ORAL PRESENTATION • CLINICAL AND TRANSLATIONAL RESEARCH

[OPC1]

KNOWLEDGE, ATTITUDE, AND AWARENESS OF RESEARCH ETHICS AMONG UNDERGRADUATE STUDENTS: A CROSS-SECTIONAL STUDY

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Research ethics provides a benchmark for the responsible conduct of research. It is crucial to adhere strictly to the ethical principles to protect the welfare and rights of research participants. Hence, a holistic comprehension of research ethics is key in this medical profession. We conducted a cross-sectional study to assess the knowledge, attitude, and awareness of research ethics among the undergraduate students at Manipal University College Malaysia. We used purposive sampling and selected students from the pre-clinical and clinical years of Bachelor of Medicine & Bachelor of Surgery (MBBS) course in May 2022, as well as those who provided informed consent. The questionnaires were distributed via social media, it included the demographic data, experiences about research and research ethics, 14 questions regarding knowledge, 14 questions about attitude, and 4 questions in regard to awareness towards research ethics. The data was analysed using descriptive statistics, independent t-test, and one-way ANOVA via Epi Info software version 7.2.5.0. It was observed that the knowledge and attitude towards research ethics is not up to par. This study also showed that ethnicity is significantly associated with knowledge of research ethics, whereas gender is significantly associated with attitude towards research ethics. The awareness of research ethics among the respondents is adequate but can be improved. Therefore, medical schools and their curricula play a crucial role in improving the knowledge, attitude, and awareness of research ethics among undergraduate medical students.

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[OPC2]

KNEE JOINT ENDOPROSTHETIC RECONSTRUCTION FOR ADOLESCENT PATIENT WITH OSTEOBLASTIC OSTEOSARCOMA OF DISTAL FEMUR

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Osteoblastic osteosarcoma is the most prevalent malignancy among bone tumors and is more common in adolescent patients. Usual locations for osteosarcoma are distal femur and proximal tibia. Surgical treatment of osteosarcoma generally involves amputation of the limb, however nowadays alternative methods of treatment, such as limb-salvage procedure with endoprosthetic reconstruction, have been practisced more often and been successful. No case of knee joint endoprosthetic reconstruction in an adolescent patient with osteosarcoma was performed before in Children's Clinical University Hospital, Latvia.

A 15-year-old girl presented with dynamically progressing pain in right knee joint. A lump was palpated above the right knee joint with local heat and swelling. Radiological findings showed pathological 63.8 x 22.0 x 54.9 mm formation. Histopathological examination of the biopsy material revealed osteoblastic osteosarcoma of distal third of the right femur, that has grown into the epiphyseal plate. Presence of multiple pulmonary metastases was proved by histopathologist.

The patient had neoadjuvant chemotherapy according to EURAMOS-1 protocol for three months, followed with a 4 hour 40 minute long limb salvage procedure with total resection of the tumor, knee-joint reconstruction and endoprosthesis implantation. Reconstruction was done by performing osteotomy of tibial and femoral channels. Margin of resection was 2 cm from the tumor. MUTARS Distal Femur hybrid prosthesis with cement and non-cement parts was implanted.

Knee joint arthroplasty is possible and effective surgical treatment combined with chemotherapy for patients with osteoblastic osteosarcoma. The main purpose upon conducting the procedure was to provide the patient with a better quality of life, while preserving limb function and mobility.

This study presents a case of surgical arthroplastic knee joint treatment manifestation in a pediatric patient with distal femur metastatic osteoblastic osteosarcoma combined with scheduled chemotherapy courses and resection of pulmonary metastases.

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[OPC3]

DETECTION OF ARRHYTHMIA BY HOLTER ECG – A SINGLE-CENTRE EXPERIENCE

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Arrhythmia is an abnormal or irregular heartbeat. Untreated arrhythmia can lead to life-threatening complications. Diagnosis of arrhythmia is challenging due to its short-lasting and intermittent characters. Ambulatory electrocardiography (Holter ECG) allows long-term continuous ECG monitoring to increase the diagnostic yields. This single-centre retrospective study aimed to determine the detection rate of arrhythmia among patients monitored with Holter ECG monitor in a private hospital in Kuching, Sarawak.

A total of 182 patients who were on a Holter ECG patch monitor from September 2019 to March 2021 were recruited into this study. Data were extracted from patients' digital ECG reports and medical records.

Almost all the patients were adults (99.5%) with male predominance (61.5%). Majority were Chinese (73.6%), followed by Sarawak Bumiputera (10.0%) and Malays (7.7%). Overall detection rate of arrhythmia by Holter ECG monitoring was 95.6%. Ectopic heartbeats and heart blocks were the most common arrhythmia types. Atrial fibrillation (78.6%) was the most common atrial arrhythmia found. Averagely, arrhythmic events were detected at 1.21± 0.53 days of ECG monitoring, with no significant difference between types of arrhythmias. Arrhythmia occurred more commonly in older patients above 60 years old, with no significant difference between genders. Interestingly, atrial arrhythmia was significantly more common among females (p=0.039).

Holter ECG patch monitor demonstrated high sensitivity in detection of arrhythmia by extending the monitoring period to 48 hours. As the risk of arrhythmia increases with age, early detection of paroxysmal arrhythmia by Holter ECG patch monitor among the older population is recommended, if budget permits. This can prevent its progression to life-threatening complications, such as stroke that can lead to high consumption of healthcare resources.

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[OPC4]

ANCA ASSOCIATED GLOMERULONEPHRITIS: CLINICAL CHARACTERISTICS, TREATMENT AND OUTCOMES – A SINGLE-CENTRE STUDY

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ANCA-Associated Vasculitis (AAV) is associated with pauci-immune necrotizing small vessel vasculitides, and commonly presents with rapidly progressive glomerulonephritis (RPGN). The aim of this study is to determine the clinical characteristics, treatment, and outcomes of ANCA associated glomerulonephritis in local settings.

This is a retrospective observational study which aimed to recruit all ANCA associated glomerulonephritis from 1st January 2017 until 31st December 2021. Patients with incomplete data were excluded. Patients' basic demographics, clinical presentations, laboratory data, renal biopsy findings, treatment and outcomes were collected from the review of electronic medical records.

A total of the 44 patients were included, with mean age of 64.86 ± 15.38 years and 65.9% were female. Majority were Chinese (56.5%), followed by Malay (26.1%) and Indian (13.0%). The commonest clinical presentation was acute kidney injury (AKI) on chronic kidney disease (CKD) (61.4%), followed by RPGN (43.2%) and nephrotic syndrome (29.5%). Up to 32 (72.7%) patients were MPO positive while 10 (22.7%) were PR3 positive. Renal biopsy was done in 26 patients, with crescents being present in 14 (63.6%). Renal replacement therapy was required by 22 (47.8%) patients. Among the 35 patients who received immunosuppressants, 33 (71.7%) received steroids, 17 (37%) received rituximab, and 15 (32.6%) received cyclophosphamide. Up to 26.1% of patients succumbed to the disease, 6.5% had end stage kidney disease and 32.6% developed CKD.

We observed a pattern of AAV associated glomerulonephritis that was inclined to female, Chinese and older persons in our study cohort. Most common presentation was AKI on CKD associated with pauci-immune crescentic glomerulonephritis. MPO-AAV was the predominant serotype, which is different from reported literature. Despite the use of intense immunosuppressants, AAV associated glomerulonephritis was associated with high risk of mortality and CKD.

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[OPC5]

GENETIC ANALYSIS ON THE EMERGING HIGH VIRULENT K1 AND K2 SEROTYPES IN ESBL-PRODUCING *Klebsiella pneumoniae* CLINICAL ISOLATES

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Klebsiella pneumoniae is an encapsulated, gram-negative bacterium that is responsible for many life-threatening community-acquired and nosocomial infections. It produces extended spectrum beta lactamase (ESBL), an enzyme that causes resistance against most beta-lactam antibiotics. Due to this multidrug resistance, hypervirulent *K pneumoniae* began to emerge, predominantly in K1 and K2 capsular serotypes. Therefore, the study aims to determine the genetic association between K1 and K2 serotypes in ESBL-producing *K pneumoniae* by sequencing and phylogenetic analysis.

A total of 194 *K pneumoniae* isolates were collected from Hospital Sultanah Aminah Johor Bahru and Hospital Pengajar UPM. Antibiotic susceptibility test was conducted for ESBL screening. Multiplex polymerase chain reaction (PCR) was conducted to detect the presence of *magA* and *K2A* genes in the *K pneumoniae* isolates that classifies them into K1 and K2 serotypes, respectively. Isolates that were found to be positive for ESBL phenotype and K1/K2 serotypes were selected for DNA sequencing and multilocus sequence typing (MLST). Finally, phylogenetic analysis was used to characterise the genetic association between the K1 and K2 serotypes among ESBL-producing isolates.

Among the 194 isolates, AST revealed that there are 89 ESBL and 105 non-ESBL producing *K pneumoniae* isolates. A total of 12 out of the 89 ESBL-producing *K pneumoniae* isolates were detected positive for *magA* or *K2A* gene (K1, $n = 4$; K2, $n = 8$). Following phylogenetic analysis, the result showed two distinct clusters (Cluster A = All K1 serotype; Cluster B = All K2 serotype).

In conclusion, the study showed that K1 and K2 serotypes were not associated to each other based on the phylogenetic analysis of the housekeeping genes. This was explained by the formation of two distinct clusters separating the serotypes from each other. Cluster A and Cluster B comprised of K1 serotype and K2 serotype isolates, respectively.

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[OPC6]

CAFFEINE INTAKE AND SMOKING HISTORY IN PATIENTS WITH PARKINSON'S DISEASE AND THEIR ASSOCIATION WITH CLINICAL SEVERITY AND AGE AT ONSET

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Caffeine and cigarette smoke exposure are associated with reduced Parkinson's disease (PD) risk. However, whether they influence age at onset (Aao) or severity of PD remains unclear. Our study aimed to address this knowledge gap.

The Mini Environmental Risk Questionnaire for PD (MERQ-PD-B) was self-administered by patients with PD, and included seven items on past (before PD diagnosis) and current exposure to caffeine and smoking. Disease severity was scored by PD neurologists using the Clinical Impression of Severity Index for PD (CISI-PD), covering motor signs, disability, motor complications, and cognition.

686 patients were recruited (55.2% male; median age=67[11] years; 82.7% were late-onset PD[LOPD] with Aao≥50years). Prior to PD diagnosis, 77.6% of patients consumed ≥1cup/day of caffeinated beverage, 13.7% were smokers, and 21.4% lived with a smoker. Prior history of caffeine intake or smoking exposure, as well as the amount of past caffeine intake or cigarette pack-years did not correlate with Aao in the overall cohort, and in the LOPD subgroup. 59.3% were current caffeine drinkers and 0.9% current smokers. Current caffeine drinking status correlated, albeit weakly, with better CISI total (r_s=-0.17, P<0.001) and subscores: motor signs (r_s=-0.13, P=0.001), disability (r_s=-0.17, P<0.001). However, among current caffeine drinkers, the amount of caffeine intake did not correlate with disease severity measures. About a quarter of past caffeine drinkers stopped drinking after PD diagnosis; these patients had similar disease severity scores as patients who never consumed caffeine before or after PD diagnosis. Current or past smoking status and quantity did not correlate with disease severity.

The association between current caffeine intake and better disease scores in this large cohort are consistent with the findings of small interventional studies suggesting beneficial symptomatic effects of caffeine in PD. Further studies are required to elucidate the roles of these lifestyle habits in PD.

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[OPC7]

SELF-REPORTED HISTORY OF EXPOSURE TO ENVIRONMENTAL TOXINS AMONG PATIENTS WITH PARKINSON'S DISEASE AND ASSOCIATION WITH AGE AT ONSET AND DISEASE SEVERITY

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Exposure to environmental toxins has been linked to increased risk of developing Parkinson's disease (PD). However, their impact on PD age at onset (Aao) and severity remains unclear. We aimed to investigate the pattern of lifetime exposure to environmental toxins, and their clinical correlates in PD.

Patients were recruited via convenience sampling from an urban tertiary neurology clinic. Lifetime exposure to environmental toxins (pesticides, chemical solvents, heavy metals, and other chemicals/fumes) was evaluated using the self-administered Mini Environmental Risk Questionnaire for PD (MERQ-PD-B). Clinical Impression of Severity Index (CISI-PD), covering motor signs, disability, motor complications, and cognition, was assessed by PD neurologists.

Of 686 patients (55.2% male; median age:67.0[11] years), 307 (45.0%) reported previous exposure to environmental toxins, including pesticides (37.3%), chemical solvents (10.6%), heavy metals (6.7%), and other chemicals or fumes (8.9%). Patients exposed to ≥2 categories of toxins (12.8%) had earlier Aao compared to those with only one category or no toxin exposure (medians:57.5[15.8] vs. 63.0[15.0] vs. 62.0[14.0] years, respectively, p=0.001). Patients exposed to chemical solvents (median:56.0[15.5] vs. 62.0[14.0] years, p=0.001) or heavy metals (median:55.0[16.0] vs. 62.0[14.8] years, p=0.003) also had earlier Aao vs. those without these exposures. We discovered significant, albeit weak, correlation signals between heavy metal exposure with worse motor complications (r_s=0.12, p=0.003), cognition (r_s=0.08, p=0.031) and total CISI scores (r_s=0.08, p=0.039), and between chemical solvent exposure with worse motor complications (r_s=0.09, p=0.031). No significant correlations were found with pesticides or other chemicals or fumes.

This large study among Malaysian PD patients documented substantial self-reported rates of exposure to environmental toxins, particularly pesticides. There appeared to be associations between heavy metal and chemical solvent exposure with earlier Aao and PD severity. Further studies accounting also for other environmental and genetic influences will improve our understanding of factors impacting the heterogeneous clinical presentation of PD.

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[OPC8]

RENAL OUTCOME IN ADULT IGA NEPHROPATHY CATEGORISED BY INTERNATIONAL IGA NEPHROPATHY RISK PREDICTION TOOL – A SINGLE CENTRE EXPERIENCE

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IgA nephropathy (IgAN) is the most prevalent primary glomerulonephritis worldwide, with 30 to 50% of patients progressing to ESRD within 30 years. The International IgAN Risk Prediction Tool (IgAN-RPT) has been utilised to predict the renal outcome for up to 7 years from biopsy, to estimate the risk of developing a 50% decline in estimated glomerular filtration rate (eGFR) or end-stage renal disease (ESRD). Herein, we intend to describe the renal outcome among the adult IgA nephropathy patients in our centre, who are categorised based on IgAN-RPT risk score.

This observational, retrospective study involved patients aged 18 and above with biopsy-proven IgAN diagnosed between 2010 and 2016. Each patient's 5-year risk score was identified via IgAN-RPT and eGFR change at 5-year follow-up was recorded.

A total of 21 patients were included in the final analysis. Most patients were of Chinese ethnicity (47.6%) followed by Malay (33.3%) and Indian (19%). 57% of them were female. The mean patients' age at time of biopsy was 40 years old. Two of the patients were diabetic. The median for baseline eGFR level and urine PCR was 53.6 ml/min/1.72m^2 and 174 mg/mmol respectively. Based on IgAN-RPT threshold at 5 years, 1 (4.8%) patient was categorised as low risk (< 4%) while 15 (71.4%) of patients were at high risk (> 11%). Of the latter, the median risk score was 21%. In the high risk group, 3 patients developed ESRD while 9 of them had decrement in eGFR ranging from 0.98 to 38.23%; the others had an improvement instead.

IgAN-RPT is a useful, discriminative tool for identifying patients at high risk of developing ESRD or losing 50% of eGFR. The trajectory of renal outcome observed is, however, underestimated, likely due to the small sample size and hence warrants a further, larger study.