address this, a water-based extraction of *G. parvifolia (Miq.)* dried fruit pericarp was conducted to create a safe and halal product. **Materials and method:** The extraction process involved varying parameters such as extraction temperatures (22.4°C, 60°C, and 85°C), solid-to-solvent extraction ratios (1:4, 1:10, and 1:40 g/mL), and extraction times (30 min and 120 min). The ideal extraction temperature was used to determine the optimum solid-to-solvent extraction ratio. The optimum temperature and ratio were then subsequently used to determine the optimum extraction time. Antioxidant activities of each sample were assessed using the DPPH radical scavenging assay and expressed in inhibition percentage. The optimum extraction parameters were determined based on the groups that showed the highest inhibition percentage. Ascorbic acid was used as the positive control. **Results:** This study has identified that aqueous-based extraction of *G. parvifolia (Miq.)* dried fruit pericarp with a solid-to-solvent ratio of 1:40 g/mL at room temperature for 120 minutes showed the highest DPPH radical scavenging activity. The inhibition percentage of the optimized extraction sample was 87.06%, which is equivalent to 142 µg/mL of ascorbic acid based on the standard curve. **Conclusion:** This research has shown that the water-based extract of *G. parvifolia (Miq.)* dried fruit pericarp holds significant antioxidant capacity. It has commercialization potential beyond just consumable products, with further exploration needed to uncover additional health benefits of this fruit.

Keywords: *Garcinia parvifolia;* takob akob; antioxidant; aqueous extract; halal

S018

Serum Proteomic Profiling of Post-COVID-19 Syndrome by Two-Dimensional Electrophoresis

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Introduction: Post-COVID-19 Syndrome (PCS) presents with a wide range of symptoms affecting patients regardless of the severity of initial acute infection. The underlying mechanisms of PCS remain unclear, and diagnosis is typically made by exclusion, hence the discovery of diagnosis biomarkers for PCS is important. In this study, we aimed to examine serum PCS proteomic profiles to identify candidate protein biomarkers, thereby aiding in the prediction and diagnosis of this syndrome. **Materials and method**: Six PCS patients, 10 non-PCS (NPCS) patients; those who recovered from Covid-19 without lingering symptoms and 10 healthy controls (HC) aged 18 years and above, matched for gender and race were recruited. Serum from each group were pooled and proteins were separated using two-dimensional electrophoresis method. The protein spots on the gels were analysed by PD-Quest software focusing on identifying protein spots which were significantly differently expressed between the groups. These protein spots of interest then were identified using Matrix Assisted Laser Desorption/Ionization Time-of-Flight (MALDI-TOF) Mass Spectrometry. **Results:** The mean (SD) age for PCS patients was 38 (9.7) years, while persistent fatigue and cough were found to be most prevalent symptoms for PCS in our cohort. In the serum of PCS patients, among two proteins that significantly expressed were alpha-1 antitrypsin and albumin when compared to healthy controls. Additionally, two proteins namely haptoglobin and T-cell surface glycoprotein CD8 alpha chain were upregulated and three proteins identified as mannosyl-oligosaccharide glucosidase, immunoglobulin heavy constant alpha 1 and vitamin D-binding protein were

downregulated in PCS in comparison to NPCS. **Conclusion:** Proteins that were significantly differently expressed in PCS patients mainly involve in the inflammatory and immunology pathways, indicating significant role of these mechanisms in the establishment of PCS and potential of these candidate proteins as biomarkers for PCS.

Keywords: Post-COVID-19 syndrome; proteomic profiling; two-dimensional electrophoresis; biomarkers

S019

Effects of Hemolyzed Specimens on Aspartate Transaminase (AST) Measurement

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Introduction: Aspartate transaminase (AST) is an enzyme measured in liver function tests (LFTs) and can provide critical insight into the diagnosis of acute hepatitis, alcoholic liver disease, and hemolytic anaemias. Hemolysis predominantly affects enzymes present in red blood cells, particularly AST, which can lead to falsely elevated results. Other LFTs parameters such as ALT, ALP, GGT, and albumin are less affected by hemolysis. Hemolysis is a leading cause of specimen rejection in clinical laboratories, significantly impacting the accuracy of laboratory test results. Hence, the present study aimed to evaluate the effect of hemolysis on AST measurement at Klinik Kesihatan Rembau. **Materials and method:** The present study measured AST concentrations using an analyser at different levels of hemolysis, determined by the Hemolysis Index (H-I). A total of 278 samples were collected in five tubes containing Lithium Heparin. Mechanical trauma was applied to lyse the red blood cells (RBCs), simulating mechanical hemolysis, and the plasma was analyzed using a Cobas C311 biochemistry analyzer. Data were analyzed with SPSS version 25. **Results:** There was no difference ($p>0.05$) in AST measurements between non-hemolyzed (H-I <50 mg/dL) and slightly hemolyzed (H-I = 50-99 mg/dL) samples. However, there were differences ($p<0.001$) for other degrees of hemolysis. AST concentrations increased proportionally with the degree of hemolysis. **Conclusion:** based on the present data, hemolyzed samples with an H-Index less than 99 mg/dL should be processed and reported, while samples with higher H-Index values should be rejected. Despite guidelines recommending the rejection of hemolyzed samples, implementation is challenging due to factors such as the difficulty of sample collection from pediatric or elderly patients. The present data underscore the necessity to review the golden rules in sample rejection due to hemolysis. Further research should be conducted with larger participant samples and in different regions to establish accurate laboratory guidelines for AST measurement.

Keywords: Hemolysis; AST; sample rejection

S020

Effect of Tualang Honey Supplementation in Weight Reduction and Dyslipidemia in High Cholesterol Diet-induced Obese Rats

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Introduction: Obesity is a key risk factor for many chronic diseases. Malaysia records the highest prevalence of obesity in Southeast Asia. Tualang honey has been proven to treat other chronic diseases but its effect on weight reduction is not well-studied. This study aimed to investigate the effect of Tualang honey (TH) supplementation on body weight and lipid profile in 12% high cholesterol diet (HCD) induced obesity rat model. **Materials and method:** Forty male Sprague-Dawley rats were divided into 5 groups with their respective diet for 12 weeks followed by respective treatment for the following 6 weeks. The groups are: Group 1 (normal diet), Group 2 (normal diet and TH 3.0g/kg), Group 3 (12% HCD), Group 4 (12% HCD and TH 3.0 g/kg), and Group 5 (12% HCD and Orlistat 10 mg/kg). Their body weight was measured weekly. At the end of the study, blood was collected for lipid profile via retro-orbital bleeding. **Results:** We demonstrated a significantly lower final body weight of rats in Group 2 (328.25 $\pm$ 25.49 g) compared to Group 1 (409.13 $\pm$ 16.33 g) ($p<0.001$) and in Group 4 as compared to Group 3 (343.88 $\pm$ 44.24 g vs 471.00 $\pm$ 19.55 g, $p<0.001$). There is no significant difference in final body weight between Group 4 and Group 5 (343.88 $\pm$ 44.24 g vs 354.25 $\pm$ 32.27 g, $p>0.05$). The administration of TH also significantly reduces the cholesterol level in Group 4 compared to Group 3 (Med= 1.83 mmol/L, IQR= 0.68 vs Med=3.20 mmol/L, IQR= 0.80, $p<0.05$). The lowest concentration of triglycerides was recorded in Group 4 with a significant difference when compared to Group 3 (Med= 0.85 mmol/L, IQR= 0.28 vs Med= 1.45 mmol/L, IQR= 0.95, $p=0.001$). **Conclusion:** Tualang honey supplementation has been shown to reduce body weight, total cholesterol, and triglyceride levels in 12% of HCD-induced obese rats.

Keywords: Obesity; tualang honey; high cholesterol diet; dyslipidemia; body weight

S021

Durian Fruit Extract Abrogates Reproductive and Hepatotoxic Effects of Induced Hypercholesterolemia in Adult Male Sprague Dawley Rats

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Introduction: Hypercholesterolemia is a major concern in developing and developed countries, which is also associated with high incidence of dyslipidemia related reproductive and hepatic dysfunctions. The prevalence of these conditions is increasing at a rapid pace worldwide. Durian (*D. Zibethinus*) is extensively grown and used in south Asia. There is a huge demand for alternate medicine to counter hypercholesterolemia related health disorders. Clinical studies with durian extract based on their role in hepatic and gonadal cells are scanty, hence the present study was initiated. **Materials and method:** 36 adult male Sprague Dawley rats (150 ± 5 gm; age 80 ± 10 days) were divided into six groups (n=6), kept at 20˚C ± 2˚C. Hypercholesterolemia was induced by a single i.p. injection of Triton X-100 (100 mg/kg). *D. Zibethinus* (400 mg/kg) and Atorvastatin (10 mg/kg BW) treated orally separately for 28 days. Total body and organ weight were recorded. After sacrificing the rats, blood was collected by cardiac puncture, liver and testis were collected for histopathological analysis. Biochemical parameters were estimated. Results are expressed in mean ± SD. **Results:** Testicular and cauda epididymal weights were notably increased in HC rats treated with durian extracts. However, its effect on seminal vesicle and prostate weight were insignificant. Liver marker enzymes were significantly high in the hypercholesterolemic animals and ameliorated by the durian extract. Durian fed animals hepatocytes showed regenerative changes, which confirms the protective effects. In testicular 5 3β-HSD & testicular 17β-HSD activity, a considerable elevation is seen in HC+D group. Testicular cytoarchitectures showed an increase in sperm density in *D. Zibethinus* treated HC rats. The epididymal sperm count and step 7 round spermatid has also been significantly increased in HC+D group. **Conclusion:** Findings of the current study elucidate that the ethanolic extract of durian fruit has ameliorative potential against hepatic and reproductive toxicity induced by hypercholesterolemia.

Keywords: Hypercholesterolemia; hepatoprotective; gonadal dysfunction; durian extract; ameliorative potential

S022

Time-Restricted Feeding Lowered Fasting Blood Glucose and Insulin Resistance, and Improved Vascular Oxidative Stress and Inflammation in a Prediabetes Rat Model

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Introduction: Prediabetes has blood glucose levels above normal, but below the defined threshold of diabetes. Non-pharmacological interventions are often employed to delay diabetes development in prediabetes. Time-restricted feeding (TRF) shortens the duration of the daily eating window. This study examined the effects of TRF on fasting blood glucose (FBG), insulin resistance (HOMA-IR), and vascular oxidative stress and inflammation in an obese prediabetes rat model. **Materials and method:** Male Sprague-Dawley rats were divided into two normal and four obese groups (n=9 each group). Obese prediabetes was induced by feeding with high-fat diet and sucrose water (HFSD) for ten weeks; normal rats were given standard diet and plain water. Rats were then grouped into the normal group which continued on a standard diet; normal group switched to TRF with a standard diet; obese continued on HFSD; obese switched to TRF of HFSD; obese switched to TRF of a standard diet; and an obese group switched to a standard diet for six weeks. After six weeks of intervention, rats were sacrificed; their aortic tissues were quantified for the oxidative stress markers malondialdehyde (MDA), antioxidant enzyme superoxide dismutase (SOD), and the inflammation markers tumour necrosis factor alpha (TNF-α) and interleukin-1 (IL-1). FBG, body weight, Lee obesity index, serum insulin level and HOMA-IR were also measured. **Results:** After 10 weeks, four obese groups fed HFSD had higher FBG levels and weight (6.1 mmol/L) compared to those on a normal diet (5.3 mmol/L). Two obese prediabetes groups which later underwent TRF showed reduced MDA and inflammatory markers (TNF-α, IL-1), increased SOD, reduced body weight, Lee obesity index, FBG, and improved HOMA-IR. **Conclusion:** TRF lowered FBG and insulin resistance, and improved vascular oxidative stress and inflammation in obese prediabetic rats. These were associated with reduced weight and food intake in the TRF group.

Keywords: Time-restricted feeding; prediabetes; fasting blood glucose; oxidative stress; inflammation

S023

Nephroprotective Effects of *Etlingera elatior* in Diabetic Rat's Model

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Introduction: Diabetes mellitus (DM) is a global public health concern that leads to multiple complications, including renal failure. Diabetic nephropathy (DN) is a leading cause of end-stage renal disease (ESRD) worldwide. Hyperglycaemia in diabetes leads to the overproduction of reactive oxygen species (ROS), resulting in oxidative stress, which damages kidney cells and tissues and impairs their function. Additionally, hyperglycaemia triggers inflammatory pathways, releasing pro-inflammatory cytokines such as interleukin-6 (IL-6) and transforming growth factor-beta (TGF-β). Traditionally, the flower *Etlingera elatior* (bunga kantan) has been used to manage diabetes, though scientific evidence on its efficacy is limited. Our previous study has shown that the *E. elatior* flower aqueous extract (EEAE) has high in vitro antioxidant activity and anti-diabetic properties. This study investigates the nephroprotective effects of EEAE on a type-2 diabetes rat (T2DR) model. **Materials and method:** The T2DR model was developed using a high-fat diet (HFD) and streptozotocin (STZ). Thirty-five male Sprague-Dawley rats were divided into five groups: normal, obese, untreated DM, metformin-treated, and EEAE-treated at doses of 1000 mg/kg. Treatments were administered orally for six weeks. Weekly measurements included fasting blood glucose (FBG), while systolic blood pressure (SBP) was measured biweekly. Renal function tests (RFT) and antioxidant biomarkers (SOD, CAT, and GSH) were analysed at the end of the study. Kidney histology was examined using haematoxylin and eosin (H&E) staining, periodic acid-Schiff (PAS), and Masson's trichrome (MT) staining. IL-6, TGF-β and connective tissue growth factor (CTGF) levels in kidney tissue were also measured. **Results:** EEAE significantly reduced FBG and SBP in T2DR. EEAE improved RFT and increased antioxidant biomarkers compared to untreated T2DR. Kidney histology showed improvements in EEAE, comparable to metformin-treated groups. Additionally, EEAE decreased pro-inflammatory cytokines levels in kidney tissue. **Conclusion:** *E. elatior*

exhibits nephroprotective properties in diabetes, likely due to its antioxidant and anti-inflammatory effects.

Keywords: Diabetes nephropathy; *Etlingera elatior*; oxidative stress; cytokines

S024

Investigation of the Influence of PVAT on the Pharmacological Potential of DAA-I in Regulating Mesenteric Arteries of Obese Rats

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Introduction: Perivascular adipose tissue (PVAT) enveloping the vasculature plays a crucial role in arterial regulation by releasing vasoprotective adipokines. Obesity induces oxidative damage and inflammation, impairing PVAT and vascular function. Des-Asp-Angiotensin I (DAA-I), a nine-amino acid formed by an alternative degradation pathway of angiotensin I to angiotensin III, bypassing the formation of angiotensin II is shown to exert cardioprotective effects. This study investigated the effect of DAA-I on PVAT in modulating the vascular function of resistance vessels from high-fat diet (HFD) fed rat model. **Materials and method:** Small mesenteric vessels with and without PVAT were isolated from Sprague-Dawley rats fed with HFD or normal diet (ND) and mounted onto a myograph to assess vascular reactivity to acetylcholine (ACh), sodium nitroprusside (SNP), and phenylephrine (PE). Another set of experiments was repeated following 30 minutes of pre-incubation with DAA-I (60 nM). **Results:** The HFD group exhibited significantly reduced ACh-induced relaxation (Rmax: 33.81 ± 4.835 (+PVAT), 41.64 ± 2.093 (-PVAT)) compared to the ND group (Rmax: 83.13 ± 5.354 (+PVAT), 92.11 ± 2.227 (-PVAT)). SNP-induced relaxation was unchanged in both groups, regardless of PVAT presence. In rings without PVAT, PE-induced constriction was comparable between the HFD (Cmax: 100.2 ± 2.256) and ND groups (Cmax: 92.58 ± 3.27). However, PVAT presence attenuated PE-induced constriction and sensitivity in both groups: HFD(+PVAT) Cmax: 81.32 ± 3.631; pEC50: -5.699 ± 0.071; ND(+PVAT) Cmax: 88.68 ± 2.832, pEC50: -5.438 ± 0.043). Pre-treatment with DAA-I restored impaired ACh-induced relaxation in the HFD group with and without PVAT but had no effect in the ND group. PE-induced constriction was unchanged in both HFD and ND groups, with or without PVAT. **Conclusion:** ACh-induced relaxation but not PE-induced constriction was impaired in obesity. The presence of PVAT had no influence on vasorelaxation but decreased vasoconstriction. DAA-I improved vasorelaxation in obesity, but the presence of PVAT had no influence on it.

Keywords: Perivascular adipose tissue; mesenteric arteries; high fat diet (HFD); endothelial dysfunction; Des-Aspartate-Angiotensin I

S025

Effect of High Glucose and Insulin on Proximal Tubule Cells in Diabetic Nephropathy *in Vitro*

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Introduction: Diabetic nephropathy (DN) is a major complication of diabetes mellitus, characterized by progressive kidney dysfunction. High glucose levels and insulin resistance are key factors contributing to the development and progression of DN. This study aimed to investigate the effects of varying glucose concentrations, osmolarity levels, and the effects of insulin on proximal tubule cells, which play a crucial role in the pathogenesis of DN. **Materials and Methods**: Human kidney proximal tubular (HK-2) cells were cultured and treated with glucose concentrations of 5.5 mM (normoglycemic), 25 mM (hyperglycemic), and 128 mM (severely hyperglycemic) *in vitro* under two conditions: with and without insulin supplementation. Cell viability was assessed using MTT assays. Apoptosis was evaluated through a JC-1 assay, which measures mitochondrial membrane potential. The levels of reactive oxygen species (ROS) were quantified using a specific ROS assay. In addition, the expression of Insulin receptor substrate 1 (IRS1) and Insulin receptor substrate 2 (IRS2) genes was assessed using the PCR method. **Results**: High glucose (128 mM) significantly reduced cell viability ($p<0.0001$) and induced apoptosis. JC-1 and ROS assays revealed alterations in mitochondrial function and increased oxidative stress. Insulin treatment partially mitigated these effects. IRS1 expression decreased with increasing glucose concentration, particularly without insulin ($p<0.01$ between 5.5 mM and 128 mM). Insulin supplementation partially reversed the observation, with significant effects at 128 mM glucose ($p<0.05$). IRS2 showed a different pattern: without insulin, its expression increased from 5.5 mM to 25 mM glucose ($p<0.001$), then decreased at 128 mM. With insulin, IRS2 expression remained stable across glucose concentrations and was significantly higher at 5.5 mM and 25 mM glucose ($p<0.001$) than without insulin. **Conclusion**: Elevated glucose levels damage proximal tubule cells, contributing to DN progression. Insulin protects these cells, with IRS1 and IRS2 responding differently to glucose and insulin. This study sheds light on DN's complex development and suggests potential therapies targeting IRS-related pathways.

Keywords: Diabetic nephropathy; glucose; insulin; proximal tubule

S026

Protective Effect of Atorvastatin on NMDA-induced Excitotoxic Retinal Injury through Modulation of the Sphingolipid Rheostat

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Introduction: Excitotoxicity results from excessive stimulation of NMDA receptors (NMDAR) by glutamate, leading to a calcium overload and subsequent neuronal apoptosis. This process is implicated in diseases such as glaucoma, a leading cause of irreversible blindness. Current treatments do not directly target the mechanisms behind neuronal apoptosis in glaucoma. Atorvastatin (ATV) is recognised for its effects on synaptic transmission and the sphingolipid pathway, suggesting it may protect retinal neurons. In glaucoma, NMDA-induced apoptosis of retinal ganglion cells (RGCs) is linked to elevated ceramide level and decreased sphingosine-1-phosphate (S1P) level. Nevertheless, it remains unclear whether ATV can protect against excitotoxic neuronal apoptosis by regulating the sphingolipid rheostat. **Materials and method:** Five groups of rats (n=9), aged 6-8 weeks, were treated intravitreally. Group 1 received no treatment, while groups 2 and 3 received single injections of DMSO and ATV, respectively. Groups 4 and 5, similarly administered injected with DMSO and ATV, respectively, 24 hours before NMDA exposure. Seven days post-injection, the rats were sacrificed, and their retinas were isolated. The markers of sphingolipid rheostat were assessed using ELISA kits. **Results:** NMDA-treated animals showed a 1.24-fold increase in Cer levels ($p<0.05$) and a 1.85-fold decrease in S1P levels compared to untreated animals on day 7. However, the ATV-treated animals showed a 1.27-fold decrease in Cer levels and a 1.63-fold increase in S1P levels compared to NMDA-treated rats. Besides, the ratio of Cer:S1P in NMDA-treated rats was 2.50-fold higher ($p<0.001$) than in the untreated group and 2.28-fold higher ($p<0.001$) as compared to the ATV-treated animals. **Conclusion:** ATV increases retinal S1P and decreases Cer in rat retinas exposed to NMDA which may underlie its neuroprotective effects.

Keywords: Atorvastatin; excitotoxicity; retina; glaucoma; sphingolipid rheostat

S027

Exploring the Effects of Different Auditory Stimulations on Patients with Tinnitus: An Auditory Brainstem Response Study

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Introduction: Tinnitus, the perception of ringing in the ears, affects approximately 10% of the adult population, making it a significant health concern. The exact tinnitus pathophysiology and most effective management remain debatable. Sound therapy using broadband noise (BBN) is commonly employed for tinnitus management, based on the principle of tinnitus suppression. However, it is evident that not all patients with tinnitus respond positively to BBN therapy. The study aims to investigate the physiological mechanism of tinnitus suppression when stimulated with different auditory stimulations at 50dBSL, using auditory brainstem response (ABR). **Materials and method:** This case-control study involved 28 healthy adults (56 ears), with a mean age of 37.39 $\pm$ 11.21 years and 31 patients with tinnitus (45 ears), with a mean age of 40.74 $\pm$ 13.24 years. The ABR was evoked using three types of stimuli which are click, broadband noise and narrowband noise. **Results:** The findings revealed that the mean latency of wave I and V are significantly shorter in the tinnitus group compared to the control group when stimulated with click stimulus ($p < 0.05$). When employing BBN and NBN stimulus, the mean latencies of wave I and V showed not statistically significant difference between control and tinnitus groups ($p > 0.05$). For the amplitude, the click stimulus showed a higher amplitude of wave I and V in the tinnitus group with a significant difference observed only for wave V compared to the control group. In contrast, under BBN stimulation, both wave I and V showed higher amplitudes in the tinnitus group compared to the control group, with a significant difference observed only for wave I. Notably, no significant difference was observed in the amplitude of wave I and V with NBN stimulus. **Conclusion:** This research suggests that BBN can influence the number of neurons firing, indicating potential for tinnitus suppression.

Keywords: Tinnitus; broadband noise; narrowband noise; auditory brainstem response; suppression; sound therapy

S028

Morphometric and Molecular Analysis of Cerebral Organoids Derived from Down Syndrome Human Induced Pluripotent Stem Cells (hiPSCs)

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Introduction: Trisomy 21 is the most prevalent genetic cause of Down syndrome (DS), occurring in approximately one out of every 800 live births. Individuals with DS experience intellectual disabilities and various clinical manifestations throughout their lives. The molecular mechanisms underlying the prenatal neurodevelopment of DS remain poorly understood due to the challenges of obtaining experimental materials directly from humans. Consequently, in vitro 3D models of the human brain, such as cerebral organoids, are invaluable as they mimic early neurodevelopmental events, providing insights into DS brain development. This study investigated the morphometric growth, gene and protein expression of cerebral organoids derived from three pairs of isogenic (disomic and trisomic) hiPSC lines from individuals with DS. **Materials and method:** Cerebral organoids derived from DS human iPSC lines were cultured using mTESR® plus media and STEMdiff™ Cerebral Organoid Differentiation and Maturation kits. Micrographs of the organoids were captured on days in vitro (DIV) 1, 7, 30, and 45. ImageJ was used to analyze the area and perimeter of the organoids. Protein and gene expression of neuron markers (DCX, TUJ1, MAP2, NEUN) and glial cell markers (NFIA, GFAP, S100B, S100A10) and Neural progenitor cells makers (NESTIN and SOX1) were assessed using Western blot and qPCR method. Statistical differences between the disomic and trisomic DS parameters were compared and analyzed using GraphPad Prism version 9.0. **Results:** Overall, disomic cerebral organoids were greater in area than the trisomic group on day 45. TUJ1 and MAP2 (gene and protein expression), S100A10 (protein expression) and SOX1 (gene expression) were significantly upregulated in trisomic organoids. **Conclusion:** Our study demonstrates that the in vitro-created 3D cerebral organoids derived from DS isogenic lines are possibly valuable models for understanding the fundamentals of trisomy 21-mediated Down syndrome during prenatal development.

Keywords: Down syndrome; cerebral organoid; human induced pluripotent stem cells

S029

Ethanolic Extract of *Centella asiatica* (EECA) Enhances Neurogenic Potential of Full-Term Amniotic Fluid Stem Cells (AFSCs)-Derived Neural Stem Cells (NSCs)

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Introduction: Neural stem cells (NSCs) serve as an essential source for cell replacement therapy to treat neurodegenerative diseases (NDs), such as Parkinson's and Alzheimer's disease. Establishing a protocol that can enhance the induction of stem cells to generate quality NSCs is indispensable. *Centella asiatica* (CA), a valuable medicinal herb, has been proven to exhibit neuroprotective and neuroregenerative properties, making it a candidate inducer worth exploring. This study aims to assess the neuroenhancement properties of ethanolic extract of CA (EECA) on induced neural stem cells (iNSCs) derived from rat full-term amniotic fluid stem cells (AFSC) line (R3). **Materials and method:** R3 was treated with 1 and 10 µg/mL of EECA (MTT assay) and with 5 µM of dibutyryl cAMP (dBcAMP) as positive control while undergoing NSC induction using monolayer adherent culture technique. The neuroenhancement property of EECA was evaluated based on the expression of NSC-specific markers (Nestin, and SOX1), the ability of iNSCs to form good proliferative neurospheres [50-100 µm in diameter and Bromodeoxyuridine (BrdU) cell proliferation assay], and the expression of selected markers specific for immature (Tuj1), mature (MAP2), and functional neurons (Syp) and glial cells (GFAP) at specific neural differentiation stages**. Results:** Significant elevated expression of NSC markers (Nestin, Sox2, Sox1) in EECA-treated iNSCs was observed (ANOVA, $p<0.001$), indicating enhanced neurogenesis potential. EECA-treated groups exhibited a higher proportion of high-quality Nestin- and SOX1-positive DIV3 neurospheres (ANOVA, $p<0.001$), suggesting EECA promotes proliferative neural stem/progenitor cells. However, reduced BrdU incorporation was observed on replated cells from EECA-treated neurospheres suggesting that more progenitors exiting the cell cycle toward neural lineages. This was confirmed when EECA-treated groups enhanced the expression of Tuj1, MAP2, Syp and GFAP in the neural culture. **Conclusion:** These findings support EECA as a promising inducer of NSCs, enhancing neurogenesis and potentially benefiting therapies for neurodegenerative diseases.

Keywords: *Centella asiatica*; full-term amniotic fluid stem cell; neural stem cell; neuroenhancement; protein markers

S030

Hepatoprotective Effects of *Moringa oleifera*-mediated Selenium Nanoparticles in Diabetic Rats

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Introduction: The search for efficient treatments for type 2 diabetes mellitus (T2DM) has highlighted the potential of plant-based therapeutic compounds and eco-friendly processes for producing selenium nanoparticles (SeNPs). **Materials and method:** This study investigates the antidiabetic potential of *Moringa oleifera*-mediated biogenic SeNPs in diabetic rats. Male Sprague-Dawley rats were induced with diabetes via a high-fat diet for 2 weeks followed by a single intraperitoneal injection of streptozotocin (STZ) at 45 mg/kg body weight. The rats were divided into five groups: normal, diabetic control, metformin at 100 mg/kg/bw, and two groups treated with oral administration of MO-SeNPs at 0.25 and 0.5 mg/kg body weight for 28 days. Fasting blood glucose and body weight were measured weekly. After the treatment period, rats were sacrificed, and blood and liver samples were harvested for further analysis. **Results:** SeNP treatment significantly lowered blood glucose and increased insulin level, with the lower dose showing better glycaemic control compared to the higher dose. Additionally, MO-SeNPs treatment improved antioxidant enzyme activities, including GSH-Px, catalase, and T-SOD, which play crucial roles in neutralizing oxidative stress. Furthermore, MO-SeNPs treatment enhances lipid profiles by increasing HDL and decreasing LDL levels, which are vital for cardiovascular health. MO-SeNPs also demonstrated hepatoprotective effects by reducing inflammatory markers such as TNF-α, IL-6, iNOS, and AGEs, alongside a reduction in lipid peroxidation. These inflammatory markers are typically elevated in diabetic conditions, leading to liver damage and other complications. The reduction in these markers suggests that MO-SeNPs can mitigate liver inflammation and protect against hepatic damage. This improvement was reflected in the normalization of liver enzyme levels (ALT, AST, ALP), indicating improved liver function. **Conclusion:** The findings suggest that the green synthesis of SeNPs using *Moringa oleifera* offers a viable alternative for diabetes treatment, highlighting its potential to enhance glycaemic control and improve overall metabolic health.

Keywords: *Moringa oleifera*; selenium nanoparticles; diabetes mellitus; antioxidant; glycemic control; eco-friendly synthesis

S031

Synthetic Chalcone Derivatives Inhibit Oxidized Phospholipids-induced Proatherogenic Cytokine Production in Macrophages

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Introduction: Atherosclerosis is a chronic inflammatory disease characterized by the accumulation of lipids and inflammatory cells such as macrophages in arterial walls. Oxidized phospholipids (OxPLs) play a crucial role by inducing proatherogenic cytokines, including interleukin-8 (IL-8) and monocyte chemoattractant protein-1 (MCP-1), which recruit inflammatory cells to atherosclerotic lesions. The unfolded protein response (UPR) pathway, particularly X-box binding protein 1 (XBP1), mediates these effects. This study explores the inhibitory potential of synthetic chalcone derivatives on the release of IL-8 and MCP-1 induced by OxPLs and the expression of XBP1 protein in differentiated U-937 macrophages. **Materials and method:** Cell viability was measured using MTT assay, cytokine production was quantified using enzyme-linked immunosorbent assays and protein expression was assessed via western blotting. **Results:** Results revealed that all three synthetic chalcone derivatives significantly inhibited OxPLs-induced chemokine production in a concentration-dependent manner. Compound 1.5 exhibited the most potent inhibition, reducing IL-8 and MCP-1 levels by 61.4 $\pm$ 4.23% and 63.8 $\pm$ 2.16%, respectively, and achieving the lowest IC50 values for IL-8 (18.33 $\pm$ 1.59 μM) and MCP-1 (13.05 $\pm$ 1.37 μM). Moreover, compounds 1.4 and 1.5 significantly suppressed XBP1 protein expression in a concentration-dependent manner, suggesting that the inhibition of chemokine production might occur through the inhibition of XBP1 pathway. **Conclusion:** These findings indicate that synthetic chalcone derivatives are promising candidates for developing anti-inflammatory therapies targeting vascular inflammation, which plays a crucial role in atherogenesis.

Keywords: Atherosclerosis; inflammation; oxidized phospholipid; chalcone; cytokine; UPR pathway

POSTER RESEARCH

P001

Health Literacy among Pregnant Women with Gestational Diabetes Mellitus, Its Associated Factors and Its Association with Glycaemic Control in Mukim Kuala Kuantan 1, Pahang

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Introduction: The high prevalence of gestational diabetes mellitus (GDM) in Malaysia is a growing concern as it poses risks to mother and fetus. Limited health literacy among pregnant women with GDM may lead to poor glycaemic control and subsequently GDM complications. Currently, health literacy studies among vulnerable groups in Malaysia, including pregnant women with GDM, are limited. This study aimed to measure the prevalence of limited health literacy among pregnant women with GDM, its associated factors, and its association with glycaemic control. **Materials and method:** This cross-sectional study was conducted from January 2023 until June 2023. The study population consisted of pregnant women with GDM who sought antenatal care at government maternity clinics in Mukim Kuala Kuantan 1, Kuantan, Pahang. Respondents were selected using simple random sampling. Health literacy was measured using a validated questionnaire, HLS-M-Q18. The two most recent BSP readings were taken from the maternal health record, and poor glycaemic control was defined by 60% of the readings that fell below the target values. **Results:** 25% (n = 50) out of 200 pregnant women with GDM that participated in the study had limited health literacy and there was a significant association between education level and level of health literacy. Binary logistic regression revealed that having tertiary education had 9.8% lower chance of having limited health literacy (OR: 0.098, 95% CI 0.044-0.222), and having limited health literacy had 19 times more chance of having poor glycaemic control (OR: 19.333, 95% CI 7.246-51.585). **Conclusion:** This study demonstrated significant association between level of health literacy and glycaemic control. Awareness programmes to improve level of health literacy among pregnant women with GDM most likely will improve glycaemic control and reduce the risk of GDM complications. More extensive studies that involve a broader demographic range in Malaysia are necessary to support these findings.

Keywords: Gestational diabetes mellitus; pregnant women; health literacy

P002

Diabetic Retinopathy in Early vs. Late-onset Type 2 Diabetes: Prevalence and Risk Factors in Kuantan, Pahang

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Introduction: The incidence of type 2 Diabetes in Malaysia has been rising affecting younger individuals over the past years. Early onset type 2 Diabetes (EOT2D) refers to diabetes diagnosed before age of 40 years old. Diabetic retinopathy is the primary cause of vision loss in developed countries. The major objective of this study is to measure and compare the prevalence of diabetic retinopathy and its associated factors in patients with early onset and late onset type 2 diabetes mellitus who attended primary care in Kuantan. **Materials and method:** A cross sectional study was conducted at 4 selected government health clinics in Kuantan, Pahang. A total of 360 early onset and late type 2 diabetes patients were randomly selected. Latest fundus was taken using digital retinal imaging technology. Data collected include demographic, clinical parameter, cardiovascular risk factor with micro and macrovascular complication. **Results:** Our study revealed that the prevalence of diabetic retinopathy was significantly higher in early-onset type 2 diabetes (EOT2D) patients at 70.7% compared to 46.5% in late-onset type 2 diabetes (LOT2D) patients. In EOT2D patients, the duration of diabetes mellitus (DM), HbA1c levels, and diabetic kidney disease were significantly associated with the development of diabetic retinopathy. In contrast, for LOT2D patients, duration of DM and being female patients showed significant association with diabetic retinopathy. **Conclusion:** In conclusions, these findings underscore the greater risk and burden of diabetic complications faced by EOT2D patients, emphasizing the need for early and intensive management strategies to mitigate these risks and improve long-term health outcomes.

Keywords: Early onset type 2 diabetes; diabetic retinopathy; microvascular complication

P003

Evaluating The Effectiveness of Online Based Intervention (OBI) for Stress, Mental Well-Being and Resilience Levels among IIUM Nursing Students

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Introduction: Nursing profession is involved in the delivery of health to the society. It also considered as service oriented to maintain health and well- being of people. However, the nursing profession comes with stress both mentally and physically because of its nature. To date, nursing colleges are seemed to be as a stressful environment that often exerts an effect on the academic performances and psychological well-being of the students. Acknowledging that, an online-based intervention for stress management was invented in order to provide support to empower them to cope with the stressful condition. **Materials and method:** This was an experimental study, with control, investigating pre and post online based intervention effectiveness in reducing nursing student's stress, wellbeing and resilience. A total of 87 nursing students participated in the intervention, in a duration of 8 weeks. The stress levels of the nursing students were evaluated with the Perceived Stress Scale (PSS-10), whilst the assessment of wellbeing levels was conducted utilising the Warwick Edinburgh Mental Well Being Scale (WEMWBS). The measurement of resilience among nursing students was conducted using the Brief Resilience Scale (BRS). **Results:** There was a notable decrease in the level of stress (p-value <0.000) indicating that the intervention is highly significant in decreasing stress level from pre-intervention to post-intervention, and these reduced stress levels were maintained three months after the intervention. However, for WEMWBS and BRS, the intervention did not have a significant impact on well-being and resilience scores over time as p-value was 0.886 and 0.840 respectively. **Conclusion:** In summary, the use of Online Based Intervention (OBI) for stress management showed considerable potential in mitigating stress, however it was notable that people need more time to build well-being and resilient over time.

Keywords: Perceived stress score; mental wellbeing; resilience

P004

A Cross Sectional Record Study Comparing Outcomes of Dual Trigger (Combination of GnRH Agonist and hCG) and Single Trigger (GnRH agonist) in IVF-ICSI Cycle among Normal Responder

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Introduction: The optimal trigger strategy in in-vitro fertilization (IVF) remains a topic of ongoing research. This study aims to compare the outcomes of dual trigger (GnRH agonist and hCG) versus single trigger (GnRH agonist) in IVF-ICSI cycles among normal responders. **Materials and method:** This is a cross-sectional study of 134 patients who are normal responder whom underwent antagonist protocol of IVF-ICSI cycle in Hospital Sultanah Bahiyah and Vistana Fertility Centre from 1 May 2022 – 31 December 2023. The selection criteria are females who aged from 18-40 years old, antral follicle count 5 and 18 and body mass index <32 kg/m^2. This study excludes male factor of infertility. Sixty-seven patients were recruited in each arm. The primary outcome is number of MII oocytes. Secondary outcomes included number of oocytes yield, fertilization rate, number and quality of embryo. **Results:** The number of MII oocytes yield in both groups are statistically not significant; p=0.798. Fertilization rate was comparable in both groups 86.24% and 86.82% respectively, p=0.581. Other outcomes such as number of oocytes, and number of embryos were also statistically not significant p=0.061 and p=0.099 respectively in each trigger group. **Conclusion:** Dual trigger protocol has no significant impact in normal responder group as compared to single triggered oocyte maturation with GnRH-agonist alone. Dual trigger is not cost effective in normal responders as it has no significant impact on the outcome of IVF.

Keywords: GnRH; hCG; single trigger; dual trigger

P005

Risk of Sexual Dysfunction among Patients with and without Obstetrics Anal Sphincter Injuries (OASIS): A Comparative Study

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Introduction: Obstetric anal sphincter injuries (OASIS) are a common consequence of vaginal birth, affecting 1-6% of all women globally. These injuries may have long-term consequences, including sexual dysfunction. This study will assess the frequency of sexual dysfunction among women with and without OASIS in Pahang, Malaysia. **Materials and method:** This comparative cross-sectional study comprised women who gave birth at selected Pahang hospitals between January 2022 to December 2023. Participants were separated into two groups based on the presence or absence of OASIS (n=121 per group). Data were gathered using the Malay-Validated Female Sexual Function Index (MVFSFI) and analysed using univariate and multivariate regressions. Statistical significance was determined at $p < 0.05$. **Results:** The prevalence of sexual dysfunction in women with OASIS was discovered to be 63.6%, compared to 53.7% in women without OASIS. Younger age (20-30 years) and primiparous status significantly increased the likelihood of acquiring OASIS ($p < 0.001$). There was no significant association between manner of birth and sexual dysfunction ($p = 1.000$). **Conclusion:** OASIS greatly raises the risk of sexual dysfunction in postpartum women. Awareness and adequate care of sexual dysfunction in women with OASIS are critical. Additional population-based research is required to evaluate these findings and create viable therapies.

Keywords: Obstetric anal sphincter injuries (OASIS); sexual dysfunction; postpartum women; MVFSFI

P006

Evaluating Cervical Cerclage: A Decade of Obstetric Outcomes Based on Indications

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Introduction: Cervical cerclage prevents preterm birth in cervical insufficiency. Indications include history of second trimester miscarriage or preterm birth (HI), short cervix on ultrasound (UI) and dilated cervix at presentation (CI). The study compared obstetric outcomes based on cerclage indications in Malaysian women, addressing an evidence gap. **Materials and method:** A retrospective study of 295 women who underwent cervical cerclage at Hospital Sultanah Bahiyah from January 2013 to December 2022. Women were divided into three groups based on ACOG-defined indications (HI, UI, CI). Mann-Whitney U test and Kruskal-Wallis tests were used for analysis. **Results:** Cervical cerclage was performed in 1 out of every 384 births. Of the 233 cases, 187 were HI, 32 were UI, and 14 were CI. Primiparous women were more prevalent in the CI group (85%) than the UI (43%) and HI (28%). The mean cervical lengths were 3.33 $\pm$ 0.57 cm (HI), 2.17 $\pm$ 0.31 cm (UI), and 1.91 $\pm$ 0.51 cm (CI), respectively. Cerclages were done at 15 weeks (HI), 16 weeks (UI), and 22 weeks (CI). Pregnancy duration was longest in the HI group (18.96 $\pm$ 5.96 weeks), followed by UI (18.09 $\pm$ 6.98 weeks), and shortest in CI (6.93 $\pm$ 5.99 weeks), with significant differences ($p<0.001$). Cerclage failed to prevent preterm birth in 56% of HI, 21% of UI, and 63% of CI cases ($p=0.002$). Uterine contractions were the commonest reason for cerclage removal before 36 weeks ($p<0.001$), with the CI group accounting for 42%. **Conclusion:** The study highlights significant variations in the timing, effectiveness, and outcomes of cervical cerclage based on indication, with HI leading to the longest pregnancy prolongation and CI showing the shortest prolongation and highest preterm birth rate. This underscores the need for careful patient selection, precise timing, close monitoring, and routine cervical surveillance, especially for high-risk and nulliparous women.

Keywords: Cervical insufficiency; cervical cerclage; preterm birth; miscarriage; short cervix

P007

Outcome of Intravenous Paracetamol as An Adjunct to Patient's Controlled Epidural Analgesia (PCEA) During Labour in Primigravida

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Introduction: Labour pain ranks among the most intense pains documented in human experience. Different hospitals or medical centres adhere to different standards and offer diverse pharmacological options to manage it. This study aims to determine the usage of intravenous paracetamol (IV PCM) in reducing the consumption of epidural anesthetic opioids (Ropivacaine and Fentanyl) during labour, and IV PCM usage in reducing pain as an adjunct to PCEA. **Materials and method:** This observational study was conducted in Obstetrics and Gynaecology Department Hospital Raja Permaisuri Bainun Ipoh from 1st June 2023 to 30th June 2024 that included 170 primiparous women in labour. Half of these women received 1000mg of IV PCM as an adjunct to PCEA (n=85) and controlled group who only received PCEA alone (n=85). **Results:** The hourly mean drug consumption of Fentanyl was significantly lower in the paracetamol group as compared to control group (18.8 ± 2.9 mcg/hr vs 21.9 ± 3.6 mcg/hr, p=0.034). While the hourly mean drug consumption of Ropivacaine was lower in the paracetamol group as compared to control group (7.2 ± 2.7 mg/hr vs 7.4 ± 2.7 mg/hr, p=0.97) but statistically not significant. The duration of second stage of labour was lower in patient with IV PCM compared to control group (23 minutes vs 34 minutes, p=0.411) but statistically not significant. The effect of IV PCM as an adjunct to PCEA does not affect the mode of delivery (p=0.55) and APGAR score (p=0.64). Seventy one patients with IV PCM achieved pain score less than 3 within 1 hour compared to sixty four patients in control group based on Visual Analogue Scale (VAS) but statistically not significant (p=0.18). **Conclusion:** The administration of 1000mg IV PCM is safe as an adjunct to PCEA as it showed reduction in opioids consumption without any significant complication. It has been demonstrated that paracetamol could play a crucial role in multimodal labor pain management.

Keywords: Intravenous paracetamol; patient controlled epidural analgesia (PCEA); labour pain analgesia

P008

Patient's Satisfaction on Birthing Pants and Its Practicality at SASMEC

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Introduction: Birthing pant was introduced to improve the quality of service in labor delivery suites by ensuring the covering of the 'aurah', which remains concealed throughout childbirth. This pioneering study in Malaysia assesses the satisfaction level associated with using birthing pants during labor and evaluates their practicality concerning patient monitoring and care during delivery. **Materials and method:** The study involved purposive sampling of Muslim multiparous mothers who agreed to wear birthing pants and were scheduled for spontaneous vaginal delivery. Consent was obtained prior to delivery. Patients wore birthing pants sized according to their measurements, and routine labor care was provided. Post-delivery, both patients and staff nurses completed structured 5-point Likert scale questionnaires assessing satisfaction and practicality. For positive framed questions, a score of 1 gets 5 marks, decreasing inversely. While for negative framed questions, the mark equals the score. Total score above the mean percentage considered satisfied, while those scoring below are unsatisfied. **Results:** Out of 80 participants, 71% were satisfied with the birthing pants, citing optimal *aurah* protection, reduced embarrassment, and ease of movement. However, 29% expressed dissatisfaction, primarily due to discomfort from wetness and difficulty in pushing during delivery. BMI was significantly associated with satisfaction, with higher BMI participants showing lower satisfaction due to fit issues. Staff feedback indicated that birthing pants were practical for continuous CTG monitoring (82% agreement) but posed challenges in estimating blood loss, administering intramuscular injections, and preparing for emergency caesarean sections. **Conclusion:** Overall, birthing pants significantly enhance patient satisfaction by providing comfort, maintaining modesty, and reducing embarrassment, aligning with the principles of respectful maternity care (RMC) and mother-friendly care policies. However, proper fit and sizing, availability, and cost are critical factors that need addressing to ensure broader acceptance and utilization in healthcare settings.

Keywords: Birthing pants; labor satisfaction; aurah protection; patient monitoring; maternal care; Malaysia

P009

Biomechanical Analysis of Stiffness of Screw Fixation Technique for Lateral Humeral Condyle Fracture

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Introduction: Lateral humeral condyle fractures in pediatric patients are relatively common injuries that occur in the elbow accounting for up to 20%. It is the second most common injury of the elbow. Surgical management for displaced fracture of >2mm traditionally treated with K-wire fixation. However, this fixation was reported to have higher complications such as infection, insufficient stability, and limited range of motion elbow after treatment. Recently, cannulated screws have been reported to have better stability in fixation. The technique of screw fixation at lateral column has been reported as an optimal screw placement and stable fixation. We hypothesize that fixation with screw combine with K wire can enhance stability of the construct. **Materials and method:** Thirty-six synthetic humeri bones with Milch Type 2 fractures were fixed with 2 screw fixation techniques. Fractures were reduced and fixed with either a single screw that is placed at lateral column, or screw with addition of K-wire that is fixed transversely. Fixed synthetic bones were then mechanically tested to simulate in vivo forces in four directions; anterior, posterior, varus, and valgus. **Results:** Biomechanical testing shows that construct with fixation screw and K-wire is superior in stiffness, maximum load and energy absorbed when compared with single screw fixation. **Conclusion:** Fixation method with using screw and K-wire provides better stability compared to single screw at lateral column.

Keywords: Lateral humeral condyle fracture; biomechanical analysis; screw fixation

P010

Proximal Tibia Osteotomy: Biomechanic Study of Two Techniques

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Introduction: Proximal tibia osteotomy has evolved significantly, offering various techniques like dome and modified oblique osteotomies to correct angular deformities and redistribute knee stress, thus slowing arthritic progression. Despite advancements, a gap remains in understanding the biomechanical strengths of these techniques, especially concerning correction angles. The main aim of this study is to compare the stability of construct for different degrees of osteotomy. We hope to bridge this gap, providing insights to improve clinical decision-making and patient outcomes. **Materials and method:** Eighteen synthetic tibia were osteotomized based on dome and modified oblique osteotomy technique. For dome osteotomy, the osteotomy site was fixed with two Kirschner wire 2.0 mm for different degree of osteotomy which were ten-degree, twenty degree and thirty degree. Three samples from each construct were tested for rotational force. For modified osteotomy, two screws 3.5 mm were used to fix the osteotomy site and tested for rotational forces. **Results:** The constructs were stiffest at ten-degree for rotational force both in dome and modified oblique osteotomy (0.39 Nmm/degree and 0.4 Nmm/degree). Despite the ten-degree osteotomy is verified for the stiffest construct when compared to twenty and thirty degrees for both dome and modified oblique osteotomy, however, it was not statistically significant when compared between ten degree and twenty-degree osteotomy. On the other hand, when compared with thirty-degree osteotomy, it showed a statistically significant decrease in stiffness of the constructs. **Conclusion:** From this analysis, we can recommend that, if planning for proximal tibia osteotomy, the surgeon should aim of the degree of osteotomy until twenty degrees where if beyond thirty degrees, the construct stiffness significantly decrease against rotational force. This will lead to diminished stability and a higher rate of nonunion and malunion.

Keywords: Osteotomy; rotational force; dome osteotomy; modified oblique osteotomy

P012

Mentorship Matters: A Survey-Based Qualitative Analysis of Preclinical Medical Student Perspectives on the Mentor-Mentee Programme, International Islamic University Malaysia

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Introduction: The mentor-mentee programme at the Kulliyyah of Medicine, International Islamic University Malaysia (KOM, IIUM) facilitates academic, professional, and personal development in students through guided interaction with lecturers. The programme comprises 67 groups, each with 4-5 students and a lecturer as the mentor, mandating one meeting every 10 weeks to discuss academic and non-academic issues. This study investigates pre-clinical medical students' experiences with the programme. **Methodology:** This cross-sectional study surveyed all programme participants using a questionnaire that included two 5-point Likert scale questions (ranging from "strongly disagree" to "strongly agree") and five open-ended questions. The open-ended questions explored overall experiences, specific positive and negative experiences, contributions to development, challenges in mentor interactions, and suggestions for improvement. Descriptive statistics were used to analyse the quantitative data, and thematic synthesis was applied to the qualitative with consensus reached among the research team. **Results:** A total of 83 students (35% male, 65% female) from 65 out of the 67 groups responded, yielding a response rate of 97.0%. Regarding programme satisfaction, the mean score was 4.74 $\pm$ 0.74 (95% CI: 4.58, 4.89), and the mean score for perceived helpfulness was 4.69 $\pm$ 0.81 (95% CI: 4.51, 4.86). Thematic synthesis revealed four categories: benefits of sessions, characteristics of effective sessions, challenges, and suggestions for improvement. Personal development was most frequently mentioned, followed by academic and professional. Students emphasised comfort, confidence, well-being, peer support, mental health, and spiritual guidance. Academic and professional development included encouragement, feedback, study techniques, and ethical guidance. **Conclusion:** The participants rated the programme highly favourable and found it to be very helpful. They described the programme as beneficial for academic, personal, and professional development. Recommendations include more frequent meetings, better mentor training, and improved communication channels. This study highlights the impact of mentor-mentee programme's at KOM, IIUM, providing valuable feedback for future improvement.

Keywords: Mentorship; questionnaire; medical education; medical students; qualitative research

P013

Mechanistic Insights into the Analgesic Properties of DMPF-1: Modulation of Inflammatory Mediators

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Introduction: The ongoing search for effective analgesics aims to overcome the adverse effects of current medications. Chalcone derivatives, particularly 3-(2,5-dimethoxy phenyl)-1-(5-methyl furan-2-yl) prop-2-en-1 (DMPF-1), are promising candidates due to their demonstrated safety profile and analgesic properties. However, the precise mechanisms of DMPF-1's action within specific nociceptive pathways are not well understood making it difficult to optimize their use or predict interactions with other drugs. Thus, this study investigates the antinociceptive mechanisms of DMPF-1 by evaluating its effects on peripheral antinociception and its modulation of pain mediators such as histamine, serotonin, and prostaglandin. **Materials and method:** We assessed the modulatory activity of DMPF-1 using paw licking and oedema tests. In the carrageenan-induced test, six groups of mice received DMPF-1 (0.1, 0.5, 1.0, and 5.0 mg/kg, i.p.), followed by 0.1 mL of 1% λ-carrageenan injection into the left hind paw. Controls received vehicle or ASA (100 mg/kg, i.p.), and paw volume was measured hourly. In the second test, mice treated with DMPF-1 (1.0 mg/kg, i.p.) were given intraplantar injections of histamine, serotonin, or arachidonic acid, with paw licking recorded for 15 minutes and oedema measured every 30 minutes for 180 minutes. **Results:** Results indicated that DMPF-1 (5 mg/kg) significantly reduced carrageenan-induced paw oedema and attenuated responses to arachidonic acid, prostaglandin, histamine, and serotonin. **Conclusion:** This suggests that DMPF-1 may directly inhibit these mediators or their receptors. The findings elucidate potential mechanisms underlying DMPF-1's antinociceptive and anti-inflammatory activities, indicating its interaction with pain mediators and indirect involvement in downstream pain signaling pathways.

Keywords: (3-(2,5-dimethoxyphenyl)-1-(5-methylfuran-2-yl) prop-2-en-1-one; chalcone; serotonin; histamine; arachidonic acid

P014

Screening of Antioxidant and Anti-Acetylcholinesterase Active Compounds in *Dillenia grandifolia* Wall. ex Hook. F. & Thomson Leaf Extracts

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Introduction: Dementia, including Alzheimer's disease (AD), is increasingly common among the elderly, with few approved medications providing only symptomatic relief. Plants, rich in phytochemicals, offer promising AD therapy due to their antioxidant, anti-cholinesterase, and anti-inflammatory properties. *Dillenia grandifolia* has been identified as one of *Dillenia* species that contains oleamide, a compound with AD-fighting properties. This research is a preliminary study on antioxidant and anti-acetylcholinesterase properties of *D. grandifolia for* its potential in this context. **Materials and Method:** Thin layer chromatography (TLC) bioautographic screening was employed to assess the antioxidant and anti-acetylcholinesterase properties of fresh and senescent leaf methanolic extracts. Total phenolic and flavonoid contents were determined using the Folin-ciocalteu and aluminium chloride assays, respectively. **Results:** The fresh leaf extract exhibited a higher percentage yield (10.20%) compared to the senescent leaf extract (8.25%). TLC analysis revealed six spots in each extract, with seven spots showing terpenoidal and phenolic terpenoidal antioxidant activity-three in fresh leaf extracts and four in senescent leaf extracts. One spot in each extract exhibited phenolic terpenoidal anti-acetylcholinesterase activity. Furthermore, the total phenolic content surpassed the total flavonoid content in both extracts, with the fresh leaf extract containing (75.0018 $\pm$ 1.2816 mg GAE/g extract) and the senescent leaf extract containing (66.1372 $\pm$ 0.9079 mg GAE/g extract) for TPC. The TFC screening showed (10.0980 $\pm$ 0.4160 mg CE/g extract) for the fresh leaf extract and (3.8235 $\pm$ 0.1387 CE/g extract) for the senescent leaf extract. **Conclusion:** This study sheds light on the potential medicinal benefits of *D. grandifolia*, highlighting its high total phenolic and notable total flavonoid contents. Fresh leaf extracts showed superior antioxidant and anti-acetylcholinesterase potential compared to senescent leaf extracts. Although limited to screening, these findings pave the way for further research using advanced detection techniques.

Keywords: *Dillenia grandifolia*; thin layer chromatography analysis; bioautographic screening; antioxidants; anti-acetylcholinesterase

P015

Gamma Oryzanol Mitigates Diabetic Cardiomyopathy by Modulating Antioxidative Effects through Interaction with esRAGE-AGE

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Introduction: Diabetes mellitus (DM), triggers production of oxidative stress and advanced glycation end-products (AGE), leading to features of diabetic cardiomyopathy independent of known cardiovascular risk factors. esRAGE scavenges excess AGE and reduced interaction of AGE and oxidative stress. Gamma oryzanol (GO) is a compound found in rice bran oil that has been shown to have potential benefits for individuals with DM and related complications including cardiovascular. This study aims to determine the biochemical activities of GO supplementation on rat heart and its mechanism of action. **Material and methods:** The study comprised 54 male Sprague Dawley rats randomly divided into 2 groups, which are normal diet group (n=18; Group 1 (normal, control) and 2 (Normal+ GO) and obese group (n=36) treat with high fat diet (HFD). After obesity is confirmed, Type-2 DM will be induced in the obese rats (n =36) by injection of streptozotocin 40 mg/ kg divided into 4 groups with each group containing 9 rats; Group 3: Diabetic control; Group 4: Diabetic + GO; Group 5: Diabetic + Metformin; Group 6: Diabetic + GO + Metformin. Two antioxidant enzymes (esRAGE and SOD) and two oxidative stress markers (PCO and rat AGE levels) were measured. All data was analyzed using one-way ANOVA with post-hoc Bonferroni correction to identify differences between groups and reported as mean (SD). **Results:** Repeated single oral administration of GO on diabetic rats for 28 days revealed this dosage as the most effective by lowering the blood glucose comparable to metformin. The results also showed good lipid, renal, and liver functions and close to the normal range of control rats, indicative of non-toxic effects. Treatment with GO displayed significantly reduces pro-oxidative parameters (PCO and AGE), improves antioxidative parameters (esRAGE, SOD). **Conclusion:** GO exerts cardioprotective effect on diabetic cardiomyopathy through antioxidative activity involving the modulation of AGE-RAGE signalling pathway.

Keywords: Gamma oryzanol; diabetic cardiomyopathy; esRAGE; AGE; antioxidant

P016

Thymoquinone decreases L-NAME-induced increase in blood pressure in Sprague-Dawley rats

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Introduction: The effect of thymoquinone (TQ) on L-NAME-induced increase in blood pressure has not been thoroughly investigated, particularly its effects on NFKβ and NRF2. This study, therefore, examined the effect of TQ on blood pressure (BP) and serum concentrations of NFKβ/NRF2 in L-NAME-treated rats. **Materials and method:** Five groups of male Sprague-Dawley rats, aged 12-14 weeks (n = 7) were treated with either 0.5 ml water (2 groups) or 40 mg Kg^{-1} of L-NAME via oral gavage (3 groups) for 8 weeks. At the beginning of week 5, one of the water-treated groups and one of the L-NAME-treated groups were co-treated with 1 mg Kg^{-1} of TQ, while another L-NAME-treated group was given 10 mg kg^{-1} losartan until week 8. BP, body weight, food and water intake and urine output were measured weekly. At the end of the 8 weeks, animals were euthanized and serum was collected for NFKβ and NRF2 estimation. Data were analyzed using repeated measured and one-way ANOVA. **Results:** L-NAME caused a significant increase in BP after 4 weeks of treatment when compared to that in the water-treated controls ($p<0.001$). Treatment with TQ or losartan caused a significant reduction in BP in L-NAME-treated rats when compared to that in L-NAME-only treated controls ($p<0.001$). No significant differences were evident in the serum concentrations of NRF2 and NFKβ, body weight, urine output, food and water intake between the groups. **Conclusion:** TQ reduces L-NAME-induced increase in BP in rats, but its BP reducing effect does not involve the NFKβ/NRF2 pathway but some other yet to be identified mechanism.

Keywords: Thymoquinone; blood pressure; hypertension; inflammation; hypertensive rats

P017

Optimisation of LCMS QTOF Settings for Untargeted Serum Metabolomic Profiling of Post-COVID-19 Syndrome

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Introduction: Post-COVID-19 Syndrome (PCS) is a complex condition characterized by prolonged symptoms and metabolic disturbances following SARS-CoV-2 infection. Metabolomics, an approach to examine metabolites modifications, has potential in clarifying the underlying mechanisms of PCS and discovering disease biomarkers. This study aimed to optimize the setting of Liquid chromatography mass spectrometry quadrupole-time-of-flight (LCMS-QTOF) to achieve the most efficient and highly reproducible serum metabolomic profiling in PCS patients. **Materials and method**: Serum samples were collected from PCS patients who were recruited at post-COVID-19 clinic and the diagnosis was confirmed by physicians. Inclusion criteria included persistent symptoms such as cough, dyspnea or/and fatigue more than three months post infection with exclusion of other differential diagnoses. The serum samples were prepared using methanol as the solvent. Metabolomic analysis was performed using Agilent Technologies 6550 iFunnel Q-TOF LC/MS machine, operated in both positive and negative ionization. The mobile phase gradient was adjusted to optimize the separation and detection of metabolites, according to the graph of peak intensities versus retention time. The graph peak quality and total number of identified compounds yielded for each setting were documented. **Results**: Positive ionization showed better graph peak distribution over time and yielded a greater number of detectable and identified compounds than negative ionization, (132 compounds, 38 identified vs. 122 compounds, 31 identified). Consistent, equally distributed

resolved peaks and more detectable compounds were found when the mobile phase A gradient percentage was adjusted to 100%, 70%, 58%, 30% and 0%, while mobile phase B gradient percentage was adjusted to 0%, 30%, 42%, 70%, 100% at 0, 3, 9, 14 and 16 minutes. **Conclusion**: Positive ionization and adjustments to the mobile phase gradient improved detection of metabolites. This optimization phase is crucial for identifying key metabolic changes in PCS and useful as a reference for future metabolomics studies.

Keywords: LCMS; QTOF; post-COVID-19 syndrome; metabolomic profiling

P018

Urine Metabolomics in Dengue Infection: Elucidating Hexadecane as a Potential Biomarker

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Introduction: Dengue infection remains a major global health concern, necessitating rapid, non-invasive, and universally accessible diagnostic methods. Existing diagnostic modalities fail to simultaneously address the critical aspects of sensitivity, specificity, efficiency, and cost-effectiveness. The NS1 antigen detection test exhibits low sensitivity, while serology tests carry a high risk of false negativity due to low IgM titres in the early phase of infection. Urine-based metabolic profiling has emerged as a promising approach for the identification of specific disease biomarkers. This study aims to identify urinary metabolites associated with dengue infection, leveraging these biomarkers to develop a urine-based dengue test kit. Alkane group metabolites may rise as they act as energy substrate to assist viral replication. **Materials and method:** We analysed urine samples from 30 dengue-infected patients and 30 control subjects using Gas Chromatography-Mass Spectrometry (GC-MS). The analysis focused on identifying distinct metabolites based on retention time (RT) and similarity index (SI), with the quantification of their concentrations using peak area. **Results:** Our findings revealed a significant presence of hexadecane in the urine samples of dengue-infected subjects ($p<0.01$) compared to control subjects. This metabolite was characterized by a RT of 20.95 $\pm$ 2.23 minutes, a SI of 85.50 $\pm$ 5.00%, and a peak area of 1360566.25 $\pm$ 1066618.37 a.u. **Conclusion:** The marked detection of hexadecane specifically in dengue patients, highlights its potential as a key biomarker for dengue detection. This discovery establishes the foundation for the development of rapid, non-invasive urine-based dengue diagnostic tests.

Keywords: Dengue infection; metabolomics; gas chromatography-mass spectrometry (GC-MS); biomarker

P019

LCMS/MS Identification of Polyphenols in Methanolic Extract of *Abelmoschus esculentus* Fruit

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Introduction: *Abelmoschus esculentus (A. esculentus)*, also known as okra, is a highly valuable plant used in traditional medicine and widely consumed as a vegetable. Previous studies suggest that its medicinal properties *are* attributed to its fruits' abundance of polyphenolic compounds. Therefore, comprehensive identification of polyphenolic compounds in *A. esculentus* responsible for these bioactive properties is highly required. This study focuses on screening and identifying the polyphenolic compounds in the methanolic extract of *A. esculentus* fruits using liquid chromatography-mass spectrometry/mass spectrometry (LCMS/MS). **Materials and method:** The *A. esculentus* methanolic extract was prepared using 70% methanol. The *A. esculentus* fruit was extracted with 70% methanol, and the extract was injected into LCMS/MS. The compounds were then identified by processing the raw data from LCMS/MS using the MS-DIAL Software. **Results:** Methanolic extracts of *A. esculentus* fruit constituted a diverse array of 45 polyphenol components, including 30 flavonoids, 10 phenolic acids, 2 stilbenes, and 1 lignan, demonstrating significant biological activities. Notably, the identified flavonoids and phenolic acid compounds, such as kaempferol derivatives, quercetin derivatives, rutin, quercitrin, isorhamnetin, baicalin, myricetin, as well as derivatives of hydrocinnamic acid, hydrobenzoic acid, and catechin, exhibited pharmacological properties, including antioxidant, anti-inflammatory, and anti-cancer activities. **Conclusion:** The findings convincingly demonstrated that *A. esculentus* is a polyphenol compound-rich plant, suggesting its potential use in treating chronic diseases. Therefore, further studies on its potential nutraceutical and pharmacological properties based on the identified compounds are essential.

Keywords: *Abelmoschus esculentus*; LCMS/MS; phenol; flavonoid

P020

Persicaria minor (Huds.) Opiz Inhibit *In Vitro* Angiogenesis in Tumor Necrosis Factor-Alpha Induced Human Umbilical Vein Endothelial Cells

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Introduction: Angiogenesis, the formation of new blood vessels is associated with atherosclerosis and cancer. Angiogenesis involves cell migration, cell proliferation, and formation of capillary-like tubes, a process tightly controlled by pro-angiogenic factors such as vascular endothelial growth factor (VEGF) and basic fibroblast growth factor (bFGF). *Persicaria minor* (Huds.) Opiz, (sy. *Polygonum minus* Huds.), known as 'Kesum" in Malaysia, is commonly used as a food additive and flavouring agent, and is also traditionally used to cure stomach and body ailments. *P. minor* exhibits anti-oxidative, anti-inflammatory, anti-ulcer, and antimicrobial activities. However, the potential of aqueous leaf extracts of *P. minor* to suppress angiogenesis is still unknown. This study investigates the anti-angiogenic effect of the aqueous extract of *P.minus* (AEPM) on migration, proliferation, tube formation and VEGF and bFGF protein levels in tumour necrosis factor (TNF)-α-induced human umbilical vein endothelial cells (HUVEC). **Materials and method:** HUVEC were divided into five groups: (i) control, (ii) treatment with 300 µg/ml AEPM, (iii) induction with 30 ng/ml TNF-α, (iv) pre-treatment with AEPM for 18 hours followed by induction with TNF-α for 6 hours and (v) pre-treatment with Dexamethasone for 18 hours followed by induction with TNF-α for 6 hours. HUVEC migration was assessed using the scratch assay. HUVEC proliferation was determined using colorimetric assay bromodeoxyuridine (BrdU) and the formation of capillary-like tubes was measured using angiogenesis assay. The level of VEGF and bFGF were determined using enzyme-linked immunosorbent assay (ELISA). **Results:** Pre-treatment of AEPM was able to reduce HUVEC migration (P <0.0001), HUVEC proliferation (P <0.0001), capillary-like tube formation (P <0.0001) and VEGF protein level (P <0.01) compared to TNF-α group. However, AEPM did not reduce bFGF protein levels in TNF-α-induced HUVEC. **Conclusion:** The results showed that *P. minor* inhibits angiogenesis by inhibiting migration, proliferation of HUVEC, tube formation and VEGF protein levels in TNF-α-induced HUVEC.

Keywords: Endothelial cell; angiogenesis; tumor necrosis factor-alpha; *Persicaria minor; Polygonum minus*

P021

Mechanistic Insights into *Andrographis paniculata* Extract in Preventing 1,2-Dimethylhydrazine and High-Fat Diet-Induced Colorectal Cancer in Sprague Dawley Rats

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Introduction: Obesity is a well-established risk factor for colorectal cancer (CRC) and various metabolic disorders, significantly contributing to global mortality rates. Consequently, numerous intervention studies are being conducted to address this health burden. This investigation focuses on exploring the medicinal properties of *Andrographis paniculata*, renowned for its therapeutic efficacy, particularly in combating cancer. The study investigates the chemopreventive potential of *Andrographis paniculata* ethanolic extract (APEE) against CRC in Sprague Dawley rats induced by a combination of a high-fat diet (HFD) and 1,2-dimethylhydrazine (DMH). **Materials and method:** High-performance liquid chromatography (HPLC) analysis was performed to quantify the compound profile of APEE. To assess its chemopreventive effect, 48 male Sprague-Dawley rats were divided into eight groups: normal diet (N), normal diet with DMH (NC), high-fat diet (HFD) (H), HFD with DMH (HC), and HFD with DMH and 5-fluorouracil (5FU) (HCF), HFD with DMH and 125 mg/kg of APEE (HCAP125), HFD with DMH and 250 mg/kg of APEE (HCAP250), and HFD with DMH and 500 mg/kg of APEE (HCAP500). **Results:** HPLC analysis of APEE revealed 17.34% andrographolide and 6.29% neoandrographolide. In APEE treatment groups, APEE administration led to reduced blood levels of insulin, leptin, and triglycerides. These HFD/DMH-exposed animals also displayed abnormal colon crypts and a higher number of aberrant crypt foci (ACF). However, APEE treatment at 500 mg/kg dose mitigated these

dysplastic changes in the colon tissue, reducing the number of ACF. Additionally, APEE preserved normal liver architecture and visceral fat structure, while the HFD/DMH group exhibited ballon cells and enlarged visceral fat. **Conclusion:** These findings revealed that APEE exhibits potential anti-cancer effects against HFD/DMH-induced CRC, as well as anti-obesity and anti-adipogenic properties.

Keywords: *Andrographis paniculata*; colorectal cancer (CRC); high-fat diet (HFD); DMH; obesity; anti-cancer

P022

The Role of *Polygonum minus* as an Angiotensin-Converting Enzyme Inhibitor in human Umbilical Vein Endothelial Cells

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Introduction: Hypertension is a common health problem among Malaysians as well as worldwide. The overactivation of the renin-angiotensin system (RAS) plays an important role in the pathogenesis of hypertension. One of the RAS components, angiotensin-converting enzyme (ACE), is responsible for hydrolyzing angiotensin (Ang) I into Ang II. Ang II causes vasoconstriction and increases blood pressure. Meanwhile, *Polygonum minus* is an herbal plant with several pharmacological effects, such as antioxidant, antihyperlipidemic, and anti-inflammatory properties. This study aimed to explore the potential of *P. minus* as an ACE inhibitor in human umbilical vein endothelial cells (HUVEC) exposed to an ACE inducer, phorbol 12-myristate 13-acetate (PMA). **Materials and method:** The cultures of HUVEC were divided into five groups: control, treatment with 400 µg/mL standardized aqueous extract of *P. minus* leaves (AEPM), induction with 200 nM PMA, concomitant treatment with 200 nM PMA and 400 µg/mL AEPM, and a positive control with 200 nM PMA and 0.06 µM captopril. Following 24 hours of incubation, ACE activity was determined using a colorimetric assay, while the protein levels of ACE and Ang II were measured using enzyme-linked immunosorbent assay. **Results:** Induction of HUVEC with PMA caused an increase in ACE protein ($P < 0.001$), ACE activity ($P < 0.01$), and Ang II levels ($P < 0.001$). Treatment of PMA-induced HUVEC with AEPM resulted in a reduction of ACE protein ($P < 0.001$), ACE activity ($P < 0.01$), and Ang II levels ($P < 0.01$). The inhibitory effect of AEPM on ACE activity is comparable to the effect of captopril. In conclusion, *P. minus* is able to inhibit the ACE pathway in PMA-induced HUVEC. Thus, *P. minus* has the potential to be further developed as an antihypertensive agent in the future.

Keywords: Angiotensin II; angiotensin-converting enzyme; human umbilical vein endothelial cells; hypertension; *Polygonum minus*

P023

The Effect of *Piper Sarmentosum* Aqueous Extract on Human Osteoarthritic Articular Chondrocyte

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Introduction: Osteoarthritis (OA) is a prevalent degenerative joint disease primarily affecting the elderly, often causing functional disability. Current therapies, mainly provide temporary relief and can cause adverse side effects. *Piper sarmentosum* (PS), a traditional medicinal plant, has demonstrated antioxidant and anti-inflammatory properties that could potentially halt the progression of OA. This study aims to investigate the potential of PS aqueous extract in mitigating OA progression. **Materials and Method:** The human OA articular chondrocytes (HOC) isolated from knee joint cartilage were cultured with PS for 3 days. The cytotoxicity effect of different PS concentrations on HOC was evaluated by measuring the cell viability and proliferation rate using 3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. The effect of PS on anabolic and catabolic differential gene expression was verified by real-time polymerase chain reaction (PCR). The nitric oxide (NO), prostaglandin E2 (PGE_2), and sulfated glycosaminoglycans (sGAG) production by monolayer chondrocytes in medium was analyzed by colorimetric method. **Results:** The chondrocytes that have been grown in different PS concentrations have polygonal morphologies while retaining their chondrocyte characteristics. The anti-inflammatory and antioxidant effects of PS aqueous extract were discovered, as shown it promotes the induction of the cartilage-specific markers and anabolic genes (ACP, COL I & 2, SOX 9) while decreasing the catabolic gene expression (COX2, INOS, IL6, MMP1, MMP13). Moreover, the PS aqueous extract is also able to reduce NO and PGE2 production while increasing the sGAG production. **Conclusion:** PS aqueous extract demonstrates chondroprotective, anti-inflammatory, and antioxidant properties by enhancing anabolic activity, inhibiting catabolic activity, and reducing oxidative damage via the NO signaling pathway. These findings suggest that PS aqueous extract could be a potential therapeutic agent for OA treatment.

Keywords: *Piper sarmentosum*; osteoarthritis; chondrocytes; chondroprotective; anti-inflammatory; antioxidant

P026

A Systematic Review of the Association Between Sleep Quality and Cortisol Levels among Healthcare Shift Workers

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Introduction: Shift work adjustment syndrome can disrupt sleep patterns leading to poor sleep quality and reliance on sleep aids. Given the influence of the sleep-wake cycle on cortisol levels, this study investigates the relationship between sleep quality and cortisol levels in healthcare shift workers. The findings will implicate on shift scheduling, workplace policies, and interventions to improve sleep quality. **Materials and method:** A systematic review was conducted using SCOPUS, PubMed, and Web of Science databases from 2013 to 2023 according to PRISMA guidelines. The target population comprised healthcare professionals aged 20 to 60 who work in rotating shifts. **Results:** Nine primary studies were analyzed, revealing that irregular shifts significantly affect both sleep quality and cortisol production. Of these, three studies investigated morning cortisol levels; two studies reported below the normal range, while one study showed results above threshold levels for morning salivary cortisol. Three other studies focused on cortisol awakening response (CAR) which homogenously found disrupted circadian rhythm is reflected by lower level of CAR. The rest of three studies reported elevated evening cortisol levels. All studies consistently demonstrated a strong association between the cortisol levels and sleep quality, indicating the possible bidirectional effect of the hormone and sleep. **Conclusion:** Cortisol levels may serve as marker for objectively measuring sleep disturbance. Up to date, the data is still limited, thus, further research are required to develop nation-specific shift schedules, accounting for variations in work patterns and time off across different countries.

Keywords: Sleep quality; insomnia; work shift; cortisol; circadian rhythm

P027

Chrononutrition Behaviors and Sleep Quality among Healthcare Shift Workers in Klang Valley

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Introduction: The circadian rhythm of an individual is often disturbed when working in shifts. Specifically, the nutritional intake and sleep of shift workers are commonly affected. The challenges of maintaining good eating habits and sleep patterns need to be addressed among shift workers to improve their health outcomes. However, research on chrononutrition and sleep quality among shift workers in Malaysia is still scarce. Thus, the goal of this study was to determine the association between chrononutrition behaviors and sleep quality among healthcare shift workers in Klang Valley. **Materials and method:** This cross-sectional study involved a total sample of 368 healthcare shift workers from three hospitals in Klang Valley. Simple random sampling was utilized to select subjects aged between 19 to 60 years old who worked in a 3-shift system. Those diagnosed with sleeping disorders, mental illness, or chronic diseases were excluded. The chrononutrition and sleep quality of the subjects were assessed using the validated and self-administered questionnaires of Chrononutrition Profile Questionnaire (CPQ) and Pittsburgh Sleep Quality Index (PSQI). **Results:** Overall, the majority of the subjects were categorized into the groups of chrononutrition behaviors of good breakfast skipping, night eating, eating window; and fair largest meal, evening eating, evening latency. Poor sleep quality (51.9%) was observed among the subjects. Age, marital status and breakfast skipping were found to be significant predictors of sleep quality ($p<0.05$). Logistic regression analysis showed that subjects who were younger (AOR = 3.51; 95% CI: 1.5 – 8.3); not married (OR = 1.82; 95% CI: 1.1 – 3.0); and poor breakfast skipping habit (AOR = 2.12; 95% CI: 1.3 – 3.5) had poorer sleep quality. **Conclusion:** This study suggests that future research should further explore the outcomes, particularly focusing on recommendations and intervention strategies to improve chrononutrition behaviors and sleep quality among shift workers in order to maintain their well-being.

Keywords: Sleep quality; chrononutrition; shift workers; healthcare

P028

Effect of *Trans*-Resveratrol on Visual-Behavioural Test in Rats with NMDA-Induced Retinal Excitotoxicity

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Introduction: Glaucoma, characterized by optic neuropathy and loss of retinal ganglion cells, is the leading cause of irreversible blindness globally. Retinal excitotoxicity is associated with pathogenesis of glaucoma. Activation of N-Methyl-D-Aspartate (NMDA) receptors induces retinal excitotoxicity, whereas stimulation of adenosine A1 receptors (AA1R) can counteract NMDA-induced excitotoxicity. T*rans*-resveratrol (TR) has agonistic action towards AA1R, which may be developed as a potential medication against retinal excitotoxicity. Therefore, the aim of this study is to evaluate the effect of TR through AA1R on visual-behaviour tests in rats with NMDA-induced retinal excitotoxicity. **Materials and method:** Forty-eight *Sprague Dawley* rats were divided into four groups (n=12/group). Rats received intravitreal injection of either phosphate buffer saline (PBS) or 160 nmol NMDA. Rats induced with NMDA were further subdivided into those receiving intravitreal treatment of vehicle (NMDA), 4 nmol TR (TR) or 4 nmol TR with 8 nmol DPCPX (TR+DPCPX). DPCPX is an AA1R antagonist. Treatment was given 24 hours prior to NMDA induction. Open field and chamber mirror tests were then conducted on 5th and 6th day post NMDA induction respectively. **Results:** In open field test, NMDA group showed longer travelling distance (28.5 $\pm$ 2.2 m, $p<0.001$) compared to PBS group (18.8 $\pm$ 2.4 m, $p<0.001$). Meanwhile, TR group has shorter travelling distance (19.3 $\pm$ 2.9 m, $p<0.001$) compared to NMDA group. Administration of DPCPX partially reversed the effect of TR, in which the travelling distance of TR+DPCPX group was longer than TR (22.5 $\pm$ 2.2 m, $p<0.001$). In chamber mirror test, TR group spent higher time in mirror zone compared to inverse mirror zone ($p<0.05$), which was comparable to PBS group. However, for NMDA and TR+DPCPX groups, there were no significance differences on the time spent in mirror and inverse mirror zones. **Conclusion:** TR, through AA1R, improved visual-behavioural activities of rats with NMDA-induced retinal excitotoxicity.

Keywords: Glaucoma; N-methyl-D-aspartate; adenosine A1 receptor; *trans*-resveratrol; visual-behavioural test

P029

Modulation of Maternal Obesity and Cognitive Deficit Across Generations Using *Elateriospermum tapos* Yoghurt: A Prebiotic Intervention Study

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Introduction: Maternal obesity has been linked to the inheritance of obesity and neurodevelopmental delays in offspring. However, recent discoveries have shown that certain flavonoids have the ability to modulate lipid metabolism, reduce fat absorption, and reverse memory decline. *Elateriospermum tapos* (*E. tapos*) a natural tropical fruit known for its high levels of flavonoid compounds, was the focus of this research, aimed at preventing the transgenerational inheritance of obesity and neurodevelopmental delays in the offspring of maternal obese dams through the supplementation of *E. tapos* yoghurt. **Materials and method:** In this experimental study, a total of 48 female Sprague Dawley (SD) rats were divided into 6 groups, each consisting of eight rats. Obesity was induced over a period of 16 weeks using a high-fat diet pellet. On the 17th week, the rats were allowed to mate, and pregnancy was confirmed through vaginal smear. The obese-induced group was further divided into negative and positive control groups, followed by three different concentrations (5, 50, and 500 mg/kg) of the treatment group. Changes in body weight and calorie intake were recorded weekly, and the place and object recognition test were conducted on postnatal day 21 on both the mothers and offspring. **Results:** The results revealed a significant reduction ($p < 0.05$) in weight, calorie intake, and adipose tissue mass in both the obese dams and their offspring in all treatment groups compared to the control group. Behavioral data demonstrated a significant increase ($p < 0.05$) in exploration rate among offspring in the 500 mg/kg treated group compared to the control groups. **Conclusion:** In conclusion, *E. tapos* yoghurt, as a prebiotic supplement, exhibited lipid-lowering activity, modulated digestion, and ultimately improved declarative memory in the offspring through the action of its flavonoids.

Keywords: Maternal obesity; flavonoids; transgenerational effects; cognitive development

P030

Role of DBP and FGG Proteins in Obese Schizophrenia: A Proteomic Study

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Introduction: Both schizophrenia and obesity are complicated conditions that can have a major negative impact on an individual's health and quality of life. Even though each condition has been thoroughly researched on its own, the intersection of obesity in schizophrenia patients remains underexplored, particularly at the proteomic level. Using two-dimensional gel electrophoresis (2-DE) and liquid chromatography-mass spectrometry (LC-MS), this study aims to identify the differently expressed proteins in obese schizophrenia patients compared to obese non-schizophrenia controls. **Materials and method:** This comparative cross-sectional study used plasma samples from 20 subjects. Protein extracts from plasma samples of obese schizophrenia patients (n=10) and obese non-schizophrenia controls (n=10) were separated using 2-DE. Statistical analysis was performed using Independent Student's t-test to determine the protein expression patterns between groups using PD Quest Software. Then, the differently expressed protein spots were excised and identified via LC-MS. **Results:** The study identified two proteins with significant differential expression ($p < 0.05$) in obese schizophrenia patients compared to obese controls. Vitamin D binding protein (DBP) and Fibrinogen Gamma Chain (FGG) were found to be differently expressed. DBP is known for its role in metabolic regulation and immune response. While FGG involves in coagulation and inflammation processes, indicating a possible increase in cardiovascular risks including obesity. The different expressions of these proteins suggest potential disruptions in various metabolic and inflammatory pathways which could provide

insights into mechanisms linking obesity and schizophrenia. **Conclusion:** These findings highlight the distinct proteomic profile associated with obesity in schizophrenia patients. These proteins could serve as candidate biomarkers for understanding the pathophysiology underlying the comorbidity of obesity and schizophrenia. Further research is needed to discover the exact role of these proteins and their potential as therapeutic targets.

Keywords: Schizophrenia; obesity; proteomic analysis

P031

Genetic Studies of Apolipoprotein in Schizophrenia – A Significant Systematic Review

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Introduction: Schizophrenia is a complex multifactorial mental disorder due to genetic, environmental and neurodevelopment. Apolipoprotein is identified as one of various genetic candidates involved in lipid metabolism, neurodevelopment, and neuroprotection. The aim of this systematic review is to combine existing genetic studies on apolipoprotein associated with schizophrenia to understand the potential role in the disorder's pathogenesis and the implication on lipid metabolism in individuals with schizophrenia. **Method:** Using the PubMed and Scopus databases, a comprehensive literature review was conducted to search for studies published from 2004 to 2023 restricted to English language. Keywords including "schizophrenia", "apolipoprotein", "genetic" and "genetics" were used. Non-research materials such as books, reviews, letters to editors, and conference proceedings were excluded during the selection process. Only journal articles that undergo peer review were chosen to increase the reliability and credibility of the systematic review. **Results:** A total of 45 articles were included in the review and 4 major themes were identified. The themes discussed various topics including genetic polymorphisms, oxidative stress and DNA damage, cognitive functions, lipid metabolism and epigenetic mechanisms associated with schizophrenia. The important roles of apolipoprotein genes such as APOE, APOL and APOA1 were discussed in different aspects of schizophrenia. The APOE gene is the most frequently studied, reflecting the interest in this area of study. **Conclusion:** This systematic review highlighted several areas on the genetics of apolipoprotein in schizophrenia that could be a basis for future research to focus on identifying specific potential genetic biomarkers to develop better therapeutic interventions.

Keywords: Genetic; apolipoprotein; biomarkers; schizophrenia; systematic literature review

P032

Leading the Way: Private Healthcare Providers in Malaysia Embrace IR4.0 Technology

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Introduction: The application of Fourth Industrial Revolution (IR4.0) technology in private healthcare providers is crucial for enhancing patient care delivery and management. IR4.0's nine pillars include cloud-computing, additive manufacturing (3D-printing), augmented reality, big data, autonomous robots, simulation, system integration, Internet of Things (IoT), and cybersecurity. This study aims to evaluate the adoption and impact of IR4.0 technologies among thirteen healthcare provider companies listed on Bursa Malaysia: ALPHA, CENGILD, DCHCARE, IHH, KPJ, LYC, MHCARE, OPTIMAX, SMILE, SUNWAY, TDM, TMCLIFE, and UCREST. **Methodology:** A textual analysis based on IR4.0 technology keyword identification was conducted on data from annual reports and S&P Capital IQ database from 2015 to 2023. **Results:** The findings reveal that 10 out of 13 providers (76.9%) have integrated at least one IR4.0 technology into their operations. 43.2% have adopted IoT for Smart Hospitals, and 53.8% utilize blockchain for real-time cloud-computing. 69.23% of the companies have expressed cybersecurity concerns and implemented robust security frameworks to ensure patient confidentiality. Furthermore, 46.15% of the providers have incorporated artificial intelligence (AI) and data analytics into their systems. For example, KPJ predicts fall risk and drug interactions during prescriptions based on the patient's condition and data stored in AI-driven Electronic Medical Record (EMR) systems. Others include AI-driven measurement tools like facial scanning technology to gather vital health information and AI-powered colonoscopy. ALPHA and TMC employ AI-enhanced embryo selection to optimize IVF success rates. Additionally, UCREST has introduced a cloud-hospital (i-Medic) with wearable devices for remote telemedicine, while KPJ has pioneered 5G-Holomedicine for AR/VR applications in surgery planning and diagnostics. **Conclusion:** IR4.0 technologies have significantly improved patient management by enabling data-driven evidence-based diagnosis, technological integration, and bridging gaps in patient treatment, besides enhanced operational efficiency and reduced costs. Future research should focus on optimizing these technologies to maximize their benefits in the healthcare industry.

Keywords: IR4.0; technology; healthcare; patient care

P033

Mechanism of Albumin in Endometriosis and Its Therapeutic Potential

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Introduction: Endometriosis is characterized by the growth of endometrial tissue outside the uterus, causing pain, menstrual disorders, and infertility. Albumin, the main plasma protein, plays a crucial role in its pathogenesis by regulating inflammatory responses, growth factors, and angiogenesis. It modulates immune cells, binds inflammatory molecules, and affects VEGF expression and vascular responses, impacting disease progression and tissue vascularization. Understanding albumin's role could lead to more effective therapies. The objective of this study is to understand the mechanism of albumin in endometriosis to support the development of more effective therapies and improve patients' quality of life. **Materials and method:** This research method uses a systematic literature review using keywords namely "Albumin", "Oxidative Stress", "Inflammation", "Protein", "Endometriosis", and "Mechanism". Literature searches were conducted using the Google Scholar, Pubmed, and NCBI databases with a maximum publication of the last 5 years. **Results:** The literature review identified seven research journals that met the inclusion and exclusion criteria. The findings showed that albumin plays an important role in regulating inflammation and angiogenesis associated with endometriosis. **Conclusion:** Albumin has potential therapeutic applications for endometriosis. Nanoalbumin particles can reduce glucose levels and induce apoptosis in ectopic lesions resulting in anti-endometriosis effects. Overall, albumin has the potential to serve as an important diagnostic and therapeutic tool for endometriosis. Further research is needed to develop more effective and targeted therapeutic strategies against this disease.

Keywords: Albumin; oxidative stress; inflammation; protein; endometriosis

P034

Investigating the Role of PI3K Pathway and Autophagy in Leptin-Induced Adverse Effects on Sperm in the Rat

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Introduction: The adverse effects of leptin on sperm have previously been shown to be mediated via activation of the PI3K pathway. Whether these adverse effects also involve autophagy is unknown. This study, therefore, investigated the effect of leptin and LY294002 (a PI3K pathway inhibitor) on sperm parameters and markers of autophagy in rat testes. **Materials and method:** Male Sprague-Dawley rats, aged 12 weeks, were randomized into control, leptin-, leptin+LY294002- and LY294002-treated groups (n=6). Intra-peritoneal injections of leptin (60 µg/kg) and LY294002 (1.2 mg/kg) were given daily for 14 days. Controls received saline injections over the same period. Upon completion of the treatment, sperm count, sperm morphology and concentration of 8-OHdG in sperm, LC3 and ULK1 in testicular tissues, and leptin in serum were estimated. Data were analysed using ANOVA. **Results:** Total sperm count in leptin-only-treated rats was significantly lower when compared to that in the control, leptin-LY294002- and LY294002-only-treated rats ($p<0.001$). Similarly, the fraction of sperm with abnormal morphology was higher in leptin-only-treated rats when compared to that in the control, leptin-LY294002- and LY294002-only-treated rats ($p<0.001$). Leptin-LY294002-treated rats had a significantly lower concentration of LC3 in their testicular tissue ($p<0.05$) compared to that the control but no difference in the testicular tissue ULK1 concentration was evident between groups. Serum leptin concentration was significantly higher in leptin-only-treated rats when compared to that in the controls, leptin-LY294002- and LY294002-only-treated rats ($p<0.01$). No significant differences were, however, evident in body weight or food and water intake between the groups. **Conclusion:** In conclusion, LY294002 prevented the leptin-induced adverse effects on sperm, confirming the finding of one other previous study. The role of autophagy in leptin induced adverse effects on sperm parameters, however, remains uncertain.

Keywords: Leptin; autophagy; abnormal sperm morphology; LY294002; sperm count

P035

Physicochemical Properties and Anti-Cholesterol Effects of Malaysian-Grown Sacha Inchi (*Plukenetia volubilis* L.) Seed Oil

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Introduction: Sacha Inchi or *Plukenetia volubilis* L. (PV) has been reported to have beneficial effects particularly on reducing cholesterol. Majority studies reported the physicochemical and pharmacological properties of the seed oil obtained from plant cultivated in Peru and North-western Brazil. However, the reports are limited for the seed oil obtained from PV cultivated in Malaysia. Because the chemical composition might be influenced by the region, chemical composition of the seed oil produced from local farm might be different from its native origin. This study aimed to analyze the physicochemical properties of Malaysian-grown Sacha Inchi seed oil and to determine its anti-cholesterol effect. **Materials and method:** The physicochemical properties of the Sacha Inchi (SI) seed oil sample were analyzed using various methods, including measurements of refractive index, iodine value, acid value, peroxide value, anisidine value, trans-fat content, saponification value, and the Kries test. Fatty Acid Methyl Ester (FAME) analysis using Gas Chromatography-Flame Ionization Detection (GC-FID) was conducted to profile the fatty acid composition of Sacha Inchi (SI) seed oil. The anti-cholesterol effect was determined using HMG-CoA reductase kit. **Results:** The physicochemical analysis revealed favorable properties, including a refractive index of 1.4739, an acid value of 1.10 mg KOH/g, and a peroxide value of 2.82 mEq/kg. The fatty acid composition analysis revealed high levels of polyunsaturated fatty acids, particularly -linolenic acid (ω3, 52.896%) and linoleic acid (ω6, 36.230%), resulting in a ω3/ω6 ratio of 1.46. This ratio, close to the ideal 1:1, is considered beneficial for health. Sacha inchi also has been shown to inhibit HMG-CoA reductase in vitro. **Conclusion:** In conclusion, Malaysian-grown Sacha Inchi seed oil is of high quality and stability, and demonstrated significant in vitro anti-cholesterol effects. These findings highlight its potential as a valuable for managing cholesterol levels.

Keywords: **S**acha Inchi; *Plukenetia volubilis* seed; polyunsaturated fatty acid; anti-cholesterol

P036

Effect of Docosahexaenoic acid (DHA) Supplementation to Underweight Pregnant Women on HbA1c

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Introduction: Pregnancy is a physiological process where the fetus develops in the body. Underweight is determined by a Body Mass Index (BMI) <18.5 kg/m^2. Administration of DHA has the effect of reducing blood glucose levels as well as HbA1c on glycemic control in patients diagnosed with type 2 diabetes mellitus involving various changes in the body's systems. The pregnant women need adequate nutrition. Nutritional status is influenced by food intake, and apart from regular eating patterns. **Materials and method:** This research was conducted at the Made Surabaya Community Health Center with a quantitative approach and experimental design with measurements before and after giving DHA supplements. A total of twenty-one underweight pregnant women followed the DHA supplementation regimen for one month with blood samples taken before and after DHA administration, to measure HbA1c levels. Statistical analysis carried out included univariate analysis for average levels of HbA1c, as well as bivariate analysis using the paired T test and Wilcoxon test. **Results:** There was an effect of DHA supplementation in the form of a decrease in HbA1c levels (P = 0.031) Apart from showing the influence of HbA1C, DHA supplementation also affected body weight (P = 0.000), Body Mass Index (P = 0.000), and Height of the uterine fundus (P = 0.001). However apart from that, there was no effect on DHA supplementation on systolic blood pressure which showed (P = 0.111), height (P= 0.840). **Conclusion:** The benefits of giving DHA supplements can be used as an alternative to reduce Hba1c levels in underweight pregnant women.

Keywords: DHA supplementation; underweight pregnancy; HbA1c

P037

Acute and Sub-acute Toxicity Study of Extra Virgin Olive Oil Early Harvest (Zouitina Prestige) in Animal Model

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Introduction: Extra virgin olive oil (EVOO) originating from *Olea europaea* fruit is widely acclaimed for its health benefits, particularly due to its high content of polyphenols and antioxidants. The unripe or early harvest olives, which are richer in these compounds, necessitate a comprehensive safety and toxicity evaluation due to the limited data available on their safety profile. This study investigates the safety profile of Extra virgin olive oil Early Harvest (Zouitina Prestige) using an established animal model. **Materials and method:** Acute and subacute toxicity studies were conducted, which included a single oral high dose of ZPEVOO (10 ml/kg) and a 28-day consecutive supplementation with various dose ranges (1, 3, and 10 ml/kg). Parameters observed in this study included body weight, behavioural changes, haematological profiles, and biochemical (renal, liver, and lipid) profiles. **Results:** In the acute toxicity study, a single oral dose supplementation caused a slight reduction in the increment of body weight; however, there was no significant compared to the control group (NC). No behavioural changes or mortality were observed. Meanwhile, In the sub-acute toxicity study, administration with 10 ml/kg ZPEVOO caused significant changes in body weight increment as compared to the NC from day 6 until day 28 of supplementation. There were no significant changes observed in terms of haematological, lipid, and renal profile parameters. However, in liver profile analysis, only AST and ALP levels showed significant decreases/increases at $P < 0.05$ as compared to NC. **Conclusion:** The results indicate that ZPEVOO treatment exhibits dose-dependent effects in all parameters observed, although no significant differences were found in certain parameters when comparing between ZPEVOO treatment groups. Overall, the present results simplify that administration of ZPEVOO at a medium dose (3 ml/kg body weight) for four weeks is non-toxic, as it caused no significant alteration in all important parameters.

Keywords: Zoutina prestige extra virgin olive oil; acute toxicity; subacute toxicity; lipid profile

POSTER CASE STUDY

C001

Myocardial Infarction Mimicry; If it Glitters, it May NOT be Gold!

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Introduction: A 30-year-old male, no apparent risk factors apart from chronic smoking, presented with a 2-week history of intermittent chest pain and progressive dyspnoea. Further history elucidated ostensible orthopnoea and paroxysmal nocturnal dyspnoea. Clinical examination revealed elevated jugular venous pressure, displaced apex beat, bibasal crepitations and bilateral pedal oedema. Electrocardiogram showed right bundle branch block, chest X-ray revealed globular cardiomegaly with pulmonary venous congestion and Troponin T was elevated – 100 pg/mL. Clinically, it was apparent that the patient had underlying non-ST elevation myocardial infarction complicated by congestive cardiac failure. Echocardiogram showed dilated ventricles and prominent trabeculations with an ejection fraction of only 25%. This prompted a cardiac MRI examination which revealed an appearance of prominent trabeculations and deep recesses in the left ventricle but no apparent segmental thickening of the left ventricular myocardial wall. Furthermore, the right ventricle appears to have complete absence of apical trabeculations. In summary, the cardiac MRI seemed to suggest left ventricular non-compaction but the anatomical criteria were not completely met and there were several anomalies. A cardiac CT examination was then ordered which finally revealed the underlying pathology - congenitally corrected transposition of the great arteries with failing systemic right ventricle resulting in the current clinical presentation as congestive cardiac failure. Coronary angiography revealed no significantly obstructive coronary artery disease aside from the usual anomalies associated with congenitally corrected transposition of the great arteries. **Conclusion:** Whenever a patient presents with a clinically apparent myocardial infarction and congestive cardiac failure, always be aware of the great multitude of mimics that may present similarly. Always undertake the same rigorous investigative pursuit of all patients presenting likewise. This is to ensure that patients are appropriately diagnosed and safely managed once the underlying pathology has been established.

Keywords: Mimic; myocardial infarction; transposition of the great arteries

C002

Symptomatic Bradycardia – Should We Pace or Ablate?

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Introduction: A 63-year-old male was admitted 6 months post-angioplasty with a three-day history of palpitations and fainting spells. He has been well, asymptomatic and physically active with daily clopidogrel 75 mg and rosuvastatin 10 mg. At the Emergency Department he was in atrial flutter with 2:1 atrio-ventricular block and cardioverted with intravenous amiodarone and oral bisoprolol 5.0 mg. Overnight, he developed symptomatic bradycardia with a heart rate of 32 bpm which persisted despite discontinuation of the β-blocker. Further scrutiny of his 12-lead electrocardiogram revealed atrial bigeminy with blocked premature atrial contraction (PAC) and a heart rate of 32 to 52 bpm. Repeated Troponin measurements were normal and echocardiogram showed good left ventricular ejection fraction of 64% with no regional wall motion abnormality. He then consented for electrophysiology study with the standard procedure using three electrode catheters, namely a decapolar catheter in the coronary sinus, a quadripolar catheter in the His-bundle region, and a mapping catheter positioned in the right ventricle. The right atrium (RA) was mapped using a multipolar PentaRay electrode catheter and a three-dimensional, CARTO mapping system to identify the origin of the PACs. PAC was eventually eliminated by ablating the right, superior and anterior ganglionated plexi which increased the sinus rate from 1200 ms to 800 ms. Post-ablation 24-hour electrocardiogram monitoring revealed no recurrence of either the atrial flutter with 2:1 atrio-ventricular block or the atrial bigeminy with blocked PAC. **Conclusion:** Symptomatic bradycardia in the elderly associated with episodes of tachycardia is almost always attributed to the tachy-brady, Sick Sinus syndrome. This portends eventual atrioventricular nodal dysfunction and is usually remedied by insertion of a permanent pacemaker. However, this is not always the case and a careful scrutiny of the electrocardiogram and fastidious ruling out of potential differentials will eventually lead to the actual diagnosis and appropriate management.

Keywords: Bradycardia; bigeminy; electrophysiology; ablation

C003

Obesity and Idiopathic Cardiomyopathy – Is There Hope?

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Introduction: A 40-year-old female was referred for symptoms and signs of heart failure in March 2022. There was no prior history of any infection, exposure to chemicals or blood products and no apparent risk factors. Total cholesterol was 5.9 mmol/L, fasting blood glucose 6.1 mmol/L, HbA1c 5.8%, blood pressure 130/90 mmHg, Thyroid Stimulating Hormone (TSH) 1.73 ± IU/l, Haemoglobin 14.6 g/dL but the N-terminal pro b-type natriuretic peptide (NT-proBNP) was elevated, 628 pg/mL. Electrocardiogram showed sinus rhythm but trans-thoracic echocardiography (TTE) showed poor left ventricular ejection fraction (LVEF) of 28%, dilated left ventricle (6.0 cm) and left atria (4.67 cm) but otherwise the valves, interatrial and interventricular septa were normal. Her urine pregnancy test was negative. She was morbidly obese with a BMI of 49.1 kg/m^2 (height 155 cm, weight 118 kg). Post-gadolinium cardiac magnetic resonance imaging of the heart revealed findings typically found in patients with idiopathic cardiomyopathy. Sacubitril and valsartan (Entresto®) 50 mg BID, spironolactone 25 mg OD, bisoprolol 1.25 mg OD, atorvastation 40 mg ON and frusemide 40 mg OD was started. Entresto® eventually optimized to 150 mg BID within 6 months, LVEF improved to 40% and the NT-proBNP became normalised – 105 pg/mL. However, she was still symptomatic and her weight fluctuated between 116 kg and 126 kg. Roux-en-Y gastric bypass surgery was then undertaken in August 2023 following a 1-year period of failed diet and exercise attempts. Within 6 months, her weight had gone down by 34 kg to 88 kg, BMI - 36.6 kg/m^2, her LVEF improved to 55%. **Conclusion:** Optimal medical treatment for idiopathic cardiomyopathy in patients with morbid obesity may result in inadequate symptom control. Induced weight loss may be necessary and Roux-en-Y gastric bypass surgery decreases the incidence of new heart failure development compared to intensive lifestyle modification by almost 50%.

Keywords: Cardiomyopathy; obesity; entresto; Roux-en-Y

C004

Case Report: Congenital Bowel Malrotation with Non-Bilious Emesis Mimicking Duodenal Atresia

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Introduction: Intestinal malrotation is a congenital abnormal bowel position within the peritoneal cavity, usually involving small and large bowels with infrequent occurrence beyond the first year of life. The twisting and malposition of the intestine can cut off the blood supply. If undiagnosed for a prolonged duration, it can be fatal. **Case presentation:** A five-day-old newborn baby boy was brought by his mother to the primary care clinic for sudden, frequent vomiting, which was non-projectile and associated with abdominal distension for one day. An abdominal radiograph was done, and normal findings were noted. A subsequent abdomen ultrasound showed a suspicious superior mesenteric artery (SMA) and superior mesenteric vein (SMV) relationship inversion. However, no obvious sonographic features suggest midgut volvulus with malrotation. Thus, an upper gastrointestinal (UGI) contrast study was done, which suggested possible malrotation. Subsequently, Ladd's procedure was performed. Postoperatively, the child was discharged well, and there have been no more vomiting episodes since then. **Conclusion:** Primary care providers need to be attentive in seeing cases of vomiting in newborn babies and have a high index of suspicion to ensure early intervention can be done in this life-threatening condition.

Keywords: Intestinal malrotation; emesis; duodenal atresia

C005

Navigating Iron Deficiency Anaemia in Pre-Menopausal Women: Beyond Nutritional and Menstrual Paradigms

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Introduction: Iron deficiency anaemia (IDA) is a common condition that affects a significant number of premenopausal women globally. There are various factors that can contribute to this condition, such as menstruation, pregnancy, insufficient iron intake, malabsorption, intravascular haemolysis, and gastrointestinal blood loss. Premenopausal women often attribute it to menstrual blood loss. As a result, referrals for gastrointestinal evaluations of premenopausal women are rare. **Case report:** A 45-year-old woman presented to the primary care clinic with worsening lethargy and a reduced appetite for two months. She has an underlying iron deficiency anaemia on regular haematinics and is under primary care follow-up. The haemoglobin level ranges from 8.5 to 11.5 g/dl. She underwent two admissions for symptomatic anaemia, each time receiving a blood transfusion. There is no palpitation, shortness of breath, rectal bleeding, altered bowel habits, or constipation. She also has no family history of malignancy. Her menses were regular, and she follows a high-iron diet. Fecal stool-occult blood was negative. Her worsening symptoms prompted a referral for a colonoscopy due to an unexplained IDA, potentially indicating colon cancer. Colonoscopy showed a splenic flexure tumor, and HPE revealed splenic flexure adenocarcinoma. She then underwent a laparoscopic left hemicolectomy. **Conclusion:** When dealing with unexplained IDA, one should apply a high index of suspicion, and malignancy is likely one of the main causes, especially in pre-menopausal age.

Keywords: Anaemia; iron deficiency; pre-menopausal; colorectal cancer

C006

Case Report: Anaesthetic Management of a High-Risk Pregnancy with Wolff-Parkinson-White Syndrome

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Introduction: Wolff-Parkinson-White (WPW) syndrome involves abnormal cardiac electrical pathways, leading to potentially life-threatening arrhythmias. Managing WPW in pregnancy requires coordination among obstetric, cardiology, and anaesthesia teams. **Case Report:** A 25-year-old woman was diagnosed with WPW syndrome during her first pregnancy, and was treated with bisoprolol 2.5 mg daily. Currently in her second pregnancy, she experienced similar complaints of palpitations, which were resolved with the Valsalva manoeuvre. At 35 weeks, a pre-labour anaesthesia review revealed T wave inversion and delta waves on her ECG. However, she was asymptomatic. At 39 weeks, she presented in active labour, and an epidural analgesia infusion was administered to maintain hemodynamic stability. An emergency caesarean section was done due to the foetal distress, converting the epidural analgesia to anaesthesia by using lignocaine titrated to desired level. She was stable throughout the surgery, and post-operatively, epidural morphine was given. She and her baby remained stable and were discharged on the second day. Discussion: This case underscores the importance of a multidisciplinary approach, involving careful preoperative evaluation and perioperative planning. Regional anaesthesia, particularly epidural, is preferred for its lower risk of arrhythmia and effective pain control. Continuous ECG monitoring and readiness for emergency interventions are essential. The use of beta-blockers, Valsalva manoeuvre, regular monitoring, avoidance of triggers such as pain, electrolyte imbalances, and patient education are measures to avoid arrythmia in patients with WPW syndrome. **Conclusion:** This report highlights the successful anaesthetic management of a high-risk pregnancy complicated by WPW syndrome, culminating in a caesarean section. Effective pain control, minimized arrhythmia risks, and comprehensive multidisciplinary care ensured positive maternal and foetal outcomes.

Keywords: Pregnancy; WPW syndrome

C007

Inadvertent Arterial Placement of Central Venous Catheters Complicated with Stroke

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Ultrasound guidance (USG) for central venous catheter (CVC) placement increases success rates. However, complications can occur even with USG. We experienced a case of inadvertent insertion of a catheter into the right subclavian artery during USG internal jugular vein (IJV) catheterization. An 80-year-old man with Compression fracture T11, T12 & L1 with implant failure planned for revision surgery PSIF T9-L3. Invasive monitoring with CVC was inserted preoperatively using USG, confirming guide wire placement in the right IJV. Connection of the CVC to the Central Venous Pressure monitoring noticed to have arterial wave. CVC was kept in situ and surgery was abandoned to optimize patient's unstable condition. CT angiogram was done with findings of the catheter in the right IJV passing through the posterior wall coursing into Right Subclavian Artery and the Right Brachiocephalic Artery with its distal tip in the arch of aorta. Intervention radiology and the vascular team were referred for the removal of CVC and endovascular repair of subclavian artery injury. Full family conference and disclosure was done several times, explaining the complications that had happened and risks of the proposed procedure, i.e. stroke, bleeding. Procedure of removal using an image intensifier, showed a tract with small extravasation distal to the right vertebral artery into the internal jugular vein. Balloon-plasty was performed with a total ischemic time of 5 minutes. CT Angio and Brain postoperatively showed Right Middle Cerebral Artery malignant infarction with posterior and vertebral areas infarct. Patient was closely monitored and managed in ICU throughout and gradually showed signs of improvement. This case highlights that rare complications may still arise despite proper techniques and modalities for CVC placement. Specific measures such as involving multidisciplinary teams, further investigations, providing close monitoring, and effective communication with patient's family ensures a better outcome and prevents mortality.

Keywords: Complication of central line; ultrasound guidance; central venous catheter

C008

Anaesthetic Management for an Achondroplasia Parturient Undergoing Elective Lower Segment Cesarean Section: A Case Report

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Introduction: Achondroplasia is the most common bone dysplasia that causes dwarfism, characterized by disproportionate short stature, long-bone shortening, and macrocephaly. Parturients with achondroplasia require cesarean delivery due to cephalopelvic disproportion. Due to their clinical features, it is a challenge for both neuraxial and general anesthetic (GA) techniques. **Case presentation:** A 21-year-old lady, primigravida at gestational age of 36 weeks and 3 days presented to us for elective cesarean section. She has underlying achondroplasia which was diagnosed at birth, but she subsequently defaulted her follow-ups, with no recent imaging assessments done. She had an appendicectomy done before under general anaesthesia which was uneventful. Her height was 103 cm and body weight of 48.8 kg, with the BMI of 46 kg/m^2. Her echocardiogram was unremarkable with left ventricular ejection fraction (LVEF) of 59% and lung function test was supranormal. We decided for GA as our concerns with neuraxial technique include altered spinal anatomy which could lead to unpredictable local anesthetic (LA) spread. A rapid sequence induction of thiopental 250 mg and rocuronium 60 mg was given, followed by cricoid pressure and endotracheal intubation using video laryngoscope without difficulty. Surgery was uneventful and the baby was delivered safely with Apgar score 8 at 1st minute and 9 at 5th minute. She was given morphine 5 mg and bilateral transversus abdominis plane (TAP) block at the end of operation. Sugammadex 100 mg was administered and she was extubated well. **Conclusion:** General anaesthesia in parturients with achondroplasia poses a challenge for anaesthetists and steps should be taken to anticipate and handle difficult airway situation. GA was the more appropriate choice in this case as there is no prior spine imaging available to assess the spinal anatomy to avoid unpredictable LA spread in neuraxial technique.

Keywords: Achondroplasia; parturient; pregnancy; cesarean section; general anaesthesia

C009

The Mantle's Deception: A Diagnostic Challenge in a Case of Mantle Cell Lymphoma

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Introduction: Mantle cell lymphoma (MCL) is a neoplasm derived from mature B-lymphocytes, with heterogeneous clinical course. The defining genetic feature of MCL is the t(11;14)(q13;q32) translocation, which results in IGH:CCND1 fusion. However, not all MCL carry this translocation. **Case Report:** Our patient is a 69-year-old woman with a prolonged history of chronic cough, accompanied by appetite and weight loss. Physical examination was unremarkable except for a right palatine tonsil enlargement and multiple cervical lymphadenopathies. A CT scan performed revealed right palatine tonsil enlargement. She had no cytopenias, and no abnormal lymphoid cells were detected on the peripheral smear. The bone marrow aspirate examination revealed 2.6% abnormal small- to medium-sized lymphoid cells with scanty cytoplasm; some cells have clefted nuclei. Immunophenotyping showed 0.8% abnormal lymphoid cells gated at low SSC/bright CD45 area that expressed CD19, CD20, CD5, and CD79b, with lambda light chain restriction. They were negative for FMC7, CD200 and CD10. The bone marrow trephine biopsy was hypercellular, with altered topography. Marrow infiltration was focal, with abnormal cells exhibiting dense chromatin pattern and irregular nuclear outline. They were immunoreactive to CD20, CD5, CD23 (weak), BCL2, and Cyclin D1 and negative for CD10 and CD3. This reactivity pattern was replicated in the tru-cut biopsy of the left cervical lymph node. However, interestingly Fluorescence in-situ hybridization (FISH) using CCND and IGH fusion probes showed negative for CCND1/IGH translocation. Based on the typical morphology and immunohistochemistry, a mantle cell lymphoma diagnosis was made. The patient was initiated on a combination of chemotherapy and targeted therapy and is currently well. **Discussion:** While the t(11;14) translocation and IGH:CCND1 fusion are defining features of MCL, a small subset presents with atypical mechanisms of cyclin D1 overexpression. Cyclin D1 overexpression, rarely, can occur through cryptic rearrangements or IG:CCND2 fusion, which might the case for our patient.

Keywords: Mantle cell lymphoma; Cyclin D1; t(11;14); CCND1/IGH translocation

C010

Isolated Sternocleidomastoid Muscle Abscess

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Introduction: A 75-year-old male known case of diabetes mellitus, hypertension, and ischemic heart disease presented with 3-week history of left anterior neck swelling. The patient complained of intermittent pain associated with the swelling but denied having a fever. On physical examination, a mass measuring approximately 3 x 5 mm was palpated in the left anterior neck. The mass was not tender. A contrast-enhanced CT scan of the neck was performed to rule out malignancy. The CT scan revealed an intramuscular non-enhancing hypodense lesion within the left sternocleidomastoid muscle (SCM), measuring 2.1 cm (AP) x 2.7 cm (W) x 5.2 cm (Ht), extending to the left sternoclavicular joint, and causing joint effusion measuring 1.8 cm in thickness. No bone erosion was noted. A few subcentimeter levels IIa and IIb cervical lymph nodes were seen. Ultrasound examination showed an intramuscular anechoic fluid-filled abscess within the left SCM extending to left sternoclavicular joint. Surrounding edema noted. Blood investigations revealed an elevated total white blood cell count with a predominance of neutrophils. Ultrasound-guided aspiration yielded ten cc of thick pus. The patient was discharged with antibiotics and asymptomatic during a 2-week follow-up. **Discussion:** Isolated sternocleidomastoid abscess is considered rare. This case was further complicated by the extension of the abscess into the left sternoclavicular joint. The exact prevalence of this condition is not well-documented due to the limited number of cases. However, it is commonly associated with immunocompromised status, with diabetes being a significant predisposing factor. *Staphylococcus aureus* is responsible for approximately 70-90% of SCM abscess cases. **Conclusion:** CT scan is important to establish the diagnosis of SCM abscess. Including the middle ear and mastoid air cells in the CT scan is essential to identify conditions like Bezold's abscess, where oto-mastoiditis leads to abscess extension into the sternocleidomastoid muscle.

Keywords: Abscess; sternocleidomastoid; muscle; CT scan

C011

Persistent Ear Pain with Ear Discharge in a Diabetic Patient: Acute Otitis Media Vs Malignant Otitis Externa

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Acute otitis media is an acute inflammation of the middle ear caused by pyogenic organisms such as *Streptococcus pneumonia*, *Hemophilus influenzae* and *Moraxella catarrhalis*. The onset of acute otitis media in an immunocompromised patient such as poorly controlled diabetic can lead to debilitating complications. The complications can be divided into extracranial and intracranial, and the most common complication is acute mastoiditis. Malignant otitis externa is an aggressive inflammation of the external auditory canal which is mostly caused by *Pseudomonas aeruginosa*. The disease has the tendency to invade the skull base and cause multiple cranial nerve palsies. From these two conditions, they share the similar presenting symptoms which are ear pain (otalgia) and ear discharge (otorrhea). Here we present a case of a 69-year-old lady with underlying diabetes mellitus, presented to our clinic with persistent left otalgia and left otorrhea for the past 1 month which not resolving with systemic antibiotic. The patient was treated as outpatient. While ongoing treatment, she presented to the emergency department with lethargy, nausea and vomiting with non-resolving otalgia and otorrhea. Examination shows no facial asymmetry, and no palpable neck swelling. However, cranial nerve examination reflected left cranial nerve 6th palsy. Aural endoscopy shows pus in the left ear and granulation tissue was seen at the tympanic membrane. The patient was admitted for early intervention and for poorly controlled diabetes mellitus with ketosis. Computed tomography shows soft tissue density noted at left mastoid air cells and middle ear cavity with presence of filling defect in the left transverse sinus and left sigmoid sinus, extending to visualized left internal jugular vein. The patient underwent left cortical mastoidectomy and multiple samples were sent. The swab culture and sensitivity grew klebsiella pneumonia. Histopathological examination of the middle ear granulation tissue yielded an inflamed fibrocollagenous tissue with scanty necrotic bone.

Keywords: Otitis media; malignant otitis externa; immunocompromised; otalgia; otorrhea

C012

Reversing Unilateral Sensorineural Hearing Loss in a School-going Child

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Introduction: Unilateral sensorineural hearing loss is a common deficit and occurs in 0.1%–3% of newborns and in more than 5% of school-aged children. The difference between asymmetric and unilateral hearing loss is subtle. Unilateral hearing loss can include all types, degrees, and configurations of hearing loss, but is limited to one ear. Categories of potentially identifiable factors have been distinguished, such as infectious, autoimmune or systemic diseases, genetic, trauma, vascular diseases and tumors. **Case Report:** A 9-year-old Chinese boy with underlying allergic rhinitis presented with left ear sudden onset hearing loss for 2 days with left ear tinnitus. However, he denied having otalgia, otorrhea, any preceeding infection, recent trauma or fall, loud noise exposure, or nasal symptoms. Upon examination, no tragal/mastoid tenderness, neurological deficit or facial asymmetry was noticed. Otoscopy examination and tuning fork test were unremarkable. Rigid nasal endoscopy showed bilateral inferior turbinate hypertrophy, but no mass/polyp seen. Tympanometry was unremarkable, while pure tone audiometry showed profound left ear sensorineural hearing loss. Blood and autoimmune screenings were normal. High Resonance Computerised Tomography (HRCT) Temporal ruled out a middle ear pathology. Magnetic Resonance Imaging (MRI) of brain and internal acoustic meatus was inconclusive of cerebellopontine angle tumour. He was started on intravenous methylprednisolone, ceftriaxone, oral acyclovir and methylcobalamin, and then proceeded to have myringotomy and grommet insertion over left ear. Intratympanic dexamethasone was injected through grommet tube six times. Post treatment, the grommet tube was removed. Pure tone audiometry post treatment showed normal level hearing bilaterally. **Conclusion**: This particular case highlighted the importance of careful evaluation of unilateral sudden onset hearing loss in a child and the role of intratympanic steroid injection in the reversal.

Keywords: Sensorineural hearing loss; infective; autoimmune; intratympanic injection

C013

A Case of Sinonasal Undifferentiated Carcinoma (SNUC): A Clinician's Treatment Challenge

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Introduction: SNUC is a rare and highly aggressive malignant neoplasm originating from the epithelial lining of the paranasal sinuses and nasal cavity. Its aggressive nature often results in large and extensive tumors at the time of diagnosis, with a short duration of symptoms. While initial treatment involves surgical resection, complete tumor removal is often challenging due to complex anatomy. Aggressive multimodality treatment is recommended, although SNUC carries a high rate of local recurrence and increased morbidity and mortality. **Case Report:** A 38-year-old Chinese gentleman presented to a Private Healthcare setting with complaints of unilateral nasal symptoms, including epistaxis, persisting for 2 months. An endoscopic examination revealed a polyp-like structure in the left nasal cavity, which bled upon contact. The patient underwent endoscopic sinus surgery. Post-operatively, despite persistent nasal symptoms, the patient defaulted on treatment. Two months later, he presented to the emergency department with painless, progressive left eye swelling, accompanied by left eye vision loss, reduced hearing, and tinnitus for 1 week. Examination revealed proptosis of the left eye, firm and non-tender swelling over the left maxillary region, and a fleshy mass occupying the entire left nostril. Imaging studies showed extensive disease involving the nasal cavity, paranasal sinuses, left orbit with intracranial extension, and bony erosions. Histopathological examination from a biopsy confirmed Sinonasal Undifferentiated Carcinoma (SNUC). The patient was staged as cT4bN0M0 and planned for chemotherapy but defaulted after 2 cycles due to intolerable side effects. He succumbed to locally advanced disease a month later.

Keywords: Sinonasal undifferentiated carcinoma; epistaxis; non-tender swelling; proptosis

C015

Facial Nerve Palsy Occurrence in A Benign Parotid Tumour: A Rare Occurrence

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Facial nerve palsy can be central or peripheral origin. The peripheral lesion causing facial nerve palsy can be further divided to intracranial, intratemporal of extratemporal region. Facial nerve palsy occurrence in a patient presented with parotid swelling will prompt for a diagnosis of a malignancy. A tumour of the salivary gland can be benign or malignant. For a parotid tumour, around 80% of the occurrence of parotid tumour is benign. Here, we present a case of a 48-year-old Malay gentleman presented with a long history of a painless left neck swelling, which significantly increased in size and developed facial asymmetry for the past 5 days prior presentation to our clinic. Examination revealed a left parotid swelling measuring 5cm x 4cm, firm, non-tender, no overlying skin changes and no fixation to the skin. The patient also presented with left facial nerve palsy House Brackmann grade V-VI. Fine Needle Aspiration Cytology was urgently planned and yielded a diagnosis of benign oncocytic neoplasm of salivary gland. Computer tomography showed a heterogeneously enhancing mass in the left parotid gland with some hypodense areas seen withing suggestive of necrosis and cystic. No calcifications seen within the left parotid gland. The patient was scheduled for Left Total Parotidectomy and the histopathology report from the surgery yielded a diagnosis of Warthin Tumour.

Keywords: Facial nerve palsy; painless neck swelling; benign parotid tumour; maligancy

C016

A Rare Case of Unilateral Invasive Sinonasal Carcinosarcoma

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Introduction: Carcinosarcomas are rare malignant neoplasms formed by embryonic tissues and present remarkably aggressive character with unfavourable prognosis. Carcinosarcoma may arise from any squamous epithelium but its occurrence in the sinonasal region is extremely rare, and thus, little evidence is available about its best management. **Case Report:** We report a case of a 60-year-old Chinese male, an active smoker, who presented with right facial pain, right eye proptosis and epiphora, and nasal obstruction for 2 weeks. Patient denied having blurring of vision, diplopia, epistaxis, foul smelling discharge, or aural symptoms. On examination, he was noted to have right eye proptosis with eyeball displaced outward and upwards. Rigid nasal endoscopy showed his right nasal cavity blocked with irregular mass. CT Neck presented an ill-defined erosive lesion in the right nasal cavity and maxillary sinus which extended into medial and inferior part of right orbit with no intracranial extension. There was right proptosis with compression and displacement of right medial and inferior rectus muscles. He underwent endoscopic medial maxillectomy with tumour debulking. Intraoperatively, an extensive right nasal cavity mass was found, which extended from anterior part of inferior turbinate wall posteriorly to nasopharynx, laterally until lateral wall of maxillary sinus, superiorly until orbital floor and skull base, and medially until septum. Thick pus discharge was also seen arising from frontal recess and sphenoid-ethmoidal recess (SER), right lamina paprycea and orbital floor eroded with tumour abutting right nasal septum. Histopathological examination of biopsy showed a poorly differentiated adenocarcinoma. Immunohistochemistry showed the presence of carcinosarcoma with neuroectodermal elements with variable positivity to CD56, chromogranin and synaptophysin. **Conclusion**: This is a rare incidence of unilateral sinonasal carcinosarcoma which usually presents with nasal obstruction, proptosis and facial pain. They tend to grow rapidly, with orbital changes. Early diagnosis is necessary to improve the often dismal prognosis.

Keywords: Medial maxillectomy; adenocarcinoma; carcinosarcoma with neuroectodermal element

C017

A Case of Diffuse Large B-cell Lymphoma of Frontal Sinus Mimicking Pott's Puffy Tumor

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Diffuse large B-cell lymphoma (DLBCL) is the most common type of Non-Hodgkin Lymphoma (NHL). The primary NHL of the nasal cavity and paranasal sinuses are extremely rare, hence causing diagnostic and therapeutic difficulties. We present the case of a 53-year-old woman with one week history of left frontal headache followed by swelling over left frontal region. She was initially treated as left frontal Pott's puffy tumor based on clinical and radiological investigation. Biopsy was taken and histopathological investigation revealed high grade DLBCL of left frontal sinus. An early diagnosis of DLBCL of the frontal sinus is difficult as it is often confused with other nasal pathologies and causes a delay in treatment.

Keywords: Frontal sinus lymphoma; Pott's puffy tumor; diffuse large B-cell lymphoma

C018

My Baby Cannot See: A Toddler with Olfactory Neuroblastoma

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Introduction: Olfactory neuroblastoma, a rare malignant neoplasm, arises from olfactory epithelium of the sinonasal tract with an incidence of 0.1 per 100,000 in the pediatric age group. It is uncommon in children age groupm even rarer among toddlers. Imaging plays a key role for staging including both Computed Tomography (CT) and Magnetic Resonance Imaging (MRI). Although there are limited reported cases among toddler age group, many advocate multimodality treatment include surgical resection followed by chemotheraphy with or without radiotheraphy. Proper assessment of the beneficial role of neoadjuvant chemotherapy in permitting total surgical needs more studies. Prognosis depends on stage of disease; locoregional extension or distant metastasis. **Case Report:** A 1 year 9 months old baby boy presented with prolonged intermittent fever, unilateral eye protrusion and visual disturbances for 1 month. These were associated with symptoms of lethargy and poor oral intake. However, there was no weight loss, night sweats, rhinitis, epistaxis, or evidence of lumps. Clinical assessment revealed an active child with right eye proptosis and a bony prominence over the right frontal skull region. Ophthalmologic assessment revealed evidence of compressive optic neuropathy and good red light reflex. Other systemic examinations were unremarkable. A CT imaging revealed an enchancing soft tissue in the extra axial space of the anterior and middle cranial fossa. Along with aggressive periosteal reaction of skull and facial bones with intracranial, sinus, and intraorbital soft tissue component. Differential diagnosis of metastasis, Langerhans cell histiocytosis and neuroblastoma was suspected, however an abdominal ultrasonography showed no evidence of solid intra-abdominal mass. Intra-operatively, a fleshy bluish mass was seen at the right posterior ethmoid and the patient underwent endoscopic endonasal and transethmoidal resection of the mass. Urgent histopathologic examination reported it to be an olfactory neuroblastoma.

Keywords: Olfactory neuroblastoma; proptosis; visual disturbances

C019

An Unusual Presentation of Low Grade Mucoepidermoid Carcinoma of Parotid

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Introduction: Salivary gland tumors comprise almost 5% of head and neck malignancies. Mucoepidermoid carcinoma is the most common malignant tumor of the parotid gland with high grade carcinoma having a higher percentage of neck nodal metastases. **Case Report:** We report a rare case of low grade mucoepidermoid carcinoma of the parotid gland that presented as multiple large ipsilateral neck metastases despite a small primary lesion. A 58-year-old lady with underlying hypertension and dyslipidemia presented with right sided neck swelling for 4 years. It was gradually increasing in size and painless. On examination, there was a palpable right level II neck node measuring about 2x3 cm, firm, non-tender with no underlying skin changes. Computed tomography (CT) scan showed a heterogeneously enhancing lobulated lesion at the right retromandibular region measuring about 1.8x2.7 cm with a small nodule within a superficial lobe of the right parotid gland. Fine needle aspiration of the neck node was taken and it showed features of Warthin's tumor. The patient then defaulted follow-up for about 3 years. The right-sided neck swelling enlarged in size, extending from the right neck node level 1b to level IV. Repeated CT scan showed the larger size of the previous right retromandibular lesion. Ultrasound neck showed a normal thyroid with multiple enlarged lymph nodes at the right cervical and right submandibular region. The patient underwent a right superficial parotidectomy with an excision biopsy of the right cervical lymph node. Biopsy revealed low-grade mucoepidermoid carcinoma of the right parotid with positive nodal metastasis. The patient then underwent a completion right parotidectomy with facial nerve preservation and right modified radical neck dissection type III. Currently, she is under follow-up from both the ENT and Oncology teams.

Keywords: Mucoepidermoid carcinoma; cervical lymphadenopathy; parotid; parotidectomy

C020

Chondroblastic Osteosarcoma of the Mandible: An Uncommon Site for Osteosarcoma

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Osteosarcoma is one of the most common types of malignant bone tumors, typically involving long bones such as the femur, tibia, and humerus. However, osteosarcomas occurring in the jaws are exceptionally rare, accounting for approximately 7% of all osteosarcoma cases and just 1% of malignancies in the head and neck region. This type of tumor usually affects individuals in their second and third decades of life. The subtypes of osteosarcoma include osteoblastic, chondroblastic, fibroblastic, small cell, and epithelioid. Among these subtypes, chondroblastic osteosarcoma represents a minority of cases, characterized by its rarity and aggressive nature, constituting less than a quarter of all osteosarcoma occurrences. Chondroblastic osteosarcoma is associated with a poor prognosis, marked by a high recurrence rate, metastatic potential, and poor long-term survival outcomes. Here, we present the case of a 65-year-old woman with a painless swelling over the left cheek for 1 year, which significantly increased in size over the past 3 months, accompanied by limited mouth opening, reduced oral intake, and weight loss. Examination revealed a non-tender, hard swelling on the left cheek measuring 20x20 cm, with prominent dilated veins. The left external auditory canal collapsed due to the mass effect. Histopathological examination from a Trucut biopsy of the left cheek swelling yielded a diagnosis of chondroblastic osteosarcoma of the left mandible. Computer tomography showed a large lobulated enhancing mass occupying the left cheek, associated with bone erosion over the lateral wall of the left maxillary sinus, left pterygoid bones, and left zygomatic arch, and an aggressive periosteal reaction resembling a 'sunburst' pattern involving the ramus extending to the angle of the left mandible. The patient undergone open tracheostomy, left temporary tarsorrhaphy, wide local excision of tumor, left hemimandibulectomy, left partial maxillectomy and anterolateral thigh free flap reconstruction as patient unable to tolerate neoadjuvant chemotherapy.

Keywords: Chondroblastic osteosarcoma; painless cheek swelling; mandible; sunburst appearance; hemimandibulectomy; partial maxillectomy

C021

Uncommon Pathways: A Case of Metastatic Invasive Lobular Carcinoma Presenting as Colonic Obstruction

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Introduction: Breast cancer is a prevalent malignancy among women, with invasive lobular carcinoma (ILC) comprising 10-15% of cases. ILC commonly metastasizes to the lungs, bones, liver, and central nervous system, but gastrointestinal (GI) tract involvement is rare. Colonic metastases from breast cancer are particularly uncommon. This report details a rare case of ILC metastasizing to the colon. **Case Presentation:** A 58-year-old Malay woman with hypertension and diabetes mellitus presented with abdominal distension and altered bowel habits. Colonoscopy revealed a constricting lesion 18 cm from the anal verge, with biopsies confirming metastatic carcinoma of breast origin. Histopathology showed strong CK7, weak CK20, and negative E-cadherin. A CT scan indicated bowel wall thickening and moderate ascites. Elevated carcinoembryonic antigen (CEA) levels led to mammography, which identified suspicious lesions in the left breast. Histology confirmed ILC with strong estrogen receptor (ER), progesterone receptor (PR) positivity, and HER2 negativity. Despite treatment, the patient later developed pleural effusions and succumbed to complications. **Discussion:** ILC, the second most common type of invasive breast carcinoma, rarely metastasizes to the GI tract. Diagnosis is challenging due to non-specific symptoms and the absence of a palpable breast mass. Comprehensive histopathological and immunohistochemical analysis, including markers like CK7 and E-cadherin, is essential for accurate diagnosis. Treatment often involves hormone therapy, such as tamoxifen and aromatase inhibitors, due to ILC's resistance to chemotherapy. Surgical intervention is reserved for urgent cases, such as bowel obstruction, and radiotherapy may be considered for local control of metastatic lesions. Regular follow-up is crucial for early detection and management of metastases. **Conclusion:** This case highlights the importance of considering GI metastasis in patients with a history of ILC and abdominal symptoms, emphasizing the need for accurate diagnosis and tailored management strategies.

Keywords: Invasive lobular carcinoma; breast cancer metastasis; gastrointestinal tract metastasis; colonic metastasis; e-cadherin loss

C022

Managing Acute Appendicitis with Severe Thrombocytopenia: A Rare Clinical Dilemma

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Introduction: Thrombocytopenia is a diminished platelet count due to impaired thrombopoiesis or heightened peripheral platelet consumption, frequently associated with viral infections. It is noteworthy that the occurrence of acute appendicitis concurrently with severe thrombocytopenia is an unusual clinical scenario, introducing intricacies in both comprehensive and therapeutic management. **Case Report:** A 44-year-old man with no known medical illness presented with right iliac fossa pain associated with fever and vomiting for three days duration. Clinical examination revealed tenderness over right iliac fossa. Full blood count showed leukocytosis (14.1 x 109/L) and thrombocytopenia (86 x 109/L). Other investigations including viral screening and Dengue serology were negative. Further radiological imaging such as abdominal ultrasound and computed tomography (CT) revealed blind ended tubular structure having thickness 0.8 cm at base and 0.7 cm at blind end region was seen at right iliac fossa, measuring 4.0 cm in length with peri appendiceal minimal fluid, confirmed the diagnosis of acute appendicitis with no sonographic evidence of perforation, portal vein was normal in calibre, and spleen was normal with sized 8.3 cm. Repeated full blood count in citrate tube showed worsening thrombocytopenia (42 x 109/L). Urgent peripheral blood film test showed thrombocytopenia with presence of giant platelets suggestive of peripheral consumption or destruction cause, such as immune or infections. The patient underwent laparoscopic appendicectomy with perioperative platelet transfusions and the operation was uneventful. Intraoperatively, the retro-caecal appendix was mildly inflamed and confirmed to be acute suppurative appendicitis in the histopathological examination. He recovered well post operatively with normalization of platelets and was discharged after three days. **Conclusion:** It is unusual that acute appendicitis presented with severe thrombocytopenia, but our reported case showed the possibility. Thus, appendicitis should not be ruled out till proven otherwise.

Keywords: Appendicitis; thrombocytopenia

C023

Cystic Artery Pseudoaneurysm- A Rare Complication of Acute Cholecystitis

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Introduction: Cystic artery pseudoaneurysm is a rare clinical entity, mostly occurring as a complication of laparoscopic cholecystectomy or following a calculus cholecystitis episode. Patients usually present with acute symptoms including abdominal pain and jaundice. Unruptured cases are mostly diagnosed incidentally. **Case report:** Here we present a case of a 67-year-old male with underlying diabetes mellitus and hypertension. He had a previous history of admission for acute cholecystitis 2 months prior. Repeated ultrasound showed a heterogeneously distended gallbladder with a cystic anechoic structure demonstrating doppler signal at the gallbladder neck. Contrast-enhanced Computed Tomography (CECT) abdomen showed gallbladder empyema features with the formation of a cystic artery pseudoaneurysm. In view of the clinically stable condition, an option for open cholecystectomy was chosen. The cystic artery was ligated intraoperatively and the patient had an uneventful recovery. **Conclusion:** Sue to the fact that cystic artery pseudoaneurysms are rare entities, a high index of suspicion is required for the diagnosis of the condition. When diagnosed, the patient can be managed by radiological intervention or definitive surgery, which can be either open or laparoscopic.

Keywords: Gallbladder empyema; acute cholecystitis; cystic artery pseudoaneurysm; CECT abdomen

C024

Abdominal Compartment Syndrome; Rare Occurrence due to Ureteric Injury

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Introduction: Abdominal compartment syndrome is a serious condition that occurs when the pressure in the abdominal cavity rises above 20 mmHg and causes end-organ damage. Abdominal compartment syndrome may occur after conditions such as peritonitis, intestinal obstruction, laparoscopic procedures, or abdominal tumors. We report an interesting case of a 34 years old gentleman who presented with intestinal obstruction secondary to obstructed rectosigmoid tumor with the background of familial adenomatous polyposis. The patient underwent an emergency on table colonoscopy, subtotal colectomy and end ileostomy which complicated with iatrogenic adventitial tear of proximal right ureter. The tear was repaired primarily and no contrast extravasation on retrograde pyelogram thus decision was made for ureteric stenting Patient was initially recovering well up till Day 6 post op whereby patient complaining of severe abdominal pain, abdominal distension and oliguria. Imaging computed tomography (CT) showed right distal third ureteric injury with gross intrabdominal free fluid while the left ureteric stent in situ. Decision after the CT scan was for peritoneal drainage and commenced and it improved his condition. Upon his follow up after 2 months post operation, the patient is well and we did a retrograde pyelogram on his affected left ureter before removing the stent showed no contrast extravasation and the ureteric stent was removed and patient is well up to this day. According to our research, there are not much studies or case series reporting for compartment syndrome due to ureteral injury post procedure or it may be under reported. However, there is another quite similar case report back in 2007 entitled abdominal compartment syndrome due to delayed identification of a ureteral perforation following abdominoperineal resection for rectal carcinoma highlighting the same principal management which are ureteric stenting and percutaneous drainage.

Keywords: Abdominal compartment syndrome; ureteric injury; urology

C025

Florid Cystitis Glandularis: A Case Report and Literature Review

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Cystitis glandularis is a critical pathological diagnosis with a presentation that closely resembles bladder tumors, potentially causing concern for clinicians. A cautious and thorough approach is crucial to prevent delayed management, as it can be mistaken for aggressive tumors. Only a few cases of cystitis glandularis presenting as urinary bladder masses have been reported in the literature. We recently encountered a young male patient who experienced recurring lower urinary tract symptoms and was initially treated for recurrent urinary tract infections. However, no palpable mass or infection evidence was found after a comprehensive clinical and biochemical examination. An ultrasound study revealed a vascularized lesion in the bladder. Subsequent cystoscopy showed large, multiple polypoid lesions in the bladder trigone. The patient thus underwent transurethral resection, and the histopathological analysis confirmed florid cystitis glandularis.

Keywords: Bladder tumour; cystitis glandularis; urology

C026

Spontaneous Renal Pelvic Rupture: The Rare Case Series

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Introduction: Spontaneous renal pelvic rupture (SRPR) is a rare condition, and majority of cases are caused by obstructive calculi. The diagnosis is made by contrast-enhanced computed tomography or retrograde pyelography (RPG), and management can be either active or conservative. **Case report:** We report two cases of rare SRPR presented to SASMEC. Case 1, a 52-year-old lady with hypertension, who developed non-traumatic SRPR of left kidney that leads to perinephric urinoma formation. She presented with acute urinary retention (AUR) and acute kidney injury (AKI), associated with persistent suprapubic pain, hematuria, and lethargy. She had no symptom to suggest urolithiasis. Left nephrostomy was done and symptoms and the AKI improved. Case 2, a 69-year-old lady with diabetes mellitus and hypertension, who also developed non-traumatic SRPR of right kidney. She presented with 1-week history of persistent right flank pain, with no hematuria and normal renal function. She had no symptom to suggest urolithiasis. Bilateral retrograde pyelogram with ureteric stenting was done, and her condition improved. **Discussion:** SRPR caused by a sudden increase in intraluminal pressure, often exceeding 20–75 mmHg, causing tearing of tissue at the weakest urinary tract point, the fornix. Diagnostic challenges arise as initial symptoms mimic renal colic, which later manifesting as a urinoma. The abdominal pain is usually persistent compared to urolithiasis. In nonspecific abdominal pain with AKI, a rare cause like SRPR should be considered. Furthermore, SRPR is often associated with acute gastrointestinal symptoms, like nausea and vomiting. Imaging techniques, such as ultrasonography and contrast-enhanced CT, aid in the diagnosis. Treatment options encompass ureteral stenting and conservative management, depending on the patient's condition. **Conclusion:** SRPR usually requires immediate management especially in patients with sepsis. It is important to evaluate if there are any features that suggest patients to require immediate active treatment.

Keywords: Spontaneous renal pelvic rupture (SRPR); perinephric urinoma; retrograde pyelography (RPG); nephrostomy

C027

Brain Metastatic Breast Cancer: Palliative or Not?

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Introduction: Breast cancer is the most common malignancy in females worldwide with 1 in 20 females over 70 years old diagnosed with it. Metastatic breast cancer in earlier years was treated palliatively but nowadays, with the rise of medical advances and technologies, a lot of options can be offered to those patients either by surgical, chemotherapy, radiotherapy, or immunotherapy. We reported 2 cases with breast cancer with symptomatic brain metastasis and successfully managed with surgical approach. **Case 1:** Madam F is a 54-year-old lady with T2N2M0 Right invasive ductal carcinoma of hormonal positive and HER2 overexpressed in 2021. She had right mastectomy and axillary clearance followed by adjuvant chemo-radiotherapy. She was started with adjuvant hormonal therapy since then. In September 2023, she had persistent headache subsequently found to have right occipital brain metastasis with ipsilateral axillary recurrence at the same time. We manage to proceed with right craniotomy and tumor debulking and subsequent adjuvant hormonal and brain radiotherapy. **Case 2:** A 36-year-old female presented in March 2021 with right locally advanced invasive ductal carcinoma T4N1M0. She had upfront neoadjuvant chemotherapy + pembrolizumab. She had complete pathological response and proceed with right mastectomy and axillary clearance followed by adjuvant chemotherapy and adjuvant pembrolizumab with chest wall radiotherapy. Three years later, she had increased intracranial pressure subsequently showed cerebellum tumor suggestive of metastasis. She had suboccipital craniotomy, right Frazier extra-ventricular drainage insertion and tumor debulking however the tumor recurred and currently on going second line chemotherapy. **Conclusion:** Approaching a patient with brain metastasis breast cancer is a challenge as deciding a surgical approach to control the disease progression and improving the overall survival in selected cases. Both cases show a promising result after a surgical treatment with aiming to improve the quality of life and aiming for better overall survival.

Keywords: Brain tumor; metastatic breast cancer; breast cancer; metastatic brain lesion