

25th MEDICAL & HEALTH RESEARCH WEEK

*“Nurturing Transdisciplinary Collaboration: A Driver to Research
Excellence”*

PROGRAM & ABSTRACT BOOK

21 - 25 August 2023

Organized by

Secretariat of Research & Innovation
Faculty of Medicine, Universiti Kebangsaan Malaysia

25th Medical & Health Research Week

*“Nurturing Transdisciplinary
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21st-25th August 2023

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Secretariat of Research & Innovation
Faculty of Medicine, Universiti Kebangsaan
Malaysia

C1

CASE REPORT: Necrotising Otitis Externa with Base of Skull Osteomyelitis Masquerading as an Otitis Externa: A Cautionary Tale

TING JIE O^{1,2}, ZARA N^{1,2}, THEAN YEAN K³

¹*Department of Otorhinolaryngology-Head and Neck Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

²*Department of Otorhinolaryngology-Head and Neck Surgery, Hospital Canselor Tuanku Muhriz, Kuala Lumpur, Malaysia*

³*Department of Radiology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

ABSTRACT

Introduction: Necrotising otitis externa (NOE) is uncommon. It should not be missed in elderly or immunocompromised patients presenting with severe otalgia that has failed to respond to medical therapy. It can masquerade as otitis externa.

Objective: We discuss a case of a 70-year-old woman with underlying multiple comorbidities who was diagnosed and treated for necrotizing otitis externa.

Method: A case report.

Case Report: A 70-year-old female, a chronic smoker with poorly controlled diabetes mellitus and hypertension, presented with a 2-month history of left otalgia and persistent otorrhea. The pain score was 8/10 and otorrhea was haemopurulent without fishy malodour. There was no improvement despite multiple clinic visits and antibiotics given. Subsequently, she developed fever, vomiting and headache over 3 days and presented to the emergency department. On examination, there was left tragal tenderness. Otoscopy revealed a large polyp originating from the external auditory canal (EAC). Facial and lower cranial nerves (IX, X, XI, XII) were intact. HRCT scan of temporal bones revealed soft tissue densities occupying the entire left EAC, middle ear cavity and mastoid air cells. The Aural polyp was biopsied and cultures grew *Pseudomonas aeruginosa* sensitive to Ceftazidime and Ciprofloxacin. After completing 3 weeks of intravenous Ceftazidime, there was a significant improvement and the aural polyp regressed in size. She was discharged with another 3 weeks of oral Ciprofloxacin.

Conclusion: NOE is a potentially fatal ear infection. Clinicians should have a high

index of suspicion when dealing with patients who are immunosuppressed or have multiple co-morbidities presenting with excruciating otalgia and otorrhea not responding to empirical oral antibiotics.

Keywords: Malignant otitis externa; necrotising otitis externa; otitis externa;
Pseudomonas aeruginosa

C2

Clinical Characteristics and Outcomes of COVID-19 Patients During 2021 Wave at Hospital Canselor Tuanku Muhriz

NALINI P¹, AARON I¹, PETRICK P¹, NAJMA K¹, CHEONG XK¹, LAU CL², ROZITA H³, ZETTI Z⁴

¹Infectious Disease Unit, ²Pharmacy Unit, Department of Medicine, Hospital Canselor Tuanku Muhriz, Cheras, Kuala Lumpur, Malaysia

³Department of Community Health, Faculty of Medicine, Universiti Kebangsaan Malaysia, Cheras, Kuala Lumpur, Malaysia

⁴Department of Microbiology, Hospital Canselor Tuanku Muhriz, Cheras, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Since the emergence of the COVID-19 pandemic, the 2021 Wave proved to be quite challenging with increased mortality. However, there are limited studies in Malaysia concerning this period.

Objective: This study aimed to determine the clinical characteristics and outcomes of COVID-19 patients admitted to Hospital Canselor Tuanku Muhriz (HCTM), Malaysia from March 2021 to November 2021.

Methods: This was a retrospective, cross-sectional study designed to include all COVID-19 subjects aged 18 years or above admitted to HCTM. The data was collected from the clinical notes and electronic medical records. The primary outcome studied was all-cause in-hospital mortality.

Results: 809 subjects including 477 males and 332 females were included in this study of which 252 patients (31%) died. Multivariable regression revealed that subjects with older age, lymphopenia, unvaccinated status, highest oxygen requirement within 24 hours of admission and high 4c mortality score had a higher odds ratio (OR) of death.

Conclusion: These findings could be used as a guide to identify subgroups of patients with a high risk of mortality early and treat them accordingly

C3

Primary Laryngeal Amyloidosis Mimicking As Laryngeal Cancer

NURDIANA B^{1,2}, YONG DJ¹, NADHIRAH MS²

¹*Department of Otorhinolaryngology, Queen Elizabeth Hospital, Kota Kinabalu, Sabah, Malaysia*

²*Department of Otorhinolaryngology-Head and Neck Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

ABSTRACT

Objective: We report a case of a 60-year-old male presented with persistent and progressive hoarseness and intermittent hemoptysis for 2 years.

Method: Case Report

Results: Examination revealed dysphonia with the main component of roughness. Otherwise, there was no audible stridor and no cervical lymphadenopathy palpable. Endoscopic examinations revealed smooth surfaced lesions over the bilateral false cord obstructing the true cord. The patient underwent endoscopic laryngeal surgery and histopathological examination confirmed the diagnosis of laryngeal amyloidosis. There was no laboratory or radiological evidence of systemic involvement. His symptoms improved after the surgery but unfortunately, he defaulted to follow-up after 6 months.

Conclusion: Patients presented with long-standing dysphonia must not be taken lightly. Every patient diagnosed with laryngeal amyloidosis shall be screened for systemic involvement which carries higher morbidity and mortality. Early diagnosis and prompt treatment may reduce the risk of recurrence.

C4

Cancer-Associated Thrombosis among Solid Cancer Patients-A Cross-Sectional Study in Two Tertiary Centres

**LAILATULEMA A^{1,2}, IBTISAM MN³, FUAD I⁴, SIVAKUMAR P^{1,2},
GUAN YONG C^{1,2}, SHARIFA EZAT WP^{2,5}, NOR RAFAEH T^{1,2}**

¹Clinical Haematology Unit, Department of Medicine, ⁴Department of Radiotherapy and Oncology, ⁵Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia

²Hospital Canselor Tuanku Muhriz (HCTM), Jalan Yaacob Latif Kuala Lumpur, Bandar Tun Razak, Kuala Lumpur, Malaysia

³Oncology Department, Hospital Kuala Lumpur

ABSTRACT

Introduction: Cancer-associated thrombosis (CAT) can be contributed by prolonged immobilisation, advanced stage, chemotherapy drugs and surgery.

Objective: This study was conducted to determine the incidence and clinicopathological profiles of thrombosis amongst solid cancer patients at two tertiary hospitals in Kuala Lumpur.

Methods: A cross-sectional study was conducted at Hospital Canselor Tuanku Muhriz (HCTM) and Hospital Kuala Lumpur (HKL) among patients aged ≥ 18 years. Data on patients' demographics, cancer parameters, and thrombotic events were collected following informed consent and were analysed.

Results: A total of 232 patients were recruited. The mean age was 57.6 years (SD=13.67). Majority (86.2%) of the patients had ECOG performance status 0-1, 96.6% were newly diagnosed cases while 45.3% were at Stage 4. A total of 24 (10.3%) patients developed CAT with two cases of arterial thrombosis. Of the remaining 22 patients, six had pulmonary embolism (PE) only, two with thrombosis at multiple sites, while four UL and three LL only thrombosis. Six had abdominal thrombosis, and one cerebral thrombosis. CAT occurred in ≤ 3 months after diagnosis among fourteen patients. Ten patients had BMI ≥ 27.5 kg/m² and five with BMI < 18.5 kg/m² (p=0.042). Among ECOG performance status 3 patients, 37.5% developed CAT (p=0.020). Pancreas, lung and gynaecological cancer had highest CAT events, while 50% had adenocarcinoma histology.

Conclusion: Our study showed that patients with under/overweight BMI, higher ECOG performance status, lung/pancreatic/gynaecology cancer, and adenocarcinoma subtype had tendency to develop CAT. Further analysis on the predictive risk factors would be beneficial.

C5

Lyre Sign: Do Not Be Fooled!

NURDIANA B^{1,3}, CHEW WJ², ARTHUR W², MOHD RAZIF MY³

¹*Department of Otorhinolaryngology, Queen Elizabeth Hospital, Sabah, Malaysia*

²*Department of Otorhinolaryngology, Labuan Hospital, Federal Territory of Labuan, Malaysia*

³*Department of Otorhinolaryngology-Head and Neck Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

ABSTRACT

Introduction: Head and neck paragangliomas, or glomus tumours, are highly vascular tumours arising from paraganglionic tissue. They most commonly arise from distinct locations, including the carotid bifurcation, the jugular fossa, the tympanic cavity, and the vagus nerve. The carotid body is the most common site for these tumours to arise, and these carotid body tumours characteristically splay the internal and external carotid arteries. This typical sign is known as the 'Lyre Sign'.

Objective: We report a rare high-grade B cell lymphoma in a patient positive Lyre sign on a scan mimicking a carotid body tumour or paraganglioma.

Method: Case Report

Report: A 65 years old male hypertensive who presented with 6 months of massive unilateral neck swelling with obstructive symptoms. The patient was also noted to be malignant hypertension resistant to three antihypertensives. The clinical and radiological investigation pointed to a diagnosis of a carotid body tumour with the typical signs of splaying of the internal and external carotid artery. However, the biopsy revealed a high-grade B cell lymphoma that was subsequently responsive towards chemotherapy.

Conclusion: We presume this is the first-ever report of a high-grade lymphoma causing Lyre sign. All tumours causing Lyre sign on radio-imaging are not all carotid body tumours. The importance of this case is that clinical and imaging studies pointed to a possible paraganglioma, which may have resulted in incorrect treatment.

C6

Analysis of Osteoporotic Hip Fractures: Identifying Treatment Gaps in a Tertiary Center Centre in East-Coast Malaysia

NUR KHADIJAH MI^{1,4}, ISA NM¹, SABARUL AFIAN M², JUZAILY FEKRY L², NUR AZREE K³, NORLIZA M¹

¹Department of Pharmacology, ²Department of Orthopedics, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yacob Latif, Kuala Lumpur, Malaysia
³Department of Orthopedics, ⁴Pharmacology Department, Faculty of Medicine, Universiti Sultan Zainal Abidin, Jalan Sultan Mahmud, Terengganu, Malaysia

ABSTRACT

Introduction: Hip fracture is the most detrimental and costly complication of osteoporosis. It entails pain, impaired mobility and loss of independence for the patients.

Objectives: This study aimed to ascertain the predominant characteristics and outcomes as well as identify treatment gaps in post-osteoporotic hip fracture management at Hospital Sultanah Zahirah, located in East-Coast Malaysia.

Methods: This was a retrospective study investigating medical records of patients aged 50 years old and above admitted to this tertiary centre for hip fracture due to low-grade trauma in 2021.

Results: The study included a total of 64 patients [females 45(70.3%) and 19(29.7%) males]. The most prevalent types of fractures were femoral neck fractures 37(57.8%) followed by trochanter 27(42.2%). Only 5(7.8%) patients underwent bone mineral density assessment. The number of patients who underwent surgical intervention was equal to those being managed conservatively, 32(50.0%) each. Although vitamin D and calcium were essentially important in osteoporosis management, calcium was prescribed to a mere 13(20.3%) patients upon discharge and 18(28.1%) during follow-up. As for vitamin D, all of the patients were prescribed calcitriol but only 11(17.2%) were prescribed upon discharge and 16(25.0%) during follow-up. Few patients received anti-osteoporosis medications 5(7.8%). Follow-up revealed that within one-year post fracture, 4(6.3%) patients had passed away.

Conclusion: This study emphasized the urgency to re-evaluate the clinical management of osteoporotic hip fractures, aiming to prevent future fractures. The implementation of Fracture Liaison Services in healthcare institutions has the potential to significantly improve the existing standard of care.

C9

A Decade Under the Knife: Analysis of Sharp Injuries in Homicidal Deaths at Hospital Canselor Tuanku Muhriz, Kuala Lumpur

WAN MOHAMMAD HAFIZ WR^{1,2,3}, NAZARIAH AR³, AZURIAH A³, MOHAMED SWARHIB S^{1,3}, FARIDAH MN^{1,3}

¹Forensic Unit, Department of Pathology, Faculty of Medicine, Universiti Kebangsaan Malaysia, JalanYaacob Latif, Bandar Tun Razak, Cheras, 56000 Kuala Lumpur, Malaysia

²Department of Forensic Pathology, Faculty of Medicine, Sungai Buloh Campus, Universiti Teknologi MARA, Jalan Hospital, 47000 Sungai Buloh, Selangor, Malaysia

³Jabatan Perkhidmatan Makmal Diagnostik, Hospital Canselor Tuanku Muhriz, Jalan Yaacob Latif, Bandar Tun Razak, Cheras, 56000 Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Homicide refers to the unlawful act of causing the death or injury of another individual. Sharp injuries play a significant role in cases of homicide. Understanding the patterns and characteristics of sharp injuries is crucial for the investigation of homicidal deaths.

Objective: This study aimed to investigate the demographic and pattern of sharp injuries in homicidal deaths, specifically focusing on the different types of sharp injuries such as stab wounds, incised and slash wounds.

Methods: In this study, homicidal deaths that were brought to the Forensic Unit at Hospital Canselor Tuanku Muhriz, were examined retrospectively between January 2009 and December 2018. Data were collected from the autopsy reports and death registries, including information on the cause of death, injury pattern, site of injury, and demographic characteristics.

Results: Results revealed an increased prevalence of homicidal deaths among males compared to females. The majority of cases involved young adults, followed by adults. Stab wounds constituted the largest proportion (56.9%) of all sharp injuries, while slash wounds accounted for 22.4%. The neck and chest were the most frequently injured sites, accounting for a 24.1% incidence rate. The leading cause of death was attributed to stab wounds targeting the chest area (22.4%), followed by stab wounds to the abdomen.

Conclusion: These findings provided valuable insights into the demographic trends and patterns of sharp injuries in homicides, eventually enhancing our understanding of the pattern and relevance of sharp injuries in homicides and providing valuable contributions to forensic investigations.

C10

Comparative Analysis of Ambient Outdoor Temperature and Interior Cabin Temperature of a Sedan Car in Shaded and Direct Sun-exposed Parking Spaces in Malaysia

WAN MOHAMMAD HAFIZ WR^{1,3}, CHEE MING Y², MUHAMMAD AZRUL AA², NUR AISYAH MZ², LOH BI J², MOHAMED SWARHIB S³, FARIDAH MN³

¹*Department of Forensic Pathology, Faculty of Medicine, Sungai Buloh Campus, Universiti Teknologi MARA, Jalan Hospital, 47000 Sungai Buloh, Selangor, Malaysia*

²*Faculty of Health Science, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300, Kuala Lumpur, Malaysia*

³*Forensic Unit, Department of Pathology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, Cheras, 56000 Kuala Lumpur, Malaysia*

ABSTRACT

Introduction: Hyperthermia-related fatalities resulting from vehicular entrapment in extreme heat have gained attention as a critical forensic issue. In these cases, individuals, particularly children, are inadvertently left behind or trapped in vehicles exposing them to elevated temperatures, leading to potentially fatal outcomes.

Objective: The study aimed to analyze temperature differentials between ambient outdoor and interior cabin vehicle temperatures in two parking scenarios, which had the potential risks associated with vehicular heat entrapment, particularly concerning hyperthermia-related deaths.

Methods: The temperatures were recorded for 4 different days between 0900H and 1700H in the month of May in the Cheras area. Analysis of ambient outdoor temperature and interior vehicle temperature was done in two different scenarios, i.e., vehicles in shaded parking spaces and vehicles in open parking lots, by using a similar sedan car.

Results: The results of the study revealed a significant temperature difference between vehicles parked in shaded parking spaces and those parked in exposed areas, in which the vehicle parked in shaded parking spaces had lower interior temperatures throughout the day when compared to the vehicle parked in exposed areas. A T-test was performed and showed a significant difference between the two

parking spaces ($p < 0.05$).

Conclusion: In brief, parking vehicles in shaded areas significantly reduces the risk of hyperthermia development compared to areas exposed to sunlight, highlighting the importance of utilizing shaded areas to mitigate the risk of hyperthermia-related incidents in vehicles during hot weather conditions.

C11

Disability and Post-Traumatic Stress After Lower Third Forearm Fracture: Comparisons based on Gender and Hand Dominance

RUI FEN T^{1, 2}, SIAW CHUI C¹, NOR AFIFI R¹, MOHD ISKANDAR MA²

¹Occupational Therapy Programme, Centre for Rehabilitation and Special Need Studies, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

²Hand and Upper Limb Centre, Pantai Hospital Kuala Lumpur, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Lower third forearm fracture, one of the most common upper limb injuries, can impact patients' physical and psychological functions.

Objective: This presentation aimed to report differences in upper limb disability, wrist-specific disability, and post-traumatic stress among patients with lower third forearm fracture based on gender and hand dominance with data extracted from an ongoing randomized controlled trial.

Method: Patients with lower third forearm fracture that was referred 2-4 weeks after open reduction internal fixation were asked to complete three questionnaires, i.e., Quick-Disabilities of the Arm, Shoulder and Hand (Quick-DASH) Outcome Measure for upper limb disability, Patient-Rated Wrist Evaluation (PRWE) for wrist specific disability, and Impact of Event Scale-Revised (IES-R) for post-traumatic stress.

Result: Twenty-five participants with an average age of 50.28 ± 12.00 years old were recruited from 1-7-2021 to 30-6-2023. Participants were predominantly male ($n=13$; 52.0%) with non-dominant hand fractures ($n=13$; 52.0%). Women scored higher than men in Quick-DASH (64.58 ± 7.78 vs 56.47 ± 8.79), $t(23)=-2.443$, $p=0.02$ and IES-R (27.25 ± 21.97 vs 12.92 ± 7.35), $t(23)=-2.192$, $p<0.05$. No difference was observed in PRWE between both genders. Participants that injured their dominant hand scored higher PRWE (68.92 ± 9.40) than those that injured their non-dominant hand (61.89 ± 5.45), $t(23)=2.312$, $p=0.03$. No differences were seen in Quick-DASH and IES-R between participants that injured their dominant hand and those that injured their non-dominant hand.

Conclusion: Women experienced more upper limb disability and post-traumatic stress than men after a lower third forearm fracture. Wrist-specific disability became more pronounced when the dominant hand was injured.

C12

Insights into Cardiac Troponin I Analysis: Preliminary Study Highlights Using High-Sensitivity Assay in Postmortem Investigations

WAN MOHAMMAD HAFIZ WR^{1,2,3}, IZZATUL 'ALIAA B^{1,2},
MOHAMED SWARHIB S^{1,2}, FARIDAH MN^{1,2}

¹*Department of Pathology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, Cheras, 56000 Kuala Lumpur, Malaysia*

²*Jabatan Perkhidmatan Makmal Diagnostik, Hospital Canselor Tuanku Muhriz, Jalan Yaacob Latif, Bandar Tun Razak, Cheras, 56000 Kuala Lumpur, Malaysia*

³*Department of Forensic Pathology, Faculty of Medicine, Sungai Buloh Campus, Universiti Teknologi MARA, Jalan Hospital, 47000 Sungai Buloh, Selangor, Malaysia*

ABSTRACT

Introduction: Cardiovascular-related deaths account for a significant portion of global mortality, necessitating ancillary postmortem investigations. In cardiac patients, high-sensitivity cardiac troponin assays have shown remarkable diagnostic performance, aiding in the early diagnosis of acute coronary syndrome. However, limited studies have explored the application of high-sensitivity assays in postmortem analysis, highlighting the need for further investigation.

Objective: This study aimed to highlight the preliminary study of postmortem analysis of high-sensitivity cardiac troponin I.

Methods: In this cross-sectional study, all of the cardiac and non-cardiac death cases among Malaysian that were brought into the Forensic Unit, HCTM, were collected for six months i.e. between July 2022 and December 2022, in which postmortem high-sensitivity cardiac troponin levels were performed for analysis. The descriptive and nonparametric statistical analyses were done.

Results: Preliminary results showed a significant difference in the troponin levels between cardiac and non-cardiac deaths. Cardiac deaths have a higher median high-sensitivity troponin I level compared to non-cardiac deaths, 6148.9 pg/ml vs 665.2 pg/ml, respectively ($p < 0.05$). Also, there was a significant elevation of high-sensitivity cardiac troponin in cardiac cases with acute myocardial infarction compared to that without acute myocardial infarction ($p < 0.05$).

Conclusion: These findings suggest that high-sensitivity troponin levels may be used as a valuable biomarker for distinguishing acute myocardial infarction. Further research with a larger sample size is warranted to validate these findings and explore the potential of troponin levels in improving the diagnosis in postmortem cases.

C13

The Impact of Overcrowding Towards Door-to-Antibiotic Time among Sepsis Patients Presented to Emergency Department of a Tertiary Academic Hospital

EVELYN CHAU YI WEN¹, AFLIZA AB¹, AIREEN Z¹, SITI NORAFIDA A², IDA ZARINA Z¹, DAZLIN MASDIANA S¹

¹*Department of Emergency Medicine, University Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

²*Department of Emergency Medicine, Hospital Kulim, Kedah, Malaysia*

ABSTRACT

Background: To increase sepsis survival, emergency physicians aimed for early sepsis recognition, fluid resuscitation and antibiotics initiation. The latest Surviving Sepsis Campaign 2021 recommends antibiotics administration within 1 hour with septic shock and within 3 hours for probable sepsis. However, early management of sepsis is affected by ED overcrowding.

Objective: This study aimed to determine the relationship of ED overcrowding towards the management and outcome of sepsis patients presenting to ED.

Methods: This was a prospective cohort study conducted among sepsis patients presented to the ED of a tertiary university hospital from 18th January 2021 to 28th February 2021. ED overcrowding status was determined using National Emergency Department Overcrowding Score (NEDOCS) scoring system. Sepsis patients were identified using SOFA score and their door-to-antibiotic time (DTA) was recorded. Secondary outcomes were hospital length of stay (LOS) and in-hospital mortality. The association between ED overcrowding and DTA time were analysed using the Pearson chi-square test.

Results: A total of 170 samples were recruited. Only 11.1% (N=19) received antibiotics within 1 hour and 60% (N=102) within 3 hours of ED presentation. We found no significant relationship between ED overcrowding and DTA time ($p=0.989$). There is also no improved mortality ($p=0.375$) or reduced LOS ($p=0.22$) in patients with DTA time <1 hour. However, the mortality rate increased among patients presented during overcrowded ED shifts ($p=0.041$).

Conclusion: Although ED overcrowding has no significant association with DTA time, an increased in-hospital mortality rate was found independent of the DTA time among sepsis patients. Therefore, future studies should explore other determinants that affect the quality of care among sepsis patients in ED.

Keywords: Door-to-antibiotic time; ED overcrowding; in-hospital mortality; length of hospital stay; Sepsis

C14

Does Binocular Vision Status Determine Dyslexia? A Comparison between a Sample of Dyslexic and Non-Dyslexic Children in Kano, Nigeria

SALMA IM^{1,2}, MIZHANIM MS¹, BARIAH MA¹ AND EKI O³

¹*Optometry & Vision Sciences Programme, Centre for Community Health Studies (ReaCH), Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur Campus, Kuala Lumpur, Malaysia*

²*Department of Optometry, Faculty of Allied Health Sciences, Bayero University Kano, Nigeria.* ³*Department of Optometry, University of Benin, Nigeria*

ABSTRACT

Introduction: Dyslexia is a worldwide neurodevelopmental disorder characterised by difficulties in reading and language processing. Recent research suggests that visual factors, such as binocular vision (BV) status, may play a role in the aetiology of dyslexia. This study aimed to investigate the potential relationship between BV status and dyslexia in a sample of children from Kano, Nigeria.

Objective: To compare BV parameters between dyslexic and non-dyslexic children in Kano, Nigeria.

Methods: The study was conducted at the Aminu Kano Teaching Hospital, Kano, Nigeria. Forty-four children were recruited in this study. The BV status of each participant was assessed using standardised clinical tests, such as visual acuity, stereopsis, accommodation function, vergence function, and ocular movement.

Results: Twenty-two dyslexic and 22 non-dyslexic children (age and gender-matched) (mean age=11.7 ± 1.7 years) participated in this study. Analysis revealed that dyslexic children have a higher prevalence of accommodative insufficiency (45.5%) compared to non-dyslexic (18.2%). The combination of convergence insufficiency and accommodation problem was slightly higher in the dyslexic group (36.4%) than their counterpart (27.3%). Exophoria was also associated with dyslexia. Specifically, dyslexic children exhibited reduced stereopsis, vergence, accommodation and Development-EyeMovements compared to the non-dyslexic group ($p>0.05$).

Conclusion: BV between the two groups was significantly reduced in amplitude of accommodation, which is an important component of reading. High visual deficits

between the two groups suggest the importance of incorporating comprehensive vision assessments as part of the diagnostic and therapeutic protocols for dyslexic children. Early detection and management of visual deficits could potentially enhance the effectiveness of the dyslexia educational system.

Keywords: Accommodation; binocular vision; dyslexia; school children; visual assessment

C15

COVID-19 Prevention Practices among Hospital Raja Perempuan Zainab II (HRPZ II) Staff and Associated Factors

NOR AISHAH MS¹, MOHD RIZAL AM²

¹*Hospital Raja Perempuan Zainab II*

²*Department of Community Health, Faculty of Medicine, Universiti Kebangsaan Malaysia*

ABSTRACT

Introduction: In the face of the COVID-19 pandemic, healthcare workers are on the frontlines and they are at risk due to exposure to pathogens, long working hours, psychological problems, fatigue, stress, and occupational stigma and violence. Indeed, it is a great challenge for healthcare workers to always have an positive attitude and good practices, especially in COVID-19 prevention practices to avoid infection.

Objective: The study was to determine the COVID-19 prevention practices among Hospital Raja Perempuan Zainab II (HRPZ II) staff and associated factors.

Methodology: A cross-sectional study was conducted with a total of 332 respondents. The instrument used a questionnaire. A multivariable logistic regression model was used to identify significant associated factors.

Result: The findings showed 55.4% of HRPZ II staff have good COVID-19 prevention practices and several factors such as education level ($p=0.008$), clinical staff ($p=0.014$), working period ($p=0.007$), status of having been infected with COVID-19 ($p=0.025$) and attitude towards COVID-19 ($p<0.001$) had a significant association with COVID-19 prevention practices among HRPZ II staff.

Conclusion: Attitude towards COVID-19 was the most significant association factor of COVID-19 prevention practices among HRPZ II staff. The hospital management should emphasize supervision and training to increase the level of awareness and to improve the attitude toward the implementation of prevention measures. These can ultimately increase the level of COVID-19 prevention practices among hospital staff.

C16

The Malay Version of Arthritis Impact Measurement Scale 2-Short Form: Convergent Validity and Test-Retest Reliability Testing

JIA MIN L, SIAW CHUI C

Occupational Therapy Programme, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Arthritis Impact Measurement Scale 2-Short Form (AIMS2-SF) is a disease-specific instrument that is used to measure the impact of arthritis on an individual. The Malay version of AIMS2-SF (MAIMS2-SF) is a newly translated and culturally adapted instrument. Its usage among the Malaysian population, typically individuals with arthritis, requires comprehensive psychometric testing.

Objective: To determine the convergent validity and test-retest reliability of MAIMS2-SF for use among individuals with arthritis in Malaysia.

Methods: This cross-sectional study recruited participants using convenient sampling method. Participants were Malaysians with a diagnosis of arthritis who can speak and understand the Malay language. Participants completed the MAIMS2-SF and Malay version of Disabilities of the Arm, Shoulder and Hand (MVDASH) Outcome Measure for convergent validity testing. After 7 to 10 days, participants completed the MAIMS2-SF again for test-retest reliability testing.

Results: There were 153 participants for the convergent validity testing and 69 participants for the test-retest testing. Negligible to high correlations were found between the MAIMS2-SF and subscales of the MVDASH with Pearson's Correlation Coefficient ranging from 0.203 to 0.786. The highest correlations were found between the Symptom domain of MAIMS2-SF with the Sports module of MVDASH. The MAIMS2-SF showed good to excellent test-retest reliability with Intraclass Correlation Coefficient ranging from 0.83 to 0.97 and Minimal Detectable Change ranging from 27.39% to 39.41%.

Conclusion: MAIMS2-SF has convergent validity and test-retest reliability to be used among individuals with arthritis in Malaysia. As a culturally adapted instrument, its usage can benefit both clinical and research field relevant to arthritis management in Malaysia.

C17

Measuring Lateral Pinch, Three-Jaw-Chuck Pinch, and Tip-to-Tip Pinch Strengths of the Dominant Hand using Different Forearm Positions

NUR ASRIZA SYAZWANI MA, SIAW CHUI C

Occupational Therapy Programme, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: The American Society of Hand Therapists has recommended a standardized position for pinch strength measurement. Despite this recommendation, clinical observation and literature search still found different possible ways of measuring pinch strength, especially in relation to forearm positions.

Objective: To determine if there is a difference in the respective lateral pinch, three-jaw-chuck pinch, and tip-to-tip pinch strengths as measured using different forearm positions, i.e. supination, neutral, and pronation, respectively, for the dominant hand.

Methods: This cross-sectional study recruited 30 undergraduate students of the Faculty of Health Sciences, Universiti Kebangsaan Malaysia based on the criteria: (i) no upper extremity neurological conditions or dysfunctions; (ii) no previous exposure to grip or pinch strength measurement; and (iii) not an occupational therapy or a physiotherapy student. Each type of pinch strength was measured in three trials using B&L Engineering Pinch Gauge. There was a 15-second rest period between each trial and a 5-minute rest period between each type of pinch. Data was analyzed using One-Way Repeated Measures ANOVA or Friedman Test based on the normality of data.

Results: Three-jaw-chuck pinch and tip-to-tip pinch showed significant differences between different forearm positions for the dominant hand. The difference in three-jaw chuck pinch strength occurred between: (i) supination and neutral, $p=0.011$; and (ii) supination and pronation, $p<0.001$. The difference in tip-to-tip pinch strength occurred between: (i) pronation and supination, $p<0.001$; and (ii) pronation and neutral, $p<0.001$.

Conclusion: The same forearm position needs to be used when measuring three-jaw-chuck pinch and tip-to-tip pinch strengths of the dominant hand.

C18

Removal of A 10-Year-old Neck Mass: Excision of True Facial Artery Aneurysm

THERESA CHIU HOONG T¹, SAI GUAN L^{1,2}, MOHD RAZIF MY^{1,2}

¹Department of Otorhinolaryngology – Head and Neck Surgery, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia Medical Centre

²Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: True aneurysms of the facial artery are extremely rare, with only 6 cases reported so far. Aneurysms are predisposed to spontaneous expansion and risk of rupture, making elective surgical excision the ultimate treatment choice. Among the few cases reported so far, the sizes of the reported facial artery aneurysms ranged from 1.5 to 5 cm, the median age is around 60. True aneurysm often associated with long standing cardiovascular disease leading to atherosclerosis. Other aetiologies such as arteriovenous malformation and congenital syphilis have been reported. We hereby presenting a case of left facial artery aneurysm with underlying arteriovenous malformation.

Case Report: A 70-year-old female presented with left neck painless swelling for the past 10 years which was gradually increasing in size. It was also associated with lower lip swelling which bleeds intermittently. There was no history of trauma. On examination, a pulsatile mass measuring 5x5cm noted over the left submandibular region. There were also prominent vessels seen over the lower lip without contact bleeding. Angiogram showed arteriovenous malformation over the lower lip which was mainly supplied by branches of external carotid artery. Left facial artery aneurysm measuring 5cm x 4cm x 3cm. There was also synchronous small aneurysm noted in the cavernous and clinoidal segment of right internal carotid artery which was treated conservatively by the neurosurgical team. Sublingual and submandibular branches of arteriovenous malformation was embolised with Polyvinyl alcohol (PVA) and coil a day prior to surgery. She then underwent excision of left facial artery via open surgical approach. The stump of facial artery was ligated and the aneurysm was removed entirely. Blood loss was minimal. Patient recovered well without post-op complication.

Conclusion: Among our literature reviews, there were only one case of true facial artery aneurysm that was treated conservatively and it resolved spontaneously.

Complication rates of embolisation have been reported which include local inflammation, bleeding, necrosis of skin, neurologic complications, and even aneurysmal rupture. Surgical excision are the treatment of choice because of their potential for expansion and rupture.

C19

Prevalence of Actual Medication Errors and Its Associated Factors among All Medication Errors Reported in Melaka Hospital

ELIZA A¹, MOHD RIZAL AM²

¹Hospital Melaka, Ministry of Health Malaysia

²Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, 56000 Jalan Yaacob Latif, Bandar Tun Razak, Cheras

ABSTRACT

Introduction: Medication error (ME) is any preventable event that may lead to inappropriate medication use or patient harm. It is categorized into Actual and Near Miss. ME increases patient morbidity, mortality and health care costs.

Objective: This study was conducted to determine the prevalence of Actual ME and its related factors among all reported ME at Melaka Hospital in 2021.

Methods: This is a retrospective study using secondary data from the Medication Error Reporting System (MERS), Department of Pharmacy and Human Resource Unit, Melaka Hospital. ME categorical data and its related factors are presented as frequency (f) and percentage (%). Comparisons were made using Pearson's χ^2 -test. All statistical analyses were performed using IBM SPSS version 25. The level of statistical significance is set at $p < 0.05$ and the confidence level is 95%.

Results: 3.2% of incidents reported were Actual ME. Actual ME prevalence has a significant association and is influenced by health personnel who have a diploma level of education and below ($p < 0.001$, OR 6.437); never involved in ME incident ($p < 0.001$, OR 6.065); and in pharmacy and medical related departments $p < 0.01$, OR 4.301 and 3.289). Demographic factors such as gender, age and race of a healthcare worker have no significant association with the prevalence of Actual ME.

Conclusion: Systematic risk assessment and profiling of health personnel, instilling the importance of patient safety and expanding the use of technology can reduce Actual ME and help improve the quality of health services in hospitals.

C20

Optometry Clinic Appointments Drop Out: What Could Be the Factors?

SITI AISYAH J, MIZHANIM MS, AND NORLAILI A

Optometry & Vision Sciences Programme, Centre for Community Health Studies (ReaCH), Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur Campus, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Clinic appointment dropout is a significant issue that hinders the effective delivery of healthcare services.

Objective: This retrospective study aims to investigate the factors associated with clinic appointment dropouts and their impact on patient care. The study utilized data from paper-based health records (PBHR) of the Optometry Clinic, Faculty of Health Sciences, UKM over a 5-year inactive period from 2014-2018.

Methods: The analysis included a comprehensive examination of patient demographics, diagnosis, management plan, and appointment characteristics. Various statistical techniques, including the chi-square test, were employed to identify significant predictors of appointment dropout and evaluate the time-to-dropout.

Results: The findings revealed several crucial factors influencing clinic appointment dropout rates. First, patient demographics such as the location of patients' residences were found to be associated with differential dropout rates ($p=0.028$). Second, patients' diagnoses, particularly binocular vision problems, were significant predictors of appointment dropout ($p=0.015$). Third, the period of follow-up appointments showed varying effects on dropout rates ($p=0.003$). Lastly, management plans also had significant associations, such as refractive error prescription ($p=0.004$), consultation ($p=0.000$), topical eyedrop prescription ($p=0.019$), and visual therapy ($p=0.031$).

Conclusion: Understanding the determinants of clinic appointment dropout can inform healthcare providers and policymakers in implementing targeted interventions to mitigate this issue. By employing a comprehensive retrospective analysis, it sheds light on the multifaceted nature of this problem and highlights the importance of addressing it for the efficient functioning of the healthcare system and to improve overall healthcare outcomes.

C21

Adaptive Behaviour Skills among Preschool Children: Gender and Parental Education Level Relationship

MASNE K, NOR AFIFI R, NURUL AMIRA ME

*Occupational Therapy Programme, Faculty of Health Sciences, Universiti Kebangsaan
Malaysia, Jalan Raja Muda Abd Aziz, Kuala Lumpur, Malaysia*

ABSTRACT

Introduction: The topic of development of the adaptive behaviour skills of preschool children has been a widely discussed topic among researchers locally and abroad. Yet, there is still a lack of studies in Malaysia that researched the difference in adaptive behavior skills performance between the preschool children based on their parental education level and gender.

Objective: The objectives of this study are to describe the profile of adaptive behavior skills performance among preschool children based on Skala Kemahiran Adaptif, to explore the relationship between the parental educational level and the adaptive behavior skills among preschool children in Malaysia, and to compare the adaptive behavior skills performance between preschool children based on their gender.

Methods: This study used a secondary data obtained from an existing thesis that used Skala Kemahiran Adaptif, a newly developed assessment kit developed by a team of researchers in Malaysia that has 4 main domains of the adaptive behaviour skills, namely motor, communication, social and activity of daily living skills. IBM SPSS Statistic Version 24 was used to analyze the data obtained.

Results: The result obtained showed no significant correlation between the adaptive behavior skills and the parental education level as they have a weak correlation (correlation efficient < 0.3). There is no significant differences in the adaptive behavior skills between gender as well as a small effect size ($r < 0.3$) for all four domains.

Conclusion: The adaptive behavior skills performance of preschool children are not affected by their parental educational level or by their gender.

C22

Primary Mediastinal Yolk Sac Tumour Mimicking Lung Cancer

WONG YP, TAN GC

Department of Pathology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, Kuala Lumpur

ABSTRACT

Introduction: Yolk sac tumours are highly malignant germ cell tumour that mostly occur in the gonads. Extragonadal yolk sac tumour are rare. Here, we described a primary mediastinal yolk sac tumour that was thought to be a lung cancer involving the mediastinum.

Case Report: A 38-year-old man presented with history of abdominal pain for 2 weeks, accompanied by intermittent backache and dyspnea on exertion. He had loss of weight and appetite. There was no history of fever or chest pain. B-hCG (1.3 mIU/L) and carcinoembryonic antigen (0.78 ng/mL) were not elevated. CT scan revealed a well-defined lobulated mediastinal mass, measuring 17.6 x 8.9 x 13.2 cm and caused mass effect to the surrounding structure, including the lung. The differential diagnoses include a mediastinal germ cell tumour, lymphoma or lung cancer with mediastinal infiltration. A biopsy was taken. Microscopically, the tumour was composed of sheets of malignant cells with some vaguely formed glands, accompanied by abundant necrosis. The malignant cells have hyperchromatic and pleomorphic nuclei and eosinophilic cytoplasm. Immunohistochemically, these cells were positive for alpha fetoprotein and glypican-3. The TTF1 and Napsin A immunohistochemistry were negative. It was diagnosed as primary mediastinal yolk sac tumour, following which an alpha fetoprotein serology was performed and found to be markedly raised (>202,000 ng/mL, normal level: 1-9 ng/mL).

Conclusion: The diagnosis of primary mediastinal yolk sac tumour can be challenging due to their variable morphological features and unusual location. Histologically, the tumour may have variable patterns, such as microcystic, glands, solid, festoons, papillary and the characteristic Schiller-Duval bodies.

C23

Adaptive Behaviour in Preschool Children: Analysis based on Sociodemographic Characteristics

NOR AFIFI R, MASNE K, NURSYUHADA AM

Occupational Therapy Program, Centre of Rehabilitation and Special Needs Studies, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, Kuala Lumpur

ABSTRACT

Introduction: Adaptive behaviour is critically important in preschool children as evidence of this skill's mastery links to success in formal school transition and later school achievement. Various sociodemographic factors have been studied associated with children's adaptive behaviour performance. However, little evidence has been found focusing on Malaysia's typical preschool children population.

Objective: This study aims to determine the profile of adaptive behaviour among preschool children in Malaysia and to identify the adaptive behaviour performance among preschool children based on the preschool location, household income and parents' education level.

Method: A cross-sectional study was conducted based on secondary data with 250 children aged 4-6 years old in selected areas in Selangor, Malaysia was utilized. Demographic data form and Vineland Adaptive Behaviour Scale-3 forms were used in this study.

Results: The Results show that adaptive behaviour domains scores of preschool children in urban areas are significantly higher than those in rural areas (p -value $<.05$). Interestingly, the household income shows no significant difference between groups in the adaptive behaviour domains scores of preschool children (p -value $>.05$). The adaptive behaviour domains of the preschool children based on the mothers' and fathers' education levels also did not show any significant difference scores between groups (p -value $>.05$).

Conclusion: In Conclusion, urban and rural areas play significant roles in adaptive behaviour performances among preschool children. The outcome of this study hopes to be beneficial for professionals in planning effective strategies for developing adaptive behaviour in preschool children to prepare them for later school years.

C24

Relationship between Cholesterol and Mortality in the NSTEMI Population: Analysis from NCVD-ACS Registry

TG MOHD IKHWAN TABS¹, SHAMSUL AZHAR S¹, SAZZLI K^{2,3},
GUNAVATHY S³, KIEN TING L³, NAZARUDIN S¹, WAN AZMAN
WA^{3,4}, SHAWAL M⁵

¹Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

²Department of Cardiology, Faculty of Medicine, Hospital Universiti Teknologi MARA (HUiTM), Selangor, Malaysia

³National Heart Association of Malaysia, Kuala Lumpur, Malaysia

⁴Department of Medicine, University Malaya Medical Centre, Kuala Lumpur, Malaysia

⁵Unit of Cardiology, Department of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Cardiovascular diseases (CVD) are the leading cause of death worldwide. High cholesterol levels are a significant modifiable risk factor for CVD. Previous research has shown an inverse relationship between cholesterol and mortality in CVD patients, known as the “cholesterol paradox”.

Objective: This study investigates the possible relationship between total cholesterol and mortality rates in patients with NSTEMI (non-ST-elevation myocardial infarction).

Methods: This cross-sectional study utilized a nationwide database from the NCVD-ACS registry. The study used consecutive sampling, where patient records between January 2006 and December 2015 that met the inclusion and exclusion criteria were included. The exposure of the study was total cholesterol on admission, which was classified into four groups based on quartiles (Q1, Q2, Q3 and Q4). The outcome was hospital mortality from all causes. The study used multilevel analysis to examine the association between the cholesterol group and the mortality rate, adjusting for potential confounding factors.

Results: The study included 3291 cases of NSTEMI patients (mean age 55.6 years; 79.7% male), with 111 deaths from all causes occurring during hospitalization. The analysis found a U-shaped relationship between cholesterol levels and mortality

rates. As compared to the Q2 group, moderate cholesterol levels (4.50–5.36 mmol/L), the adjusted odd ratio for the Q1, Q3, and Q4 groups is 2.15 (1.15–4.03), 2.01 (1.01-3.98) and 2.15 (1.08-4.26), respectively.

Conclusion: The study found an association between cholesterol levels and hospital mortality in patients with NSTEMI. Further study is needed to shed light on this finding.

C25

Machine Learning Techniques for Type 2 Diabetes Mellitus Risk Factor Prediction: A Review

MUHAMMAD FAID MR¹, MOHD RIZAL AM², KURUBARAN G^{2,3},
NAZARUDIN S², KHAIRUL NIZAM AM¹, FEISUL IDZWAN M⁴,
LANCE AW⁵

¹*Earth Observation Centre, Institute of Climate Change, Universiti Kebangsaan Malaysia, Malaysia*

²*Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Malaysia*

³*Clinical Research Center, Seberang Jaya Hospital, Ministry of Health Malaysia, Malaysia*

⁴*Non-Communicable Disease Section, Disease Control Division, Ministry of Health, Malaysia*

⁵*Department of Biostatistics and Bioinformatics, Rollins School of Public Health, Emory University, USA*

ABSTRACT

Background: Type 2 Diabetes Mellitus (T2DM) is a globally prevalent chronic disease that keeps increasing the healthcare burden costs worldwide. Machine learning (ML) has been significantly proven to aid medical professionals in disease predictions. This caused a demand for modern techniques in medical fields, due to their ability to handle large datasets.

Objectives: This study focuses on systematically reviewing the use of multiple ML Methods used for T2DM prediction. The gaps in the literature on the use of ML in predicting T2DM also will be concentrated on.

Methods: A systematic review search was conducted through Google Scholar, Scopus, Web of Science, and PubMed. Inclusion criteria were articles listed within the last 5 years, original studies written in English, and studies focused on “T2DM” disease only.

Results: Popular machine learning techniques used were Logistic Regression, Naïve Bayes, Decision Tree, Random Forest, Support Vector Machine, Artificial Neural Network, and k-Nearest Neighbour. All ML models were evaluated separately with their corresponding risk factors. Even though one ML technique was superior compared to others, the risk factors were different. However, there were insufficient study areas in Southeast Asian countries, as there are differences in demographics and culture that affect the risk factor of T2DM prediction.

Conclusion: The study emphasises the need of utilising machine learning in healthcare practises to reduce patient burden and enhance long-term health outcomes for those with T2DM. By making educated decisions and putting preventive measures into place, the medical community is better equipped to delay the spread of disease.

Keywords: Diabetes mellitus; healthcare burden; machine learning; risk factor prediction

C26

Burden among Caregiver of Children with Autism Spectrum Disorder (ASD)

DILENKUMAR T^{1,2}, EZURA MMM¹

¹*Department of Family Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif*

²*Ministry of Health Malaysia, Putrajaya*

ABSTRACT

Introduction: The number of children with Autism Spectrum Disorder (ASD) is increasing worldwide. Caregivers assume a key role in the survival, development, and wholesome growth of children with ASD may experience burdens related to the well-being of themselves.

Objective: This study assessed the level of burden among caregivers of children with ASD and the sociodemographic factors associated with it.

Materials and Methods: This cross-sectional study involved 356 caregivers recruited from online support groups from December 2022 to April 2023. Caregivers of children with ASD aged 18 and below were included. Zarit Burden Interview 22 used to assess the level of caregiver burdens.

Results: The majority of caregivers were female (84.0%) and Malays (74.2%). Nearly 82% of caregivers experienced a significant burden with a mean score of 35.38 (SD 16.08). The multiple linear regression analysis found 5 statistically significant sociodemographic factors associated with caregiver burden, which were caregivers' education level, household income, ethnicity, occupation, and medical problems in children with ASD. Caregivers' education level, ethnicity and occupation status were significant in all burden domains and overall burden level except the Financial Burden and Loss of One's Life Burden Domain. Household income and medical problems in children with ASD were significant to Financial Burden domain. Caregiver education level, ethnicity and occupation were statistically significant to Loss of One's Life Burden domain.

Conclusion: The caregivers in this study had significant burden associated with their sociodemographic factors such as education level, income, occupation status, ethnicity, and medical problems in their children with ASD.

C27

Private Hospitals Compensation Practices for Clinical Specialists in Malaysia

FAIZ D^{1,2}, PEREMA KUMARI SP², GEETHA S², NUR FATIN NABILA MN¹, SYED SA³, MOHD RIZAL AM¹

¹*Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur 56000, Malaysia*

²*Graduate School of Business, SEGI University, Kota Damansara, Selangor 47810, Malaysia*

³*Graduate School of Business, Universiti Kebangsaan Malaysia, Bangi, Selangor 43650, Malaysia*

ABSTRACT

Introduction: Fee-for-service (FFS) has been the main payment method for clinical specialists around the world. However, several payment schemes for doctors, particularly specialists, such as salary, pay for performance and blended remuneration of these models have been researched and used as a mechanism to increase the level of quality and value of healthcare services in the health sector.

Objective: This study explores the existing compensation practice offered to private clinical specialists by private hospitals in Malaysia.

Method: This research is largely qualitative comprising interviews with 15 private clinical specialists and 4 hospital administrators working in private hospitals.

Result: The informants comprised physicians (paediatric and internal medicine), surgeons (ENT, orthopaedics, surgery and O&G), and ancillary services (radiology, anaesthesiology, and emergency medicine). Their working experience as clinical specialists ranged from two to 30 years with a mean of 9 years. The hospital administrators each had more than 20 years of experience as managers and administrators. Our study discovered four existing compensation practices which are (i) FFS, (ii) salary-based, (iii) salary-based with incentives and 4) pool system. Majority of the clinical specialists were under the FFS payment system.

Conclusion: There are limited payment models offered to clinical specialists in Malaysia. While the salary-based payment method is relatively new among private clinical specialists in Malaysia, more private hospitals are willing to explore the potential of other payment methods provided strong support from the policymakers.

C28

Fat Injection Laryngoplasty: Strategies for Optimal Vocal Fold Augmentation

**NOOR SHAIRAH MB^{1,3}, NADHIRAH MS¹, MAWADDAH A¹,
ADZIM POH YW², MARINA MB¹**

¹*Department of Otorhinolaryngology-Head and Neck Surgery, Faculty of Medicine, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaakob Latif, Cheras, 56000 Kuala Lumpur, Malaysia*

²*Department of Plastic Surgery, Faculty of Medicine, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaakob Latif, Cheras, 56000 Kuala Lumpur, Malaysia*

³*Department of Otorhinolaryngology, Head and Neck Surgery, Hospital Al-Sultan Abdullah UiTM, Puncak Alam, 42300 Selangor, Malaysia*

ABSTRACT

Introduction: Injection laryngoplasty is a procedure performed by otolaryngologists to treat glottic insufficiency caused by vocal fold immobility or atrophy, leading to dysphonia, dysphagia, and aspiration. We will discuss our center's surgical techniques using autologous fat graft as injectate for managing patients with glottic insufficiency.

Objective: To describe the technical aspects in performing an effective autologous fat injection laryngoplasty (FIL).

Methods: FIL is performed using direct laryngoscopy under general anesthesia. Autologous fat graft is harvested from a body part with high panniculus adiposus eg: periumbilical area, using VoicInject lipo harvesting set. The microlobular fat is centrifuged to purify it. Platelet-rich fibrin (PRP) is prepared from the patient's whole blood and mixed with the purified fat in a 20% PRP/80% fat ratio. The fat/PRP mixture is emulsified by pushing it back and forth between 2 separate 10 mL syringes connected by a three-way connector. About 2.5 ml of the fat/PRP mixture is then injected at the submucosal area of the paraglottic space using a VoicInject injection needle (ID 1.6mm) to achieve at least 20% overmedialization of the vocal fold. Patients undergo 3 days of voice rest postoperatively.

Results: Significant and prolonged alleviation of glottic insufficiency symptoms. We share a case of a patient with presbylarynx presented with worsening voice fatigability, which was not resolved despite undergoing office-based injection laryngoplasty with Juvederm. FIL was then performed. Post operatively, there

are improvements in both objective (maximum phonation time: 16s > 17s) and subjective (Voice handicap index-10: 30 > 20; Visual analogue score voice: 7 > 3) assessments.

Conclusion: Vocal fold augmentation via FIL is an effective treatment for managing glottic insufficiency. Combination with platelet-rich plasma (PRP) may have the potential to enhance fat tissue variability, reducing the need for repeated augmentation.

C29

The Effect of Enhanced Respiratory Care with Early Mobilization (E-RECOVER) on Cognitive and Depression amongst Patients with COVID-19

NOR AZURA A¹, NUR AYUB MA², SURIATI SANI³, CHU MING C¹,
PETRICK P³, WAN ASYRAF WZ³ MOHD RIZAL AM, KATIJJAHBE
MA^{2,6}

¹*Physiotherapy Programme, Centre of Rehabilitation and Special Needs Studies, Faculty of Health Science, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

²*Heart and Lung Centre, Hospital Canselor Tuanku Mukhriz, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

³*Department of Psychiatry, ⁴Department of Medicine, ⁵Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

⁶*Physiotherapy Unit, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

ABSTRACT

Introduction: Coronavirus disease (COVID-19) had been proven to have a negative impact on cognitive and depression, even in the acute phase. However, there is a scarcity of these information amongst COVID-19 patients in middle-income countries.

Objective: Our study aimed to investigate the effect of enhanced respiratory care with early mobilization (E-RECOVER) on cognitive function and depression level amongst COVID-19 patients in a local tertiary teaching hospital in Malaysia.

Methods: In this pilot prospective cohort observational study, we recruited 44 patients of COVID-19 with a mean age of 63.50 ± 16.05 years from the COVID ward at the Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia. All participants completed at least 3 consecutive days of comprehensive E-RECOVER package that supervised by physiotherapist in ward. Patients' level of cognitive and depression were assessed using the Montreal Cognitive Assessment (MoCA) and Patient Health Questionnaire (PHQ) respectively at the baseline and post-intervention prior to discharge.

Results: Majority of the participants were at category 2 of COVID-19 severity (40.90%), followed by category 3 (31.80%) and 4 (25.00%). On admission, patients had low MoCA score of cognitive (22.00 (1.00-30.00)) and high PHQ-9 score of

depression level (7.00 (0.00-23.00)). At discharge, there were significant improvement in cognitive level of MoCA (+3.00 (0.00-6.00), $r = 0.5835$, $p < 0.001$) and depression level of PHQ-9 (-2.00 (-13.00-0.00), $r = 0.5204$, $p < 0.001$) amongst patients who received E-RECOVER package. There were no adverse events observed during the study.

Conclusion: Our findings suggest that E-RECOVER has potential benefit in improving cognitive function and depression level amongst patients, and it is safe as a rehabilitation guideline in treating COVID-19 patients.

C30

Comparison of Motor Proficiency among Typical Preschool Children with Different Socio-demographic Characteristics in Selangor, Malaysia

YUAN HUI-K., MASNE K., NOR AFIFI R.

Occupational Therapy Programme, School of Rehabilitation Studies, Faculty of Health Sciences, Universiti Kebangsaan Malaysia

ABSTRACT

Introduction: Gross and fine motor skills in children may develop and refine through interactions with the environment since early childhood. The motor skills development is essential for children to acquire complex body movement but can be influenced by the socio-demographic characteristics of the children.

Objective: This study aimed to establish the profile of motor skills proficiency and comparison based on gender, living area and household income among 4 to 6 years old typical preschool children in selected area in Selangor, Malaysia.

Methods: This was a retrospective cross-sectional quantitative study based on the secondary ordinal data of motor skills proficiency evaluated through Bruininks-Oseretsky Test of Motor Proficiency Second Edition (BOT-2) and socio-demographic data of 250 pre-schoolers. Mann-Whitney U Test and Kruskal-Wallis H Test were used in data analysis to compare motor skills proficiency between genders, living areas and household income.

Results: There was a significant difference ($p=.015$) in Manual Coordination between different household income groups, whereby children from lower household income group had better performance than higher household income. None of other significant difference was identified in the comparison between genders and living areas.

Conclusion: This study demonstrated that better development on Manual Coordination of preschool children with lower household income in Malaysia. Further research could be performed to determine the specific activities performed by preschool children from different household income backgrounds in exploring their relationship between household income and motor skills proficiency.

C32

Immunoglobulin G4 and its Clinical Significance in Rheumatoid Arthritis

LI FEN T¹, SAKTHISWARY R², SYAHRUL SAZLIYANA S², ASRUL AW³, SURAYA A⁴, ROSNAH S⁵

¹Department of Internal Medicine, ²Department of Rheumatology, ³Department of Immunology, ⁴Department of Radiology, ⁵Department of Community Health, Universiti Kebangsaan Malaysia Medical Centre

ABSTRACT

Background: Recent studies showed serum Immunoglobulin (Ig) G4 was significantly elevated in the rheumatoid arthritis (RA) population. IgG4 accounts for 4-6% of total IgG in a healthy human. The relationship of IgG4 the disease activity, severity and the European League Against Rheumatism (EULAR) treatment response in RA remains elusive.

Objectives: We conducted this study to investigate the relationship between serum IgG4 levels and the disease activity in RA, the severity of radiographic joint damage, the degree of functional disability and the EULAR treatment response to DMARD therapy.

Methods: We recruited 174 patients with RA from our rheumatology clinic and their serum IgG4 were measured using ELISA test. All subjects were assessed for their disease activity based on DAS28, radiographic joint damage based on Modified Sharp Score (MSS), functional capacity based on Health Assessment Questionnaire–Disability Index (HAQ-DI) and treatment responsiveness using the EULAR response criteria.

Results: The mean serum IgG4 level was 60.23 ± 30.08 mg/dL. Study showed that serum IgG4 had significant positive correlations with disease activity ($r=0.406$; $p<0.001$), ESR ($r=0.155$; $p=0.041$), CRP ($r=0.269$; $p<0.001$), joint damage ($r=0.195$; $p=0.012$) and functional disability ($r=0.909$; $p<0.001$). Subjects with elevated IgG4 (IgG4 >86 mg/dL) had significantly higher ESR, CRP, HAQ-DI, DAS 28 and poorer EULAR treatment response compared to the group with non-elevated IgG4. On multivariate analysis, only HAQ-DI (OR=4.229, 95% CI 1.302, 15.751, $p=0.018$) and DAS28 (OR=3.743, 95% CI 1.062,13.193, $p=0.040$) remained significantly associated with elevated serum IgG4.

Conclusion: Serum IgG4 shows potential as a promising biomarker of disease activity and functional disability in RA.

P1

A Systematic Review of the Anti-Aging Effects of *Centella asiatica*: Current Evidence and Future Perspectives

NUR QISTI TU, NORLIZA M

Department of Pharmacology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: *Centella asiatica*, commonly known as Gotu Kola or Indian Pennywort, has a long history of use in traditional medicine and has gained attention in recent years for its potential anti-aging effects. This systematic review aims to critically evaluate the existing literature on the anti-aging properties of *Centella asiatica* and provide an overview of its mechanisms of action, efficacy, and potential applications in skincare. The review highlights the promising anti-aging effects of *Centella asiatica*, including its ability to improve skin elasticity, reduce the appearance of wrinkles, and enhance collagen production.

Objective: This study is being carried out to determine the effect of anti-ageing on skin based on current evidence and to explore its potential for future use.

Methods: A systematic search was performed on PubMed, Scopus, and Web of Science databases using keywords related to *Centella asiatica*, anti-aging, skin aging, wrinkles, elasticity, and collagen. Relevant articles published up until 2023 studies conducted on human subjects, in vitro, and ex vivo models were included. Animal studies, case reports, and articles not available in English were excluded.

Results: Studies that met the inclusion criteria were included in this review (n=7). The studies focused on various aspects of anti-aging effects, including collagen synthesis, antioxidant activity, inhibition of matrix metalloproteinases (MMPs), and improvement of skin elasticity and wrinkles.

Conclusion: *Centella asiatica* has a promising rejuvenating effect on the skin by reducing signs of ageing, increasing elasticity, and stimulating collagen production.

P2

Optimization of Sampling Techniques in Collecting Nasal DNA Samples

ANIKA T¹, FARAH DAYANA Z², NOOR AKMAL SI¹

¹Biochemistry Department, Faculty of Medicine, UKM

²Otorhinolaryngology Department, Faculty of Medicine, UKM

ABSTRACT

Introduction: The nasal microbiota possesses the ability to modulate the immune response, thereby potentially influencing the susceptibility and severity allergic rhinitis. Accurate identification of nasal bacteria relies heavily on the sampling methods employed during the collection of nasal samples. Swabs have proven to be an efficient and non-invasive means of obtaining samples of the nasal mucosal microbiota.

Objective: The objective of this study is to assess and compare the efficacy of different swab sampling methods in terms of DNA concentration, with the aim of identifying the most effective approach for obtaining high-quality DNA samples.

Methods: Nasal samples were prospectively obtained from individuals diagnosed with allergic rhinitis. The swab tip was inserted into the middle meatus and gently swirled it around the inferior turbinate region. This process was repeated 4 to 5 times until the swab fibers became moist, ensuring maximum collection of the target analytes. The swabs were stored in two different mediums: phosphate-buffered saline (PBS) versus Amies gel, as well as dry swabs. The effect of different swab sizes was also examined. Subsequently, DNA extraction from the swabs was performed and the DNA concentration in the extracted samples was measured.

Results: The DNA concentration was higher for dry swabs (10.8-13.9) ng/μl compared to PBS (1.4-6.5) ng/μl, for PBS vs Amies there was no significant difference. Big swabs had higher concentration (2.6-5.9) ng/μl than smaller ones (1.4-3.8) ng/μl.

Conclusion: The big dry swabs without any media provided a better DNA yield and concentration.

P5

The Effect of Squalene and Tocotrienol-rich Fraction on Oxidized-LDL-Induced Human Umbilical Vein Endothelial Cells in the Development of Atherosclerosis

QAIRUNNISYAH MN¹, NURUL 'IZZAH I², NUR NAJMI MA¹

¹Programme of Biomedical Science, Center for Toxicology & Health Risk Studies, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abd Aziz, Kuala Lumpur

²Department of Pharmacology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Kuala Lumpur

ABSTRACT

Introduction: Atherosclerosis is a chronic inflammatory condition that results in the formation of atherosclerotic plaque. Current treatment by using statin has been associated with many side effects. Squalene and tocotrienol-rich fraction (SQTRF), is known to possess anti-oxidant and anti-inflammatory properties and hence may have the potential to be an alternative in the treatment of atherosclerosis.

Objective: This study was conducted to elucidate the positive effect of SQTRF on ox-LDL-induced-human umbilical vein endothelial cells (HUVECs).

Methods: 50 µg/ml of ox-LDL was used to induce the atherosclerotic model of HUVECs. Then HUVECs were treated with 50 µM of SQTRF and subjected to migration and angiogenesis assay where the area of wound closure and total branching length were analyzed respectively.

Results: HUVECs treated with 50 µM of SQTRF had shown a higher percentage area of wound closure and total branching length in comparison to the control group, which indicates the ability of SQTRF in inducing the migration and tube formation of the cells.

Conclusion: SQTRF has the potential to be used in the treatment of atherosclerosis at the early stage characterized by endothelial barrier dysfunction, where migration and tube formation of cells are essential for the repair process.

P6

Variants Emergence of SARS-CoV-2 Based on Evolution and Structural Analyses

MAT-SHARANI S^{1*}, KUMAREAHSAN D², AZMI L³

¹Biomedicine Program, School of Health Sciences, Universiti Sains Malaysia, 16150 Kubang kerian, Kelantan, Malaysia

²Universiti Kebangsaan Malaysia 43600 UKM Bangi, Selangor Malaysia

³Microbiology, Faculty of Medical and Health Sciences, Universiti Sains Islam Malaysia, Bandar Baru Nilai 71800, Nilai, Negeri Sembilan, Malaysia

ABSTRACT

Introduction: Global COVID-19 data sharing aids genomic surveillance and variant tracking. Regional variant tracking is vital as it allows the identification of novel mutations in SARS-CoV-2.

Objective: The project analysed the distribution and evolution of SARS-CoV-2 lineages in Negeri Sembilan using a time series analysis of viral samples sequenced SARS-CoV-2 from GISAID database.

Methods: 416 quality-assured SARS-CoV-2 sequences from Negeri Sembilan COVID-19 cases (Jan 2021-June 2022) and reference genome; hCoV-19/Wuhan/WIV04/2019 (WIV04) were studied from GISAID. Gene annotation used VIGOR (version 4.1.2), SNPs were extracted from GISAID and phylogenetic tree was constructed using the UPGMA method from whole completed genome sequences aligned with MAFFT, following the Maximum Composite Likelihood (MCL) model, uniform site rates, and a 1000-time bootstrap via MEGA X and visualize through iTol.

Results: Phylogenomic analysis identified 20 lineages from Negeri Sembilan, seven currently circulating. GRA, GK and O are major GISAID clades, with the GRA clade making up 60.4% of viruses. From GRA clade, 24.7% comprises Malaysian BA.1.1 lineage. A time series analysis showed that AY.79 (30% of total samples) was the primary lineage from July21 – Jan22. The lineage BA.1.1 recorded a spike of cases from Dec21 – Mac22. Sub-lineages from Malaysian (BA.2.40.1, BA.2.57 and BA.2.9) emerged from Apr-22 onwards. Viral evolution of SARS-CoV-2 suggests regionally tailored sub-lineages. Post-Oct21 lockdowns saw increased sequenced samples with Delta (B.1.617.2) and Omicron (BA.1.1, BA.2.40.1, BA.2.57 and BA.2.9) variants prevalent in Seremban and Tampin districts.

Conclusion: SARS-CoV-2 evolves at regional levels. Continuous data submission vital for tracking the evolutionary progress of SARS-CoV-2.

P7

Future Development for Quality of Life Research on Head and Neck Cancer Patients: Application from 10-year Bibliographic Analysis

GHAZALI SNA¹, MANAN HA^{2,3}, CHAN CMH⁴, NIK EEZAMUDDEEN M⁵, YAHYA N^{1*}

¹*Diagnostic Imaging and Radiotherapy, CODTIS, Faculty of Health Sciences, National University of Malaysia, Jalan Raja Muda Aziz 50300 Kuala Lumpur, Malaysia*

²*Functional Image Processing Laboratory, Department of Radiology, Universiti Kebangsaan Malaysia Medical Centre, Cheras 56000 Kuala Lumpur, Malaysia*

³*Department of Radiology and Intervention, Hospital Pakar Kanak-Kanak (Children Specialist Hospital), Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Kuala Lumpur, Malaysia*

⁴*Clinical Psychology and Behavioural Health Programme, REACH, Faculty of Health Sciences, National University of Malaysia, Jalan Raja Muda Aziz 50300 Kuala Lumpur, Malaysia*

⁵*Cancer Center MAKNA, Universiti Kebangsaan Malaysia Medical Centre, Cheras 56000 Kuala Lumpur, Malaysia*

ABSTRACT

Introduction: Improving the quality of life (QoL) is paramount following a diagnosis of head and neck cancer (HNC), leading to numerous studies in this field.

Objective: This bibliometric study explores the patterns and distributions of recent scientific works that focus on the QoL of the HNC population, aiming to assess the hotspots research area in future as a guide for new researcher, the potential collaborative countries for policy makers and also the potential higher need countries with high cases and mortality rate.

Methods: Data and bibliometric information were extracted from the Web of Science Core Collection (WOS-CC) and analyzed before visualized using R-package (Biblioshiny in bibliometrix package) and VOSviewer, respectively. The author's keywords were overlaid to visualize the current important keywords. Then, the number of multiple countries production were analyzed to illustrate the most collaborative countries. Lastly, the number of publications for each country were compared to GLOBACON database using the mortality and prevalence rate of HNC cases.

Results: From WOS, 444 articles were found and analyzed. Using the author's choice keywords from those articles, the significant relevant area for future development for this field were involve survivorship, dysphagia, malnutrition, pain, anxiety and oral health. The countries with the highest number of publications with multiple research centers involved were United Kingdom (n=10), United State (n=9) and Germany (n=7). There are few countries with high mortality and prevalence without any publications which included Russia, Cameroon, Kenya, Papua New Guinea and Afghanistan.

Conclusion: The new researcher in this field must focus more on recent topics and shall not reinventing the new wheels. The target countries for the policy makers in the higher need countries shall target to more collaborative partners to engage more powerful collaboration and potential existing of experts.

P9

Intrinsic Motivation: Excursion for Distinction

NOOR SUHAILA AB, NUR FARIHIN R, NAFISAH AR, FAIZ D

*Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan
Malaysia, Jalan Yaacob Latif, Cheras, Kuala Lumpur*

ABSTRACT

Introduction: Motivation theories are used to analyse, explain, and affect human behaviour. Intrinsic motivation refers to engaging in an activity for sheer enjoyment or personal satisfaction whereas extrinsic motivation engages in an activity to obtain external rewards.

Intrinsic Motivation: The comprehension of intrinsic motivation will significantly assist in propelling the quest for excellence in any field. The Cognitive Evaluation Theory explains how controlling rewards and communications tends to undermine intrinsic motivation in comparison to informational rewards and communication.

Excursion for Distinction: Different stages of an individual's life are associated with diverse journeys. During early years, it is crucial to support student learning and education, while also incorporating hobbies to inspire individuals. However, as they mature, the focus shifts towards fulfilling career and personal needs.

Healthcare Setting: The performance of the health sector relies heavily on the motivation of its workers, given the labor-intensive nature of healthcare delivery. As a leader, it is vital to enhance one's dedication to achieving excellence. Highly intrinsically motivated healthcare professionals, are more likely to find satisfaction in their roles, resulting in higher levels of commitment and loyalty to the organization. This focus can contribute to improved health outcomes and a more efficient and effective healthcare system.

Discussion: When intrinsic motivation is acknowledged and embraced, it makes it easier to develop courage for people to strive for uniqueness and personal development. This promotes strong organizational culture, inspires creativity, and ultimately boosts the value that is provided by the organization as a whole.

P10

Accelerated Stability Study and Quality Assessment of a Subcritical Water Extract of *Zingiber officinale* Roscoe (Ginger) Health Supplement

AZRAUL MUMTAZAH R^{1,3}, MAZLINA MS², JEN KIT T¹ AND SUZANA M¹

¹Department of Biochemistry, Faculty of Medicine, Universiti Kebangsaan Malaysia, Bandar Tun Razak, Cheras, Kuala Lumpur, Malaysia

²Centre of Drug and Herbal Research, Faculty of Pharmacy, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, Kuala Lumpur, Malaysia,

³Faculty of Health Sciences, University College of MAIWP International, Batu Caves, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Ginger demonstrates its ability to safeguard against oxidative stress and inflammation in ageing and degenerative disease development. However, the bioactive compounds present in ginger are vulnerable to degradation. To preserve these compounds and achieve the desired therapeutic effects, it is crucial to encapsulate them.

Objective: The objective of this study was to assess the stability and quality of ginger capsules during health supplement development.

Methods: The capsules were subjected to a temperature of $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ with a relative humidity of $75\% \pm 5\%$. The samples were then analyzed at regular intervals (0, 3, and 6 months) over a period of six months. The analysis included active compounds assay, physical, heavy metal, and microbiological analysis.

Results: The analysis revealed trace amounts of heavy metals in the preparation, although remained within acceptable limits. Moisture loss was observed to be higher at month 3 and month 6 compared to the baseline. The disintegration rate of the capsules was higher at month 3 compared to month 0, and significantly increased at month 6 compared to month 3. Regarding microbiological analysis, all microbial counts are within acceptable limits with the absence of *Escherichia coli* and *Salmonella*. In terms of the active compound assay, a significant decrease in 6-gingerol amount was observed at month 6 compared to month 0 and month 3. However, there was a significant increase in the 6-shogaol amount at month 6 compared to month 0.

Conclusion: The ginger preparation demonstrates good characteristics and quality for health supplement.

P11

Linkages Between Occupational Safety and Health (OSH) in Hospitals and Sustainability: An Overview

RAMESH J^{1,2}, JASMEET K³

¹*Department of Occupational Safety & Health, Hospital Taiping, Taiping, Perak, Malaysia*

²*Department of Community Health, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaakob Latif, Cheras, Kuala Lumpur, Malaysia*

³*Department of Medicine, Faculty of Medicine, University Malaya, Kuala Lumpur, Malaysia*

ABSTRACT

Introduction: Occupational Safety & Health (OSH) is a crucial aspect of any workplace, including hospitals. Hospitals are a unique environment where employees are exposed to a range of hazards, including infectious diseases, chemical exposures, and ergonomic risks. Therefore, it is essential to establish and maintain OSH programs in hospitals to protect employees' health and safety.

Objective: To ensure and maintain a healthy and safe working environment, hospitals should constantly identify and prevent all factors that could provoke work-related injuries and diseases.

Methods: The research is conducted on the material of several documents in the sphere of OSH and sustainability and reviewing studies on the effectiveness of programs on OSH and sustainability outcomes.

Results: There are several components of an effective OSH program in hospitals where it involves hazard identification and risk assessment. Hospitals should regularly assess their work environments to identify potential hazards and implement controls to reduce risks. Another critical component of OSH in hospitals is training and education. Hospital employees should receive regular training on workplace hazards and how to protect themselves. Sustainability is also becoming an increasingly important issue in hospitals. Hospitals consume vast amounts of resources, including energy, water, and materials, and generate significant amounts of waste. Therefore, hospitals must develop sustainable practices to reduce their environmental impact and improve their long-term viability.

Conclusion: OSH and sustainability are both critical issues in hospitals. Effective OSH programs can help protect employees from workplace hazards, while

sustainable practices can reduce hospitals' environmental impact and promote long-term viability.

Keywords: Hospitals; occupational safety and health; sustainability

P12

Specialist Behaviour: The Loose Value of Mindless Life

HANIS AR, SHARIFAH MAZIAH SS, FAIZ D

Department of Public Health Medicine, Faculty of Medicine, National University of Malaysia, Malaysia

ABSTRACT

Introduction: Mindfulness is the awareness of one's thoughts, emotions, and surroundings in the present moment, which leads to emotional regulation, stress reduction, and enhanced well-being. Mindfulness practice offers numerous benefits, not only to the individual in his or her capacity as a person, but also to organizations.

Methodology: A keyword search was performed in the search engine using the English key topic terms "mindfulness" AND "behavio*r" AND "specialist*" OR "professional*." Document screening was performed, and 15 articles were retained for full review. Two themes were developed for further discussion.

Result: Mindful behaviour can be cultivated among medical and health specialties through intention and meditation. Intention is the deliberate orientation of consciousness towards the present moment, which motivates, directs, anchors, and instills conscious reaction. Besides that, Meditation can also substantially enhance a patient's safety culture, competency, and empathy development.

Conclusion: Establishing a clear objective, translating one's purpose into concrete acts, using reminders or cues, and communicating one's intentions to others are all ways one might put one's intention into action. Muslim prayer (salat), yoga, MBSR, and relaxation breathing are all mindfulness meditation practices. Mindfulness improves patient management and organization quality, preventing medico-legal and misdiagnosis, enhancing patient health, and managing outbreaks and disasters. In addition, empathy growth through self-awareness helps people understand themselves and others. Thus, mindfulness meditation improves patient care through empathy and safety.

Keywords: Intention; meditation; mindfulness; mindlessness; specialist behaviour

P13

Cost Analysis of Respiratory Illnesses Inpatients in HCTM: A Comparison between SARI and AEBA

KIRAN GANESH B, MOHD RIZAL AM, MOHD ROHAIZAT H

Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia (UKM), Jalan Ya'acob Latiff, Bandar Tun Razak, Cheras, Kuala Lumpur, Malaysia

ABSTRACT

Background: Respiratory infections are the leading cause of hospitalisation worldwide, and viruses cause the overwhelming majority of respiratory tract infections. This study compares the costs of severe acute respiratory infection (SARI) and acute exacerbation of bronchial asthma (AEBA), the two most common acute respiratory illnesses admissions.

Method: A cross-sectional study was conducted in Medical Wards of Hospital Canselor Tuanku Muhriz (HCTM), Cheras, Malaysia from 1 August till 31 December 2022. Simple random sampling identified 17 SARI and AEBA inpatients. Medical records of these inpatients were collected from Medical Record Department and entered into Microsoft Excel. Administrative departments provided additional financial and human resource data. Activity-based and step-down costing performed. Total cost was computed by adding direct and indirect/overhead costs. Indirect patient cost was excluded.

Results: Out of these 17 patients for each AEBA and SARI, AEBA hospitalised more younger patients than SARI. Both groups had statistically equivalent demographic and clinical features. Average SARI treatment cost is RM1,587.11, while AEBA RM1,214.41. SARI patients spent RM113.89, RM104.51, and RM57.78 more on consumables, medications and laboratory & imaging than AEBA patients. The average length of stay (ALOS) for AEBA is 3.5 days, while SARI is 6.3 days. SARI patients needed longer respiratory assistance and antibiotics or antivirals. Overhead costs also contribute to cost differences.

Conclusion: AEBA inpatient admissions are cheaper than SARI. Targeted treatments like high-risk immunisation, hand hygiene campaigns, routine disinfection of public items, and public education campaigns can minimise SARI cases and eventually healthcare costs.

P14

Retirement Village in Malaysia-Aging Gracefully and Preserving Independence

SITI BAZLINA MR, FARAH KHALIDA AR, FAIZ D

Department of Public Health Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, 56000 Bandar Tun Razak Cheras, Kuala Lumpur

ABSTRACT

Introduction: The existing healthcare infrastructure, retirement homes, and other facilities intended for the elderly and retired population, as established by both public and private entities, are found inadequate in meeting the comprehensive needs of the elderly. Over the past ten years, retirement villages have gained popularity and acceptance among the elderly population. It is imperative to clarify that the notion of a retirement village does not serve as a facility for the provision of care for disabled or neglected senior citizens. Rather, it is a setting where measures are implemented to enhance the standard of living for the elderly.

Objective: The aim of this study is to explore the relevance of retirement villages for senior citizens in terms of their advantages and disadvantages in Malaysia.

Methods: This study implemented a comprehensive literature review on retirement villages that have been carried out in Malaysia and other counties.

Results: The notion of a retirement village encompasses three social trends: the medicalization of ageing, the emergence of positive-ageing institutions, and the enhancement of lifestyle. A retirement village is one of the options for senior citizens that provide senior-appropriate housing, as well as services and facilities, to meet the requirements of senior citizens. However, the disadvantages are high resident costs, low penetration level, sustainability issues and lack of policy and legal support.

Conclusion: Even though the industry is still in its infancy and faces several difficulties, the retirement village market has expanded gradually in Malaysia and a sustainable legal framework would encourage more developers and stakeholders, particularly the elderly to participate in the project, as they would be more confident in its sustainability. The establishment of a legal framework is imperative in safeguarding the rights of residents and facilitating the operator in acquiring legal recognition.

P15

Exploring the Link between *Porphyromonas gingivalis* and Alzheimer's Disease: A Comprehensive Review of Human and Animal Studies

AHMED H, KUMARENDRAN B, AHMAD TARMIDI S, NURRUL SHAQINAH N

Department of Craniofacial Diagnostics and Biosciences, Faculty of Dentistry, University Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, Kuala Lumpur 50300, Malaysia

ABSTRACT

Introduction & Objective: This study aims to investigate the association between *Porphyromonas gingivalis* (*P. gingivalis*) and Alzheimer's disease (AD). The main objective is to conduct a comprehensive meta-analysis to determine whether *P. gingivalis* infection is linked to the development and pathogenesis of AD.

Methods: A systematic search was performed on PubMed, identifying relevant studies from inception to January 18, 2023. After applying inclusion criteria, 27 studies were included for analysis. A random-effect meta-analysis calculated the pooled odds ratio (OR) and hazard ratio (HR) to assess the association between *P. gingivalis* infection and AD. Additionally, a qualitative synthesis of 20 animal studies focused on inflammation and animal models.

Results: The meta-analysis revealed a strong positive correlation between *P. gingivalis* and AD. Infected individuals had a higher likelihood of developing AD, with a pooled OR of 2.45 (CI: 1.80-3.33). The HR analysis showed an increased risk of AD development, with a ratio of 1.06 (CI: 1.06-1.11). Animal studies primarily utilised a murine model, highlighting the inflammatory effect, while other animal species were underrepresented.

Conclusion: This meta-analysis provides evidence supporting the association between *P. gingivalis* and AD, suggesting its potential role in AD pathology. Further research is needed to understand the underlying mechanisms and therapeutic implications of *P. gingivalis* in AD. Diversifying animal models beyond murine models would enhance our understanding. Addressing oral health, particularly targeting *P. gingivalis* infection, may have implications for AD prevention or management. Future investigations should explore therapeutic interventions targeting *P. gingivalis* for AD prevention or treatment.

P16

Malaysian Medical Council (MMC): Successful Acquisition of National Specialist Register (NSR)

NAFISAH AR, NOOR SUHAILA AB, NUR FARIHIN R, FAIZ D

Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Cheras, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Organizational change involves implementing modifications in organization's structure, processes, or culture to improve efficiency, foster innovation, and adapt to emerging challenges. Malaysian Medical Council (MMC) is a regulatory body for medical practitioners in Malaysia who has embarked on transformative organizational change since enforcement of Medical Act 1971 (Amendment 2012), which mandated MMC to regulate specialists and steer the management of National Specialist Register (NSR). This study aims to explore change management strategies, challenges, and outcomes in relation to this significant transition.

Methodology: Qualitative study through in-depth interviews with top management of MMC.

Result: Successful change strategies in taking over NSR management require strong leadership, comprehensive planning, clear communication with stakeholders, and employee involvement and training. The transformation involves multiple stakeholder engagements and two phases of Memorandum of Agreements (MOA) between MMC and Academy of Medicine Malaysia (AMM) in relation to administration, finance, human resource, and technologies. The functions were also handed over gradually starting from employee training rotations, absorption of AMM officers, relocation of NSR office and development of specialist registration module in the new Medical Register Information and Technical System (MeRITS). Challenges include organizational communication, system adaptation, data management, human resource and financial sustainability, and lack of technological infrastructure and expertise. In future, MMC aspires to develop a user-friendly portal that integrates all organization functions accessible via mobile phones. This will enhance organization's efficiency and elevate user experience.

Conclusion: Malaysian Medical Council's organizational change highlights strategic planning, stakeholder engagement, and visionary leadership for successful transformations in complex regulatory environments.

P17

A Review on Controlling Children's Internet Use: A Framework for Parents

DINA SYAZANA HO IH, SITI NORAIN S AND FAIZ D

Department of Community Health, Faculty of Medicine, University Kebangsaan Malaysia, Kuala Lumpur 50300, Malaysia

ABSTRACT

Introduction: The integration of digitalization has become a fundamental aspect of a child's upbringing in today's society. With the increasing presence of media and technology in children's lives, parents face the risks associated with their children's internet usage and the ongoing responsibility of managing internet access at home. Recognizing the popularity of digital and online devices among young people, parents must address the issue of internet mediation to mitigate the adverse effects of digital media on children's physical, cognitive, and social well-being.

Objective: This review was conducted to explore the existing frameworks for parental digital mediation in managing children's internet use.

Methods: Literature were gathered from 3 search engines; PubMed, Web of Science and Ovid Medline. Keywords search were performed in the search engines. 19 articles were selected for full review.

Results: Drawing insights from a review of various theories and literature, we propose a holistic approach to parental internet mediation. Firstly, we discuss a transactional framework of parenting that emphasizes the dynamic relationship between parental awareness, parental self-efficacy, and parental mediation, which is influenced by parent-child characteristics. The parenting approach adopted by parents and its impact may vary depending on individual and contextual factors. Therefore, it is crucial to consider these factors systematically when establishing an effective framework for parental internet mediation. Secondly, we examine the behavioural aspects encompassed in the talk, educate, co-view, and house rules (TECH) parenting model, which addresses important behavioural targets for parents managing internet usage among pre-adolescent children.

Conclusion: This contribution offers an innovative and comprehensive methodological and analytical perspective for developing a comprehensive parental framework to regulate children's internet usage.

P18

Healthcare Marketing: The Inverted Industry

SITI NAJIHA MA, NURNABIHAH MH, FAIZ D

Department of Public Health Medicine, Medical Faculty, Universiti Kebangsaan Malaysia (UKM)

ABSTRACT

Introduction: Healthcare marketing refers to the strategic initiatives and techniques used to sell healthcare organizations, facilities, and services to specified target markets. The concept of the inverted industry in healthcare marketing refers to a shift in focus from traditional marketing practices centered around promoting healthcare services to a patient-centered approach that emphasizes enhancing the overall patient experience and driving service utilization.

Objective: This article aims to highlight the concept of healthcare marketing as inverted industry with the strategies and challenges in implementation.

Method: A comprehensive search was conducted using Google scholar and Pubmed. The articles were searched with keywords “healthcare marketing”, “medical marketing” and “inverted industry”.

Results: The primary objective of healthcare marketing is to generate awareness, enhanced visibility of the services and acquire or retained patients. In the past, healthcare marketing primarily revolved around promoting services and increasing patient volumes. The focus was on highlighting the expertise and capabilities of healthcare organizations and enticing patients to choose their services. However, with the rise of patient-centred care, there has been a paradigm shift toward prioritizing the needs and preferences of patients.

Conclusion: Healthcare marketing in the inverted industry focusing on services requires the adoption of strategic approaches to promote and enhance healthcare services. By leveraging branding, patient experience enhancement, digital marketing, and patient engagement initiatives, healthcare marketers can effectively promote services and improve patient satisfaction.

P19

Ginger (*Zingiber officinale* Roscoe) Reduces Damaged DNA and Improves Bone Integrity and Muscular Function in an Animal Model of Ageing

NURUL TIHANI KAMARULZAMAN, JEN KIT TAN AND SUZANA MAKPOL

Department of Biochemistry, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur

Corresponding author email: p106460@siswa.ukm.edu.my

ABSTRACT

Introduction: The greatest significant influence on human life span and health is inevitable ageing. One of the distinguishing characteristics of ageing is the gradual decrease of muscle mass and physical function, often known as sarcopenia. Identifying the compounds and their mechanisms that induce increases in muscle mass and function during ageing is crucial to improve human well-being. *Zingiber officinale* Roscoe (ginger) has been shown to possess anti-ageing, antioxidant, and anti-inflammatory properties, which delay the onset of degenerative diseases due to the presence of their active compounds gingerol and shogaol.

Objective: This study aimed to elucidate the effect of ginger extract on damaged DNA, bone integrity and muscular function in an animal model of ageing.

Methods: Sprague Dawley (SD) rats were given either distilled water or ginger extract at a dose of 200 mg/kg body weight (BW) daily via oral gavage for three months when their age reached 3 months (young), 9 months (adult), and 21 months (old) old. Muscle performance, function, and bone integrity were measured at 0, 1.5 and 3 months of ginger treatment using the Weight-loaded Swim Test (WLST) and dual-energy X-ray absorptiometry (DXA). At the same time, damaged DNA was determined by Comet assay.

Results: The ginger-treated group of rats showed a significantly lower body weight throughout the treatment than untreated control rats. Increased bone mineral content (BMC), bone mineral density (BMD), and lean mass plus BMC after 1.5 and 3 months of ginger treatment in both ginger-treated and untreated control young rats. The fat percentage was significantly higher in ginger-treated young rats after 3 months of treatment compared to the untreated control ($p < 0.05$). A similar increase

in BMC was observed after 1.5 and 3 months of ginger treatment in both ginger-treated and untreated control adult rats ($p < 0.05$). Ginger treatment for 3 months significantly increased the BMC in adult rats ($p < 0.05$). The BMD was significantly lower in untreated control adult rats ($p < 0.05$), which was increased with 3 months of ginger treatment ($p < 0.05$). The percentage of fats was significantly higher after 3 months of ginger treatment for both ginger-treated and untreated control adult rats ($p < 0.05$). However, no significant change was observed in the old group of rats. The WLST was significantly reduced in untreated young and adult rats, which was increased with ginger treatment after 1.5 and 3 months ($p < 0.05$) in young rats and after 0, 1.5 and 3 months of ginger treatment in adult rats ($p < 0.05$). Damaged DNA was significantly higher in untreated adult rats, as indicated by the increase in tail length, tail DNA percentage, tail moment and olive moment ($p < 0.05$). After 1.5 months of ginger treatment, the tail DNA percentage, tail moment and olive moment in adult rats significantly decreased and increased after 3 months of treatment ($p < 0.05$). In old rats, DNA damage was improved in ginger-treated rats at 0 months, as indicated by a decrease in tail length, tail moment and olive moment ($p < 0.05$).

Conclusion: The treatment of *Zingiber officinale* Roscoe in SD rats has shown promising results in reducing DNA damage, improving muscle function, and enhancing bone integrity. This may lead to a decrease in oxidative stress and a delay in the onset of sarcopenia.

Keywords: Ageing; bone integrity; DNA damage; ginger; muscle performance; sarcopenia

P20

A Guidebook Development and Validation for Empowering Caregivers in Enhancing Daily Function of Older Adults with Stroke

ISMA HANIS AG^{1,2}, NOR AFIFI R¹, MASNE K¹ AND ROHANA M³

¹*Center for Rehabilitation and Special Needs Studies (ICaRehab), Occupational Therapy Programme, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur 50300, Malaysia*

²*Occupational Therapy Unit, Balik Pulau Hospital, 11000 Balik Pulau, Pulau Pinang*

³*Medical Rehabilitation Services Department, Hospital Cencelor Tuanku Muhriz Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, 50600 Cheras, Kuala Lumpur*

ABSTRACT

Introduction: A competent caregiver is important in supporting older stroke patients to enhance their daily function. This contributes to shorter hospital stays, fewer hospital returns, and decreased risks of complications and mortality. However, inconsistent caregiver training from healthcare practitioners, including occupational therapists (Ots), leads to incompetent caregivers.

Objective: This study aims to develop dan validate a caregiver training guidebook for Ots to empower caregivers in enhancing the daily function of older adults with stroke.

Methods: A mixed-method design was used in this study. All Items in this guideline were validated by nine experts in Focus Group Discussion (FGD) and six Ots in cognitive interviews. The expert panels consisting of academicians and clinicians were recruited using purposive sampling. The expert panel was required to rate the guidebook using Cohen Kappa Index (CKI) and Content Validity Index (CVI). The thematic analysis was used to analyze the qualitative study.

Results: The guidebook comprises three parts, encompassing 11 topics and 72 subtopics. It emphasized a structured process, client-centered approach, personalized goal-setting, problem-solving skills, post-discharge support, and user-friendliness for occupational therapists, caregivers, and older adults. A finding of CKI and CVI reported excellent face and content validity, with values of 1.0. The cognitive interview reported the guidebook is comprehensiveness and user-friendly in nature.

Conclusion: The caregiver guidebook's strong validity calls for more research on its real-world effectiveness. With its potential recognized, integrating the guidebook into Malaysia's healthcare, especially in occupational therapy, could enhance elderly care effectively.

P21

Health Gross Domestic Product (GDP): The Idealist Phenomena

MISRA HELMA F, NUR ATIQA MA, MOHD FAIZ D

Department of Public Health Medicine, Faculty of Medicine, National University of Malaysia, Jalan Yacob Latif, Bandar Tun Razak 56000 Cheras, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Malaysia's population's health has advanced to a level comparable to that of certain developed countries. This achievement is due to Malaysia's effective dual healthcare system and the equitable distribution of healthcare financing across the population toward the Sustainability Development Goal (SDG).

Objective: The articles aim to highlight the concept of idealist Health care finances, its impact on health outcomes, and potential areas for future improvement.

Methods: A comprehensive search was conducted from various journal databases such as Google Scholar, PubMed, and Scopus using a keyword "Health Expenditure", "GDP," "Malaysia," and "Idealist" to narrow down the search results.

Results: Malaysia is unique due to its multi-ethnic population as well as its social and cultural diversity. According to the DOSM report, Malaysia, which has a population of 33.57 million people, has achieved a level of health to be proud in 2021. Malaysia's health GDP in 2021 is 4.12% which is below the average global and Asia and Western Pacific Region. However, generally Malaysians' health is better than other developing countries and comparable to developed countries such as Singapore and the United States.

Conclusion: Malaysia has made significant progress in terms of healthcare spending, and it is now on par with developed countries in terms of healthcare implementation and equitable funding distribution. Malaysia can further improve its healthcare system and strive for optimal health outcomes for its people through health education programs, policy formulation, financial budgeting, and community outreach health services to achieve universal health coverage.

P22

Medical Tourism: The Fallacy of Judgement

NOR ALIYA A, NOR AZILA MA, MOHD FAIZ D

Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, 56000, Cheras, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: The medical tourism industry has gained popularity in recent years and contributes to global economic growth. Tourists from developed countries benefit the most from this, as the medical services are provided mostly by developing countries at much lower costs compared to their own countries. However, misguided decision-making regarding medical tourism destinations will lead to a fallacy of judgment.

Objective: This article aims to highlight medical tourism's impacts, advantages and disadvantages and contributing factors towards the fallacy of judgement.

Methods: A comprehensive search was conducted using Google Scholar, PubMed and Scopus. The articles were searched with the keywords "medical tourism", "health tourism", "impact", "benefit", "determinants" and "reason". The references were limited to articles within 10 years' time.

Results: Medical tourism has brought positive impacts such as economic benefits and enhanced healthcare quality, but it also resulted in negative outcomes such as brain drain and healthcare access disparities among the population. Meanwhile, the fallacy of judgement cause dissatisfaction, physical harm, or complication arising from ineffective or inappropriate treatments given. Factors that contribute to this include individual experience (through traditional word-of-mouth and social media), enticing advertisements, exaggerated claims and promotions, and inadequate information and regulations that led to unrealistic results and unethical advertisements.

Conclusion: In order to mitigate the fallacy of judgment in medical tourism, tourists need to have awareness and education regarding conducting extensive investigation or information collection about the choice of healthcare facilities, the accreditation status, procedures and treatment desired. This is to ensure they make rational and evidence-based decisions.

P23

The Effect of Acute Aerobic Exercise on Hands-only Cardiorespiratory Resuscitation Knowledge and Performance

HAFIZAH H¹, MOHD HISHAM MI², ISMAIL MS², AZLAN HELMY AS², NORLIZA S¹, AMIZA H¹, ZANARIYAH A¹, NORSHAFILA DIANA MR¹, NORIZAM S¹, NUR AIN M³, AMILIA A^{1*}

¹Department of Physiology, ²Emergency Department, Faculty of Medicine, Universiti Kebangsaan Malaysia, 56000 Kuala Lumpur, Malaysia

³Department of Professional Nursing Studies, Kulliyah of Nursing, International Islamic University Malaysia, 25200, Pahang, Malaysia

ABSTRACT

Introduction: Aerobic exercise is well recognised for its multiple health benefits, such as increased cardiovascular fitness and weight reduction. Interestingly, an acute bout of aerobic exercise has also been shown to improve learning and cognitive function. Nonetheless, the relationship between acute aerobic exercise and hands-only cardiorespiratory resuscitation (CPR) learning has yet to be elucidated.

Objective: The purpose of this study was to investigate the effect of acute aerobic exercise on knowledge of cardiorespiratory resuscitation and skill acquisition through learning.

Methods: A total of 50 participants (31.12 ± 5.00 years) were included in this study. They were randomised to either exercise or control groups (non-exercise). The exercise group completed a 30-minute exercise intervention (running on a treadmill at a moderate intensity of exercise). CPR knowledge and skill acquisition were assessed pre-and post-intervention. The mean difference in CPR knowledge and skill score pre- and post-intervention was compared within and between groups using Analysis of Covariance (ANCOVA).

Results: Overall, the CPR knowledge and skills improved from pre-test to post-test for both groups indicating that all participants benefited from their CPR training. However, the improvement of score for knowledge in the exercise group was higher compared to the control group. For score in CPR skills, the exercise group also performed significantly better compared to the control group.

Conclusion: Acute aerobic exercise significantly influenced CPR learning positively. Such results support that acute aerobic exercise may improve cognitive function and learning process.

P25

Virtual Reality in Medicine – The Evil Technology

SHAHRUL AZHAR BIN MH, MUHAMMAD RIDZWAN R, FAIZ D

Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Bandar Tun Razak, 56000, Cheras, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Virtual Reality (VR) technology has been around for several years and has recently become more accessible to consumers. There has been a growing interest in using VR technology in a variety of healthcare fields especially in curative, rehabilitative, health education, health promotion and outreach program. However, the use of VR technology in medicine has also raised concerns about its potential detrimental impacts on patients and the healthcare system.

Objective: The purpose of this article is to weigh side effects or drawbacks of VR technology in medicine.

Methods: A review of the literature was conducted using electronic databases Google Scholar, PubMed and Scopus. Open access articles produced between year 2000 to 2021 were searched with an emphasis on keywords “virtual reality”, “clinical medicine”, “education”, “drawbacks” and “impact”.

Results: VR in medicine faces significant costs due to expensive hardware, specialized software, and ongoing maintenance. This can hinder widespread adoption and potential benefits in limited resources and smaller facilities, which leading to sub-optimal usage and reduced effectiveness. Cyber sickness arises due to the disparity between visual and vestibule inputs combined with uncondusive environment. This discomfort can limit the duration of VR sessions and render the technology unusable for certain individuals. Overuse of VR can have detrimental effects on psychosocial wellbeing and social interaction. VR also poses concerns over the privacy and security of electronic health information. The incorporation of VR technology into healthcare processes has logistical challenges, including the necessity for specialised networks, training and familiarisation of healthcare personnel, and provider opposition. Replicability of VR in applying learned skills and information to real-world circumstances is difficult and constrained.

Conclusion: It is critical that we take into account any potential negatives and take action to lessen them as we continue to develop and enhance virtual reality technology into healthcare sector.

P27

Methicillin-Resistant *Staphylococcus aureus* (MRSA) Clonal Type Affects Host Survival in a *Caenorhabditis elegans* Model

MOHD AZRUL HISHAM I, ROSNIZA BINTI MH, NURUL AMIRAH BINTI MF, HUI-MIN N*

UKM Medical Molecular Biology Institute (UMBI), UKM

ABSTRACT

Introduction: Recently, methicillin-resistant *Staphylococcus aureus* (MRSA) strains isolated from Hospital Canselor Tuanku Mukhriz (HCTM) showed a ST239-SCC*mec* type III-SCC*mercury* to ST22-SCC*mec* type IV clonal change.

Objective: This study was carried out to investigate the killing effect of different MRSA clones on host survival using a *Caenorhabditis elegans* model.

Methods: Seventeen MRSA strains isolated from HCTM were tested in this study. Ten of these strains were of ST239-SCC*mec* type III-SCC*mercury*, while another seven were of ST22-SCC*mec* type IV. Killing effect of the tested bacteria on *glp-4* was further evaluated using a 5-day liquid medium survival assay. Each strain was introduced to 10 worms in liquid media. Worm survival was monitored and recorded daily for 5 days; the experiment was conducted in triplicates. Worm survival (%) during experiments was plotted against time (day) in Kaplan-Meier plots.

Results: Worms that were introduced to ST22-SCC*mec* type IV showed lower survival rates compared to worms introduced to ST239-SCC*mec* type III-SCC*mercury* strains. Interestingly, most worms infected with ST22-SCC*mec* type IV were not able to survive until day-5 of the assay; most of the worms died during the first three days of the assay. In contrast, worms introduced to ST239-SCC*mec* type III-SCC*mercury* showed better survival, where more worms survived until the last day of the assay.

Conclusion: The recent HCTM MRSA clone ST22-SCC*mec* type IV appeared to cause faster killing of *C. elegans* host compared to the previously dominant ST239-SCC*mec* type III-SCC*mercury*. It remains to be investigated if this observation is also found in the clinical setting.

P28

In Vitro* Inhibitory Activity of Human Milk Isolates of *Lactobacillus* spp. against *Streptococcus mutans

ZALEHA S¹, FAIRUZ NUR HANNAH L², NURUL ATIKAH MT²

¹*Department of Craniofacial Diagnostics and Biosciences, Faculty of Dentistry, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300 Kuala Lumpur, Malaysia*

²*Faculty of Dentistry, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300 Kuala Lumpur, Malaysia*

ABSTRACT

Introduction: Several studies have demonstrated a diversity of bacterial species in human milk, even in aseptically collected samples.

Objectives: The present study evaluated potential lactic acid bacteria with probiotic properties isolated from mature human milk and their cell-free supernatants in inhibiting the growth of *Streptococcus mutans*.

Methods: Milk samples were collected from 5 healthy women who delivered babies within 1-4 months. The milk sample was cultured on MRS agar under anaerobic conditions. Bacterial isolates were selected and identified.

Results: Out of 10 identified *Lactobacillus* spp. colonies, three isolates designated as strains SUK1, SUK2, and SUK3 were selected and tested their cells and cell-free supernatants against *Streptococcus mutans* ATCC 25175, a causative agent of dental caries. All *Lactobacillus* spp. strains SUK1, SUK2, and SUK3 show the ability to inhibit the growth of *S. mutans* with different efficacies. *Lactobacillus* sp. strain SUK2 and its cell-free supernatant showed higher inhibitory activity against *S. mutans*, followed by strains SUK3 and SUK1 using an agar well diffusion test. The bacterial growth in a single and mixture species confirmed that *Lactobacillus* sp. SUK2 exhibited higher inhibitory activity against *S. mutans* compared to the other strains.

Conclusion: This proves that the inhibition process that occurs against *S. mutans* is caused by the cellular components of *Lactobacillus* spp. and their metabolites, which are secreted extracellularly. Since *Lactobacillus* sp. strain SUK2 has a high potential to inhibit *S. mutans*, the purification of the bacteriocin product, which is a natural antibiotic secreted by *Lactobacillus* sp. SUK2 is important to be evaluated in further study.

P29

Investigating the Efficacy of Antimicrobial Peptides on Clinical *Helicobacter pylori* Strains

SITI NUR ARIFAH AA¹, ALFIZAH H¹, ZARITH NAMEYRRA MN¹ & NUR AZLINA MF²

¹Department of Medical Microbiology & Immunology, Faculty of Medicine, Universiti Kebangsaan Malaysia, 56000 Cheras, Kuala Lumpur, Malaysia

²Department of Pharmacology, Faculty of Medicine, Universiti Kebangsaan Malaysia, 56000 Cheras, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: *Helicobacter pylori* infection causes chronic gastritis, peptic ulcers, and gastric cancer. Antibiotic resistance in *H. pylori* substantially hinders the efficacy eradication regimens leading to eradication failure in most of the infected patients. Therefore, the discovery of new drugs for *H. pylori* is urgently needed.

Objective: The aim of this study was to investigate the efficacy of antimicrobial peptides (AMPs) in inhibiting the growth of antibiotic-resistance of *H. pylori*.

Methods: Broth microdilution Method was used to determine the minimum inhibitory concentration (MICs) of AMPs and antibiotics. Twelve clinical strains of *H. pylori* were tested against three antibiotics such as levofloxacin, metronidazole, and clarithromycin and three AMPs such as human cathelicidin LL-37, human neutrophil peptide-1 (HNP-1), and derivative of L-Cateslytin (D-Ctl). MIC values were determined using growth indicator reagent.

Results: The MICs range of the antibiotics against *H. pylori* strains were as follows: metronidazole 4 - >512 µg/ml, clarithromycin < 0.25 – 128 µg/ml and levofloxacin <0.03125 – 8 µg/ml. The MICs range of AMPs were as follows: cathelicidin (LL-37) 4 - >32 µg/ml, HNP-1 8 - >32 µg/ml and D-Ctl 32 - > 32 µg/ml. MIC₅₀ and MIC₉₀ for metronidazole was 32 µg/ml and 128 µg/ml, respectively. MIC₅₀ and MIC₉₀ for clarithromycin was 8 µg/ml and 32 µg/ml respectively. MIC₅₀ and MIC₉₀ for levofloxacin was 8 µg/ml and 32 µg/ml, respectively. All AMPs show MIC₉₀ of >32 µg/ml.

Conclusion: AMPs tested in this study show less efficacy against clinical *H. pylori* strains. Further study is needed to understand the mechanism of AMP resistance.

P30

Augmented Reality in Healthcare

FATHIAH J, NUR FADHILAH Z, FAIZ D

*Faculty of Public Health Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif,
56000 Bandar Tun Razak Cheras, Kuala Lumpur*

ABSTRACT

Introduction: Technological advancements have made augmented reality (AR) technology more accessible to various industries, including medicine. With the ability to overlay digital information onto the real-world environment, AR offers new solutions to improve the medical field.

Objective: This article aims to explore the application of AR in healthcare services and delivery, its benefits, challenges and limitations.

Methods: A comprehensive literature search was done using Web Of Science, SCOPUS, PubMed and Google Scholar. Keywords used were 'Augmented Reality', 'Health Services', 'benefit', 'limitation', and 'challenges and references were limited to the past ten years.

Results: In recent years, AR has been used in healthcare in various ways, possibly due to improved accessibility. Medical education, the surgical field, patient treatment and care, rehabilitation and therapy are some of the areas under the medical field with various AR integration. Examples include anatomical learning in medical school, wound treatment and monitoring, and clinical procedure training via simulation. It has also been piloted in a few surgical procedures. Enhancing patient engagement and education, optimizing workflow, and improving spatial understanding and visualization are among the benefits of AR in healthcare. Despite advancements in AR technology, there are still limitations to AR implementation, such as technical challenges in integrating AR with current healthcare services and the acceptability and adaptability of AR by the medical community and practitioners. There are also governance challenges, including ethical issues that may arise when using any other technology requiring information gathering from patients and the lack of set guidelines or standards on AR application.

Conclusion: Future advancements in hardware and software, further research, and improved governance will be required to provide more opportunities for incorporating AR technology into healthcare and delivering quality patient care.

P31

Post-COVID-19 Syndrome and Associated Pre-Existing Comorbidities: A Systematic Review

NUR INSYIRAH S¹, ANIZA I¹, AZNIDA FIRZAH AA², RUHANA SAR¹

¹Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

²Department of Family Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: Published studies recorded that 30-50% of COVID-19 survivors exhibit persistent post-COVID-19 syndrome (PCS) symptoms for up to one year. Accordingly, current evidence on risk factors associated with PCS is limited and heterogenous, particularly on existing premorbid conditions.

Objective: This review aimed to investigate pre-existing comorbidities associated with PCS development.

Methods: A comprehensive literature search was conducted via PubMed, Scopus, and Web of Science databases for studies investigating previous comorbidities as risk factors for PCS among adults (≥ 18 years old) followed up for at least 12 weeks. The MeSH search terms were post-COVID syndrome, long-COVID, comorbidities, pulmonary, cardiovascular, and metabolic. Observational studies published in English language, up to 31st March 2023 were included. Case reports, reviews, and non-original articles were excluded. Two independent authors evaluated the included studies using the STROBE checklist.

Results: A total of 1473 references were identified and screened, leaving 21 articles for analysis. The identified medical comorbidities significantly associated with PCS were pulmonary ($n = 8$), cardiovascular diseases ($n = 6$), metabolic abnormalities ($n = 5$), and others ($n = 2$). The most common diseases identified were asthma (OR 2.14, 95% CI 1.55-2.96), hypertension (OR 1.64, 95% CI 1.04–2.61), diabetes mellitus (OR 1.11, 95% CI 1.02-1.21), and obesity (OR 1.39, 95% CI 1.32-1.48).

Conclusion: Our review showed that COVID-19 patients with asthma, hypertension, diabetes mellitus, and obesity had higher risks of developing PCS. Hence, patients with these comorbidities required additional attention to allow a more specific medical approach to optimise patients' physical functioning and quality of life improvement.

P32

Effect of Hyaluronic Acid/Collagen-Based Hydrogel to Modulate Pain and Tissue Repair in a Rat Model of Intervertebral Disc Degeneration

NUR ARINA AMIRA H¹, RUSYDI MR¹, MOHAMMAD ALI ZUHDI A¹, NAJWA SYAKIRAH MR¹, INTAN SOFIAH MN², NUR ATHIRAH AB², MUHAMMAD HAFIZUDDIN ARIFF H², PUTERI NUR ANEESAH MSI², RAED HO¹, AHMAD HAFIZ K², AHMAD LUQMAN AS³, NURUL HUDA MY¹, SHAIFUL RIDZWAN S¹, NUR AQILAH K¹, AMINATUL SAADIAH AJ³, SABARUL AM^{2*}, ISMA LIZA MI^{1,4*}

¹Department of Anatomy, ²Department of Orthopaedics and Traumatology, Faculty of Medicine, Universiti Kebangsaan Malaysia

³Department of Health Industry Technology, Faculty of Science and Technology, Islamic Science University Malaysia

⁴CÚRAM, SFI Research Centre for Medical Devices, School of Medicine, University of Galway, Ireland

ABSTRACT

Introduction: Intervertebral disc (IVD) degeneration is one of the primary causative factors for low back pain, affecting between 26% to 42% of the population. There is no regenerative nature of current treatment. We propose a biomaterial system using hyaluronic acid (HA) and type II collagen (COLII)-based hydrogel as a potential treatment to promote tissue repair targeting pain.

Objective: To evaluate the efficacy of HA/COLII-based hydrogel in preventing pain behaviour (mechanical allodynia) and determine the disc hydration level by MRI.

Methods: Eighteen female rats (Sprague Dawley) were used in the study, with n=6 for each group of sham, non-treated injury and injury with treatment hydrogel 2 mg/ml. We implanted HA/COLII hydrogel (4 ul) following surgically induced disc injury at coccygeal discs (Co4-Co5 and Co5-Co6) in the rat tail. We assessed the pain behaviour for mechanical allodynia using the von Frey test in rats on pre-operative day 2 and post-operative days 7, 14 and 29. Using MRI on day 29 post-operatively to determine disc hydration.

Results: Data presented von Frey 50% withdrawal threshold was significantly lower in the un-treated injury group compared to the sham group up to 29 days while hydrogel-treated injury group had a significantly higher threshold in comparison

to the non-treated injury group on Days 29. T1p analysis of MRI in the hydrogel-treated injury group was higher compared to the non-treated injury group.

Conclusion: The data presented indicate that hydrogel is a potential candidate for the treatment of degenerative discs associated with back pain.

P33

Regeneration of Intervertebral Disc Using Hyaluronic Acid/Collagen-Based Hydrogel in a Rat Model

PUTERI NUR ANEESAH MS¹, INTAN SOFIAH MN¹, NUR ATHIRAH AB¹, MUHAMMAD HAFIZUDDIN ARIFF H¹, RUSYDI MR², MOHAMMAD ALI ZUHDI A², NAJWA SYAKIRAH MR², NUR ARINA AMIRA H², RAED HO², AHMAD HAFIZ K¹, AHMAD LUQMANULHAKIM AS³, NURUL HUDA MY², SHAIFUL RIDZWAN S², NUR AQILAH K², AMINATUL SAADIAH AJ³, ISMA LIZA MI^{2,4*}, SABARUL AFIAN M^{1*}

¹Department of Orthopaedics and Traumatology, ²Department of Anatomy, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Kuala Lumpur, Malaysia

³Department of Health Industry Technology, Faculty of Science and Technology, Islamic Science University Malaysia, Nilai, Negeri Sembilan, Malaysia

⁴CÚRAM, SFI Research Centre for Medical Devices, School of Medicine, University of Galway, Ireland

ABSTRACT

Introduction: The impaired synthesis of the intervertebral disc matrix involves all its components at different time points. This study aims to evaluate the efficacy of an implantable hyaluronic acid (HA)/type II collagen (COLII)-based hydrogel to promote disc regeneration in vivo.

Objectives: To determine that HA/COLII-based hydrogel implantation maintained health status and restored disc height in a surgically induced disc injury in the rat tail of the pain model.

Methods: Eighteen female Sprague Dawley were divided into sham, non-treated injury and injury with treatment hydrogel 2 mg/ml, with n=6 for each group. After inducing a disc injury surgically at the coccygeal discs (Co4-Co5 and Co5-Co6) in the rat tail, we implanted HA/COLII hydrogel (4 ul). Health status of the body weight was monitored on pre-operative day 2, postoperative days 7, 14 and 29. Using a plane radiograph, disc height index was calculated by measuring the height of the disc and adjacent vertebral body on day 29 post-operatively. Ethics approval number UKMAEC-45/2023.

Results: The body weight in rats of injury and control groups was lower than the ones in treatment of 2 mg/ml hydrogel group on days 7, 14, and 29 however; it was not significantly different. Compared to the sham group, a significant increase in

the percentage of disc height index of the hydrogel-treated injury group compared to the non-treated injury group.

Conclusion: HA/COLII hydrogel is effective in restoring disc height for tissue regeneration without impairing health status. Hence, suggesting that hydrogel could treat degenerative disc disease-associated low back pain.

P34

Determination of Foxp3⁺ Tregs in Healthy and Chronic Rhinosinusitis with Nasal Polyps Patients

NUR NAIWA FARAHA MY¹, WAN FAIZIAH WAR², ROHIMAH M³, BAHARUDIN A⁴, TENGKU AHMAD DAMITRI AL ATD¹

¹Department of Chemical Pathology, ²Department of Pathology, ³Department of Immunology, ⁴Department of Otorhinolaryngology-Head and Neck Surgery, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia

ABSTRACT

Introduction: Forkhead-box protein 3 regulatory T cells (Foxp3⁺ Tregs) has been established as the main mediator in enforcing airway tolerance and immune homeostasis. However, the prognostic relevant of these Foxp3⁺ Tregs in chronic rhinosinusitis with nasal polyps patients (CRSwNP) remains unclear.

Objective: The study aimed to compare the expression of Tregs subsets in CRSwNP patients and healthy individuals as well as to determine the association between the expression of Foxp3⁺ Tregs with the clinical characteristics of CRSwNP.

Method: A cross sectional study involving 50 participants was conducted in Hospital Universiti Sains Malaysia, Kelantan between January 2021 and December 2022. Foxp3⁺ Tregs flow cytometry expression of CRSwNP patients from five fluorochrome color were analysed using FlowJo software and were stratified based on Lund-Kennedy score, Lund-Mackay score and SNOT-22.

Result: We found that there was distinctive pattern of Tregs in the expression level between CRSwNP patients and healthy individuals. CRSwNP patients tend to express significantly lower total Tregs (2.89 ± 1.8) compared to healthy individuals (4.39 ± 2.7). There was no significant difference in total PB Tregs in patients with the atopic (normal and elevated total IgE) and asthmatic status of the patients. In contrast, the level of FoxP3 expression was associated with the Lund Kennedy and SNOT-22 score.

Conclusion: Our study concluded that Foxp3⁺Tregs play a central role in CRSwNP patients which could maintain immune homeostasis and protect from the aberrant inflammation.

P35

The Modulation of Angiogenic Activity in Gestational Hypertension Human Umbilical Vein Endothelial Cells

NOOR HASILA AD¹, NUR SYAHIDAH NH¹, ADILA AH², NUR NAJMI MA^{*}

¹*Programme of Biomedical Science, Centre of Toxicology & Health Risk Studies, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

²*Physiology Department, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

**Corresponding author: nurnajmi@ukm.edu.my*

ABSTRACT

Introduction: Hypertension is a major global risk factor for cardiovascular disease and a cause of premature death. The prevalence of pregnancy-related hypertension was found to be 18.6%, while 79.3% of women had gestational hypertension. Affected angiogenesis will increase peripheral resistance and lead to increased blood pressure. In addition, animal and human studies have reported that MMPs play a role in the pathogenesis of damaged vascular and cardiac diseases. Therefore, early intervention and treatment are highly recommended to mitigate potential risks.

Objective: To study angiogenic activity and genes related to angiogenesis in gestational hypertension.

Methods: HUVEC were isolated and used in this experiment. The cells have been differentiated between normal and hypertensive cells based on the criteria of the patients, which is that a healthy pregnant woman will contribute to a normal pregnancy, whereas a woman who has been diagnosed with gestational hypertension will be classified as having a hypertensive pregnancy. A scratch wound assay was used to assess cell migration activity. The tube formation assay was performed to evaluate angiogenic activity, and qPCR was employed to examine the expression of metalloproteinase matrix mRNA (MMPs).

Results: The migratory activity and angiogenic activity in hypertensive pregnancies appeared to be lower than in normal pregnancies. Similarly, for mRNA expression, MMPs, in particular MMP-3 and MMP-10, were lower in hypertensive pregnancies than in normal pregnancies.

Conclusion: This study can contribute towards understanding the processes that occur in hypertension during pregnancy, ultimately improving maternal and fetal outcomes.

P36

A Systematic Review: The Effects of *Centella asiatica* on Skin Collagen

KIRUSHMITA A, NORLIZA M

Department of Pharmacology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

ABSTRACT

Introduction: *Centella asiatica* (CA), or Gotu kola, has a history of traditional medicinal use, particularly for skin benefits. Collagen, vital for skin strength and elasticity, is a focus due to CA's impact on its synthesis and maintenance.

Objective: This systematic review aimed to evaluate the effects of CA on skin collagen and its therapeutic potential in dermatology.

Methods: A systematic search across databases (PubMed, Embase, Web of Science) was conducted to find relevant studies until September 2021. Keywords for CA, skin collagen, extracellular matrix, and skin health were used. Human trials, in vitro studies, and animal experiments assessing CA's effects on skin collagen were considered. Study quality was evaluated, and data was extracted.

Results: The initial search found 50 articles; 15 met the criteria. Research designs included randomized trials, in vitro experiments, and animal studies. The outcomes measured collagen synthesis, collagen content, and collagen-related markers such as procollagen and matrix metalloproteinases (MMPs). The finding indicated CA's positive impact on skin collagen. In vitro, CA extracts promote collagen synthesis by increasing fibroblast proliferation and upregulating collagen-related gene expression. Animal trials demonstrated elevated skin collagen from CA extracts applied topically or orally. Moreover, CA appeared to attenuate collagen degradation by inhibiting MMP activity. However, study quality varied; limitations included small samples, short durations, and non-standardized CA extraction. Heterogeneity in CA concentrations and forms across studies complicated direct comparisons.

Conclusion: Available evidence suggests CA's promise in enhancing skin collagen synthesis and integrity. However, well-designed clinical trials with standardized preparations are needed to determine optimal dosage, formulation, and treatment duration.

P38

Establishing Content Validity of a Motor Skill Module to Improve Self-Care Skills among Preschool Children: Focus Group Discussion

NOOR AMIERA A^{1,2}, MASNE K¹, FARAHYAH WY¹, KATIE C³

¹Centre for Rehabilitation and Special Needs Studies, Occupational Therapy Programme, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300, Kuala Lumpur, Malaysia

²Centre of Occupational Therapy Study, Faculty of Health Sciences, Universiti Teknologi MARA, 42300, Puncak Alam, Selangor, Malaysia

³Discipline of Occupational Therapy, Trinity College Dublin, Trinity Centre for Health Sciences, St James Hospital, Dublin 8, Ireland

ABSTRACT

Introduction: Motor skills can positively affect independent self-care skills among preschool children. Helping preschool children with motor skills and achieving early independence in self-care skills could facilitate children in obtaining good performance in academic skills. Therefore, the motor skills module was developed to help children improve motor and self-care skills.

Aim: This study aimed to establish the content validity of developing the motor skills module to improve self-care independence among preschool children.

Method: Ten panel experts related to the study include occupational therapists, academicians in occupational therapy, clinical psychologist, speech therapist, teachers and parents were involved in this study. They participated in examining the content validity of the motor skills module. Focus Group Discussion (FGD) was conducted and recorded through online google meet. The recorded file was transcribed into verbatim transcription. Then, the transcript was analysed using thematic analysis.

Findings: Five themes emerged, including: "Comprehensiveness and Completeness" with subthemes content, "Errors" with subthemes words and sentences, "Formatting" with subthemes pictures and content arrangement, "Alternatives" with subthemes materials and resources, and "Remove" with subtheme cover module.

Conclusion: Expert panels suggested improving the module content into two parts: "knowledge" and "Activity". These suggestions were then accepted, and

the module was modified accordingly. Finally, the motor skills module has good content validity to improve self-care skills. Further study is needed to include Content Validity Index (CVI) scores, feasibility and the effectiveness of using the motor skills module among preschool children.