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Articles describing Original Research should consist of the following sections (IMRAD format): Abstract, Introduction, Materials and Methods, Results, Discussion, Acknowledgment and References. Each section should begin on a fresh page.
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Acknowledgements:
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Example references Journals:
Standard Journal Article
Rampal L and Liew BS. Coronavirus disease (COVID-19) pandemic. Med J Malaysia 2020; 75(2): 95-7.
Rampal L, Liew BS, Choolani M, Ganasegeran K, Pramanick A, Vallibhakara SA, et al. Battling COVID-19 pandemic waves in six South-East Asian countries: A real-time consensus review. Med J Malaysia 2020; 75(6): 613-25.
NCD Risk Factor Collaboration (NCD-RisC). Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants. Lancet 2021; 11; 398(10304): 957-80.

Books and Other Monographs:
Personal Author(s)
Goodman NW, Edwards MB. 2014. Medical Writing: A Prescription for Clarity. 4 th Edition. Cambridge University Press.

Chapter in Book
McFarland D, Holland JC. Distress, adjustments, and anxiety disorders. In: Watson M, Kissane D, Editors. Management of clinical depression and anxiety. Oxford University Press; 2017: 1-22.

Corporate Author
World Health Organization, Geneva. 2019. WHO Study Group on Tobacco Product Regulation. Report on the scientific basis of tobacco product regulation: seventh report of a WHO study group. WHO Technical Report Series, No. 1015.

NCD Risk Factor Collaboration (NCD-RisC). Rising rural body-mass index is the main driver of the global obesity epidemic in adults. Nature 2019; 569: 260–64.

World Health Organization. Novel Coronavirus (2019-nCoV) Situation Report 85, April 14, 2020. [cited April 2020] Accessed from: https://www.who.int/docs/defaultsource/coronaviruse/situationreports/20200414-sitrep-85-covid-19.

Online articles
Webpage: Webpage are referenced with their URL and access date, and as much other information as is available. Cited date is important as webpage can be updated and URLs change. The "cited" should contain the month and year accessed.

Ministry of Health Malaysia. Press Release: Status of preparedness and response by the ministry of health in and event of outbreak of Ebola in Malaysia 2014 [cited Dec 2014]. Available from: http://www.moh.gov.my/english.php/database_stores/store_view_page/21/437.

Other Articles:
Newspaper Article
Panirchellvum V. 'No outdoor activities if weather too hot'. the Sun. 2016; March 18: 9(col. 1-3).

Magazine Article
Rampal L.World No Tobacco Day 2021 -Tobacco Control in Malaysia. Berita MMA. 2021; May: 21-22.

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The science and art of research on research

Lai Nai Ming

Taylor's University School of Medicine

ABSTRACT

Summary: Research on research, or meta-research, is a blossoming field following a rapid rise in the volume of research and advances in digital technologies that render research data widely available. The need to scientifically evaluate science itself is highlighted by increasing awareness of issues in generating, conducting, applying and disseminating scientific evidence, which hinder replication and result in research waste. Although various forms of meta-research are currently recognised, a systematic review of the evidence on the theme or topic in question with appraisal and synthesis of the evidence appear to be a common element. The speaker shares an example of meta-research series on neonatal jaundice that was germinated out of a need to answer a question related to the day-to-day care of newborn infants. The use of supplemental fluid for newborn infants, either intravenously or enterally to reduce serum bilirubin level and the risk of important clinical outcomes such as kernicterus spectrum disorder (KSD) has been a contentious issue. A Cochrane review developed to address this uncertainty finds that fluid supplementation modestly reduces serum bilirubin in some time points but not in others. However, none of the included studies evaluated important clinical outcomes such as KSD and other neurological manifestations. The authors went on to examine all neonatal randomised controlled trials (RCTs) included in Cochrane reviews that evaluated all interventions for neonatal jaundice. They found that only 4% of the studies evaluated important clinical outcomes like KSD, and there was zero cumulative incidence of KSD in all studies. The findings pointed to problems in the selection of population for the trials and the evaluation and reporting of outcome that matters. The findings were supported by a rigorously conducted systematic review that showed no strong evidence on the association between serum bilirubin level and the risk of KSD. An evaluation of a bigger dataset containing all neonatal RCTs included in Cochrane neonatal reviews showed that more than ¾ of the outcomes evaluated in neonatal RCTs were patient-important outcomes (PIO), with newer trials more likely to report PIO. This suggests that the issues seen in trials on neonatal jaundice may not be widespread. The speaker then highlights some challenges in meta-research in general. Evaluation of research is fraught with challenges as the generation, presentation and interpretation of research evidence become increasingly complicated, with evolving standards in the evaluation of the likelihood of bias, accuracy and integrity of presentation (spin) and availability of research data (publication bias).

Life Sciences 4.0

Yam Wai Keat

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ABSTRACT

Summary: Life Sciences 4.0, a new term coiled to address empowerment of the latest technology to support smart and decision-making in the field of life sciences. It includes utilising smart tools, integrated Internet of Things (IoT)/ Internet of Medical Things (IoMT) and automated solutions to improve quality and reliability in the multi-omics and health sciences world. Life Sciences 4.0 is crucial to address integration of high-throughput, multi-disciplinary and translational research in various omics, namely genomics, proteomics, transcriptomics, metabolomics and phenomics. This "genome to phenome" phenomena allow a wholistic approach from science to medicine, providing "personalised" and "targeted" diagnosis, treatment, predisposition and prognosis. The availability of big data in life sciences and healthcare opens possibilities for predictive, preventive and innovative measures to improve our lives. A good example of such transformation is digital health. Digital health allows empowering patients to have more control over their health, promoting better health and wellbeing. Digital health allows improvement in terms of communication, access, quality, personalising treatment and reducing cost. Various digital health technologies such as telemedicine, telepharmacy, mobile health (mhealth) and wearables in medicines integrated latest technologies and data analytics to drive innovation and value. Ultimately, to achieve this goal, researchers and practitioners are urged to constantly unlearn and relearn new skills and knowledge. Thus, remain open-minded in this new paradigm shift in life sciences to achieve greater objectives.

Navigating through administrative data to evaluate real-world effectiveness of COVID-19 vaccines in Malaysia: The RECoVaM experience

Masliyana Husin

Institute for Clinical Research, National Institutes of Health

ABSTRACT

Summary: Real-world effectiveness studies are important for monitoring the performance of COVID-19 vaccination strategies and informing COVID-19 prevention and control policies. The Real-World Effectiveness of COVID-19 Vaccine under the Malaysian National COVID-19 Immunisation Program (RECoVaM) analysed effectiveness of a range of homologous primary, as well as heterologous and homologous booster COVID-19 vaccines, which comprised of BNT162b2 (mRNA), CoronaVac (inactivated) and AZD1222 (viral vectored), against SARS-CoV-2 infection and severe COVID-19. Nationally comprehensive administrative data at both individual- and aggregate-levels were consolidated for each analysis. These were the Malaysia national COVID-19 vaccinations register (MyVAS), COVID-19 cases line listing, intensive care unit (ICU) admissions register, deaths line listing, supervised test registry (SIMKA), and the MySejahtera check-ins-based automated contact tracing registry (AutoTrace). RECoVaM adopted several observational study designs. Exposure periods were carefully calibrated to account for the structure of Malaysia's COVID-19 data, and epidemiological context, to estimate vaccine effectiveness. Importantly, RECoVaM also compared effectiveness measures during both the Delta-dominant, and Omicron-dominant periods. Effectiveness estimates for primary vaccinations showed a reduction in risk of SARS-CoV-2 infections by 87 – 91%, and symptomatic infections by 85 – 89%, as well as ICU admission by 82 – 84% among COVID-19 cases, and death by 86 – 88% among COVID-19 cases. All vaccine platforms were effective in reducing risk against ICU admission and death. Subsequently, significant waning of protection was demonstrated against COVID-19 infection among BNT162b2 (90.8 to 79.3%) and CoronaVac (74.5 to 30.4%) recipients 3 to 5 months post-primary vaccinations. Protection against ICU admission for CoronaVac waned (56.0 to 28.7%) and was more substantial among the elderly (aged 60 years and above). The estimates of marginal Vaccine Effectiveness (mVE) for boosters showed that recipients of booster doses were at least 90% less likely to be infected with COVID-19 relative to primary BNT162b2 vaccination during the Delta-dominant period. In both Delta and Omicron-dominant periods, homologous BNT162b2 boosting offered the highest protection against infection relative to primary BNT162b2 vaccination. This is followed by heterologous boosting with either AZD1222 or BNT162b2 for recipients primed with CoronaVac or AZD1222, and finally homologous boosting with AZD1222 and CoronaVac. The mVE estimates for all booster combinations in the Omicron-dominant period was about half that of Delta. Vaccination with a primary COVID-19 vaccines were effective in reducing COVID-19 infection but wanes after 3-5 months. Additional booster doses were more effective than primary series alone in preventing COVID-19 infection but demonstrated an interplay of immune evasion during the Omicron-dominant period. Homologous BNT162b2 boosting aside, and heterologous boosting appeared to be more protective than homologous boosting. Although vaccination is still protective against severe infection, ongoing community transmission could facilitate viral mutation. Next generation, multivalent vaccines aimed at stemming transmission, are warranted.

Safety surveillance of covid-19 vaccines using large-linked database

Norazida Ab Rahman

Institute for Clinical Research, National Institutes of Health Malaysia

ABSTRACT

Summary: In the global drive to vaccinate against SARS-CoV-2, millions of people have received at least one dose of a COVID-19 vaccine. Vaccination safety is the key to the success of immunisation programs and in combating vaccine hesitancy among the public. Post-licensure safety monitoring of COVID-19 vaccines is essential to detect rare or severe vaccine-associated adverse events in the population and provide ongoing data of safety issues. Passive surveillance is the primary method most widely used to collect adverse events following immunisation (AEFI) via voluntary reporting. Monitoring through active surveillance is strongly encouraged to improve vaccine safety monitoring and provide more robust data. The SAFECOVAC project was initiated to evaluate risk of serious adverse events following COVID-19 vaccination. It leverages on the availability of nationwide COVID-19 vaccine registry, hospital admission database, and other data sources to create a large-linked database. Uniquely for Malaysia, diverse vaccine portfolio was used and we are able to compare the risk estimate for the three major vaccine types of different platform i.e., mRNA-based vaccine (BNT162b2), inactivated vaccine (CoronaVac), and adenovirus vector-based vaccine (ChAdOx1). Current data shows that safety of COVID-19 vaccine is assured and findings are fairly consistent with data from other countries.

Data to clinical decision: My experience with CRASH and PATOS

Sabariah Faizah Jamaluddin

Department of Emergency Medicine, Faculty of Medicine, University Teknologi MARA

ABSTRACT

Summary: I was involved with Clinical Randomisation of an Antfibrinolytic in Significant Haemorrhage (CRASH 2) from 2009-2010 as site Principal Investigator (PI) and later as the national PI for the Clinical Randomisation of an Antifbrinolytic Significant Head Injury (CRASH 3) from 2013 – 2017. Both studies were international multicentre clinical trials on the use of tranexamic acid (TXA) in trauma. It was headed by the Clinical Trials Unit (CTU) of the London School of Hygiene and Tropical Medicine. CRASH 2 trial confirmed the efficacy of TXA in acute traumatic haemorrhage, with one-third reduction in mortality when given within three hours of injury. This has led to the use of TXA for early trauma cases in Malaysia. Knowing TXA works better when given early, Shah Jahan et al in Medical Journal of Malaysia proposed that TXA be given by the Malaysian paramedics in the pre-hospital environment. CRASH 3 involved 13 hospitals in Malaysia. The CTU sent frequent newsletters and updates on the current state of randomisation across the world to encourage and support the researchers. When CRASH 3 ended, Malaysia was the 3rd highest recruiter. The results of the trial showed that TXA reduces head injury deaths. CTU publicised the findings via the press, TV and social medial for the public to be aware. We should also express the significant findings of our research in a similar manner. From the CRASH 2 and CRASH 3 trials we have come out with an algorithm for the use of TXA for trauma patients including those with head injury. The use of TXA acid for trauma patients within 60 minutes of medical contact has become a Key Performance Indicator for the Emergency Medicine and Trauma services. Pan Asia Trauma Outcome Study (PATOS) started in Malaysia in 2016 and I am involved as the National PI. PATOS is a multicentre registry on trauma patients brought to the emergency department via the ambulance services in the participating Asian countries. The PATOS is still on going. The PATOS Clinical Research Network based in Seoul, South Korea encourages research based on the PATOS data by having yearly workshops and research day. There are already publications from the PATOS. PATOS Malaysia had a workshop in 2020 to encourage research writing from Malaysia PATOS data. At the moment the PATOS has also become the master's dissertation for some emergency medicine postgraduate students. The research findings can be then use to develop policies and protocols for the trauma patients in Malaysia. Data collection can be a long-haul process and needs constant motivation to stay on tract. Results from studies should be disseminated widely via the use of the social media, conventional media, meeting and conferences.

An observational study on the use of oral vitamin C in critically ill stage-5 patients with COVID-19 infection

Hew Yee Jin[1], Kong Kian Keong[2], Ooi Guat See[3]

[1]Pharmacy Department, Duchess of Kent Hospital, Sabah, Malaysia, [2]Clinical Research Centre, Duchess of Kent Hospital, Sabah, Malaysia, [3]School of Pharmaceutical Sciences, University Sains Malaysia, Penang, Malaysia

ABSTRACT

Introduction: The evidence-based use of the oral form of Vitamin C as adjuvant treatment for critically ill COVID-19 patients is lacking worldwide despite its intravenous preparation form being demonstrated to be potentially beneficial in some studies. The present study objective was to evaluate the effects of oral Vitamin C in the treatment of severe COVID-19. **Methods:** This was an open-label observational study with propensity score matching on unvaccinated, similar medication history, hospitalized stage-5 severe COVID-19 patients, who were treated with daily 2g, 4g, or 6g of oral Vitamin C respectively from November 2020 to December 2021. The clinical data were collected retrospectively for analysis. The study outcomes were 28-day in-hospital mortality, the proportion of mechanical ventilation-free days (MVFD), the Day 1, Day 3, and Day 7 of both the inflammation progression (c-reactive protein) and the Sequential Organ Failure Assessment score (SOFA). **Results:** A total of 147 patients were recruited. The number of subjects in the 2g, 4g, and 6g Vitamin C groups was 43, 44, and 60 respectively. There was no significant difference in the 28-day mortality (p=0.336), the MVFD (p=0.486), the c-reactive protein level on Day 1 (p=0.856), Day 3 (p=0.977), Day 7 (p=0.462), and the SOFA score on Day 1(p=0.540), Day 3 (p=0.149) and Day 7 (p=0.754) between the three Vitamin C dosing groups. **Conclusion:** The present study showed that the oral form of Vitamin C provided no benefit in reducing stage-5 COVID-19 patients' hospital mortality, the mechanical ventilation requirement, or the overall inflammation progression.

Does high dose favipiravir improve COVID-19 pneumonia patients' outcome? - A retrospective cohort study

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ABSTRACT

Introduction: Human Coronavirus Disease COVID-19 is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Favipiravir is an oral, broad-spectrum inhibitor of viral RNA-dependent RNA polymerase. The Malaysian national consensus guidelines recommended standard favipiravir dosage (1800mg BD day 1 and 800mg BD for 5-14days) to treat COVID-19 pneumonia, which was complied by HSNZ since January 2021. A study in Thailand noted better prognosis in patients given higher favipiravir doses. The Hospital Sultanah Nur Zahirah infectious disease team applied compassionate treatment, with increased doses (>45mg/kg/day) since June 2021. This study aims to compare the clinical deterioration of patients receiving high or standard doses of favipiravir. **Methods:** This is a retrospective cohort study. Electronic medical record of 122 patients admitted during January to August 2021 were selected. Clinical deterioration is defined by occurrence of hypoxia requiring increased oxygenation throughout admission. Analysis via chi-square and Man-Whitney U test were done to compare among two groups. **Results:** The mean age is 57.4±16.3 y/o, with 65 (53.3%) men, and 117 (95.9%) Malays. Median day of illness upon admission is 5 (IQR: 3-6), 72(59%) patients have underlying comorbidities. There is no significant difference in baseline characteristics among both groups. Chi-square analysis of occurrence hypoxic deterioration shows no significant difference. However, significant difference is noted in days to deterioration ($p<0.001$) with high dose 6 days (IQR: 5-7.75), vs standard dose 1 days (IQR: 1-3). **Conclusion:** Among COVID-19 category 4 patients, high dose favipiravir shows superiorly in delaying clinical deterioration, however no significant difference in occurrence of deterioration.

Effectiveness of CoronaVac® vaccine against severe acute respiratory infections (SARI) hospitalizations in Sibu District, Malaysia: A retrospective test-negative design

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ABSTRACT

Introduction: The COVID-19 vaccination campaign was implemented in Sibu, Malaysia in February 2021. We assessed the effectiveness of the CoronaVac® vaccine against severe acute respiratory infections (SARI) hospitalisation associated with laboratory-confirmed SARS-CoV-2 by time since vaccination. **Methods:** A test-negative case-control design was employed using a web-based national information system for PCR results of SARS-CoV-2 infection and COVID-19 vaccination, and the hospitalisation dataset in Sibu Hospital. Eligible SARI cases with SARS-CoV-2 RT-PCR positive were matched to those SARI cases with negative RT-PCR tests by age and workplace. Vaccine effectiveness was measured by conditional logistic regression with adjustment for gender, comorbidity, smoking and education level. **Results:** Between 15 March and 30 September 2021, in the dominance of lineages B.1.466.2 and B.1.617.2 (Delta variant), a total of 838 eligible SARI patients were identified. Vaccine effectiveness was 42.4% (95% confidence interval [CI]: -28.3, 74.1), and 76.5% (95% CI: 45.6, 89.8) for partial vaccination (after the first dose through 14 days after the second dose) and complete vaccination (at 15 days or more after receipt of the second dose), respectively. Sensitivity analysis using propensity score matching yielded a conservative estimate of 57.4% (95% CI: 9.2, 80.1) for complete vaccination. **Conclusion:** Primary immunisation with two doses of CoronaVac® vaccine provided satisfactory protection against SARI caused by SARS-CoV-2 in the short term. However, the duration of protection, incremental effectiveness induced by boosting, as well as performance against new variants need to be studied continuously.

The impact of high-dose methotrexate management protocol on clinical outcomes among patients with haematological malignancies - a retrospective analysis

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ABSTRACT

Introduction: High-dose methotrexate (HDMTX), defined as Methotrexate doses ≥500mg/m^2, has been an important backbone in the treatment of leukaemia, lymphoma and osteosarcoma. In 2019, a HDMTX management protocol was implemented in Hospital Sultanah Aminah, Johor Bahru (HSAJB). Prior to the adoption of this protocol, clinicians encountered a worrying trend of nephrotoxicity following administration of HDMTX. The purpose of this study was, therefore, to evaluate the impact of the newly introduced protocol on the incidence of delayed methotrexate clearance, appropriate leucovorin use, incidence of nephrotoxicity and length of hospital stay. **Methods:** This was a single-centre, retrospective study. A total of 37 patients received 90 cycles of HDMTX before the protocol implementation (1 January 2018 through 31 December 2018) and 37 patients received 96 cycles of HDMTX after the protocol implementation (1 January 2020 through 31 December 2020). Patient characteristics and primary outcomes were analysed using inferential statistics. **Results:** Both pre- and post-protocol groups showed similar incidence of delayed methotrexate clearance, 22.4% vs. 17.7% respectively (p=0.259). For patients who required leucovorin dose escalation, 14.3% vs. 90.0% were appropriately dosed as per protocol in the pre- and post-group respectively (p=0.001). The incidence of nephrotoxicity was significantly reduced in the post-protocol group 2.1% compared to 10.0% in the pre-protocol group (p=0.022). The median length of stay was reduced, albeit insignificant, in the post-protocol group compared with the pre-protocol group, 5 days vs. 6 days, respectively (p=0.587). **Conclusion:** Among patients who received HDMTX at HSAJB, the implementation of a protocol drives standardisation of practice, thereby, helps reduce the incidence of nephrotoxicity.

Practice of medication storage and disposal among patients with chronic medications in Sibu Hospital

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ABSTRACT

Introduction: The objective of this study was to explore the practice of medication storage and disposal among patients with chronic medications in Sibu Hospital. **Methods:** A 3-month cross-sectional study was conducted among patients taking chronic medications in Sibu Hospital, Sarawak. Convenience sampling method was applied, and data was collected via a face-to-face interview by using a set of questions constructed based on several resources. **Results:** A total of 444 respondents were recruited in our study. The findings showed that majority of the respondents have improper practice of medication storage (n=343, 77.3%) and disposal (n=434, 97.7%). There were significant differences between respondents with formal education and no formal education with regard to improper chronic medication storage practice (86.5% versus 73.6%, p=0.03). In addition, practice of chronic medication storage was also significantly associated with the ethnicity (Bumiputera 79.9% versus non-Bumiputera 71.3%, p=0.048) and monthly household income (≤RM3000 78.3% versus >RM3000 62.1%, p=0.044). However, there was no significant association between sociodemographic characteristics and chronic medication disposal practice. **Conclusion:** From the results, we conclude that the awareness on storage and disposal of medicine in the home was less among respondents. Healthcare providers, particularly pharmacists should play an active role as the most trusted source of knowledge about medication storage and disposal methods. Government should serve a critical role in this aspect by ratification of regulations and expanding knowledge of the public by organizing education campaigns and awareness programmes.

Reinfection rate and protection effectiveness from past infection among healthcare workers in public tertiary hospitals in Malaysia: A prospective cohort study

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ABSTRACT

Introduction: As of 29 July 2022, SARS-CoV-2 has infected 4.7 million Malaysians. Reinfection, defined as a new infection 90 days from initial infection is now rising due to the emergence of new variants. Studies have shown that healthcare workers (HCW) are 3.4 times more likely to test positive for COVID-19. This study aims to describe the reinfection rate of COVID-19 and protection effectiveness (PE) from past infection among HCWs in public hospitals in Malaysia. **Methods:** A prospective cohort study was conducted from March 2021. HCWs were followed up to determine the post BNT162b2 vaccination humoral response to SARS-CoV-2. Additionally, participants were prompted to self-report a positive COVID-19 result. Reinfection rates were calculated using the total number of patients who had a prior infection as denominator. Infection rates were analysed at a pre-determined period throughout our follow-up. Protection offered by prior infection was calculated as one minus the ratio of infection rate for COVID-19 positive patients and COVID-19 naive patients (1 - RR x 100%). **Results:** In this cohort, the cumulative incidence rate for SARS-CoV-2 is 44.6% (246/551). Reinfection rate is 6.5% (16/246). The PE at 3 and 6 months were 100% respectively while the PE at 9 and 12 months were 72.1% and 56.2%. **Conclusion:** Past infection offers 100% protection against reinfection up to 6 months but this protection steadily declines with the emergence of Omicron variant, even among vaccinated and boosted individuals. As variant-specific vaccines are still in development, reducing exposure and compliance to COVID-19 prevention guidelines are imperative to avoid infection.

Evaluation of safety culture in a state tertiary referral hospital

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ABSTRACT

Introduction: Healthcare is well-recognised as a high-hazard industry, and thus that it is imperative to measure staff's perception of safety regularly. Understanding the safety culture within the organisation reflects the extent to which an organisation's culture supports and promotes patient safety. The most widely used and rigorously validated tool to measure safety culture is the Safety Attitudes Questionnaire (SAQ). This study aimed to explore the patient safety climate in a tertiary referral hospital in Sarawak, Malaysia. **Methods:** A cross-sectional study was conducted in Sarawak General Hospital (SGH) in May 2022 among the clinical staff working in SGH. The self-administered 30-item SAQ was used to assess participants' attitudes toward safety culture. **Results:** A total of 513 questionnaires were returned, representing 15.0% of clinical staff. The respondents comprised 84.0% female, primarily working for at least 5 years (83.2%), and 71.3% were nurses. The overall mean SAQ score was 66.6±14.9, with 32.7% achieving positive responses (score of ≥75 on a 100-point scale). Job satisfaction (71.7±23.4) and working condition (53.7±19.6) received the highest and lowest mean scores, respectively. A positive patient safety attitude increased with working experience (p<0.001). A statistically significant difference was also found between the percentage of overall positive responses and departments; staff working in surgical disciplines exhibited the highest positive attitudes (38.4%). **Conclusion:** In conclusion, the study results show a relatively low safety culture among healthcare staff in SGH. The results from this study provided baseline data for long-term continuous assessment and formed a reasonable basis for further targeted measures.

The relationship between serum biomarkers and viral load of COVID-19 with severity of lung involvement on chest computed tomography - a single centre study

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ABSTRACT

Introduction: The objective of this study is to investigate the relationship between Cycle Threshold (Ct) values and serum biomarkers in COVID-19 patients with Total Severity Score (TSS) on chest computed tomography (CT). Apart from this, this study also aims to explore the role of TSS, serum biomarkers and viral load in predicting the disease severity and clinical outcome of patients with COVID-19. **Methods:** In this retrospective cross-sectional study, we included 213 confirmed COVID-19 patients from Hospital Sungai Buloh who conform to the inclusion criteria. A search was performed on the picture achieving and communication system (PACS) and Centricity UV to collect data on the clinical features, laboratory findings (the first one upon admission), epidemiological characteristics as well as the chest CT scans of the targeted group. To quantify the extent of COVID-19 lung involvement in CT scan, TSS was applied. Data was collected and analysed using SPSS. **Results:** There were significant correlations between TSS of chest CT with four out of the six serum biomarkers studied, namely C-Reactive Protein (CRP), Neutrophil-Lymphocyte Ratio (NLR), creatinine and Lactate Dehydrogenase (LDH). There was an inverse relationship between TSS and Ct values. TSS, serum biomarkers (NLR, CRP, LDH and creatinine) as well as Ct value are good predictors of disease severity. **Conclusion:** TSS is a reliable scoring method to determine the severity of COVID-19 patients. Serum biomarkers which include NLR, CRP, LDH and creatinine are good predictors of disease severity and can be used for stratification of patients according to severity. Ct value is a valuable early indicator of disease severity.

Depression, anxiety and stress among nurses during COVID-19 in Hospital Pakar Sultanah Fatimah

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ABSTRACT

Introduction: The ongoing COVID-19 epidemic has impacted negatively on the physical, emotional, and psychological well-being of frontline healthcare workers in hospitals. This study is to determine the prevalence of depression, anxiety, and stress among nurses working in HPSF, as well as the risk factors that lead to these conditions. **Methods:** A cross-sectional study was conducted among 254 nurses using a self-administered questionnaire and stratified random sampling were used. The Depression Anxiety Stress Scale (DASS-21) and demographic questions were used to assess the presence of psychological problems and their related variables. Data was analysed using IBM SPSS version 26. **Results:** The prevalence of mild to extremely severe depression, anxiety and stress was 11.8%, 24.8% and 5.9%, respectively. Meanwhile, Mann Whitney U test showed that depression (U= 4506.000, *p*=0.525), anxiety (U= 4767.500, *p*=0.970) and stress (U= 4523.000, *p*=0.557) were not significantly different among nurses who had experience attending to COVID-19 patients (frontline) and did not have experience nursing with COVID-19 patients (second line). **Conclusion:** While mental distress outcome is low in this hospital, it does exist, and hospital management should consider training all nurses, including other health workers, keeping continued public awareness of COVID-19, and providing financial and mental support for frontline staff in order to address and manage risk factors of mental problems.

Experience of nurse diagnosed with COVID-19 infection and their concerns about outbreak in Hospital Pakar Sultanah Fatimah

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Hospital Pakar Sultanah Fatimah

ABSTRACT

Introduction: Nurses not in exception had considerable mental and physical stress caring for patients with COVID-19. This study is to describe the experience of nurses who diagnosed with COVID-19 infection of the concerns regarding the disease outbreak. **Methods:** A cross-sectional study using universal sampling method. A validated self-administered questionnaire on 5 Likert scale was given to the 103 nurses diagnosed with coronavirus infection. Concerns regarding the disease outcomes were assessed using 31 concern statements in five distinct domains. Data was analysed using IBM SPSS version 26. **Results:** The majority of respondents (31.1%) at risk of contracting a COVID-19 infection from family transmitted, 92.2% respondents were completed vaccine during pandemic. The level of concerns has five distinct domains which is self-satisfaction, social status, workplace, infection control, and government. Most nurses have moderate concern (80.6%), followed by high concern which was 15.5% regarding COVID-19 infection. There is association between work years as nurse and concerns among experienced nurses diagnosed of COVID-19 outbreak in HPSF (p=0.012). **Conclusion:** Most nurses have moderate concern level that may be influenced by previous experience of COVID-19 outbreaks and related cultural issues. The concerns of nurses may affect their overall effectiveness in an outbreak and should be addressed by incorporating management strategies in outbreak planning.

Competency of hand hygiene among critical care nurses during COVID-19 outbreak in Hospital Pakar Sultanah Fatimah

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Hospital Pakar Sultanah Fatimah

ABSTRACT

Introduction: During the first wave of the COVID-19 pandemic, social distancing and competency of the hand hygiene have been the primary means of reducing transmission. This study is to identify the relationship between knowledge, practices and attitudes of hand hygiene among critical care nurses during COVID-19 in Hospital Pakar Sultanah Fatimah (HPSF). **Methods:** A cross-sectional survey was used, a self-administered questionnaire which was adapted from WHO guidelines of hand hygiene in Health Care. Stratified random sampling methods were used, involving the 100 nurses who worked at critical care units. Data were analysed using IBM SPSS version 22. **Results:** The results showed that the participants had a good knowledge regarding the hand hygiene were 76.0% (n=76). They had a better attitude score than practice was 65.0% (n=65) and good level of practice were 83.0% (n=83). There is no significant relationship between knowledge, attitude and practice with working experience (p>0.05). **Conclusion:** This study gives clues for clinical practice in relation to the hand hygiene during the COVID-19 pandemic. The results of the current study showed that there was a further need to focus on the practices of hand hygiene by continuous education for all nurses. Chain of infection is a vicious circle that repeats itself, thus it is very important to break this chain by hand hygiene.

COVID-19 vaccination and changes in blood pressure

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ABSTRACT

Introduction: Some healthcare staff observed an increase in their blood pressures (BP) after the SARS-CoV-2 vaccination, thus Hospital Pulau Pinang (HPP) began collecting vital signs during the second dose of the vaccination. We aimed to compare the changes in BP after vaccination. **Methods:** This was an observational study using secondary data collected as part of the SARS-CoV-2 vaccination in HPP. Changes in BP immediately after and 15-30 minutes post vaccination were compared with baseline using paired t-tests. **Results:** A total of 4906 staffs received 2 doses of the BNT162b2 mRNA COVID-19 vaccine. Most subjects did not report any adverse effects. Common adverse effects were redness, pain or swelling at the injection site, tiredness, fever, chills, headache and myalgia. Mean pre-vaccination systolic and diastolic BPs were 130.1 (SD 17.38) mmHg and 80.2 (SD 11.62) mmHg, respectively. BP was increased in more than half of the subjects immediately and 15-30 minutes post vaccination however, the mean increases were small. Among those with hypertension (n=244), only increases in diastolic blood pressure were significant. Overall, 58 (1.02%) were admitted into the observation room either due to hypertensive urgency or complaints of giddiness. **Conclusion:** Overall, the increases were relatively small and may not prevail over the benefits offered by vaccination. However, monitoring of BP may be warranted to prevent any unexpected serious events.

Knowledge, practice and barriers of evidence-based medicine among Malaysian doctors: A cross-sectional online survey

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ABSTRACT

Introduction: Implementation of Evidence-Based Medicine (EBM) needs clinical expertise, patient values and the best available evidence. We aimed to determine the knowledge, practice and barriers to EBM among Malaysian doctors. **Methods:** We conducted an online survey among 402 Malaysian doctors who are working in any of the government or private healthcare facilities in Malaysia from June to August 2022. The e-questionnaire used in this study was adapted from Hisham et al. (2018). It consists of eight domains related to knowledge ("EBM website", "EBM journals", "Type of studies", "Terms related to EBM"), practice ("Practice"); and barriers ("Access", "Patient preferences" and "Support"). **Results:** Less than 11.4% and 49.3% of doctors used EBM journals and websites, respectively for clinical decision-making by the doctors. Randomised control trial was the type of study that was most understood (91.8%), whereas meta-analyses were the least understood (77.3%). Test sensitivity and specificity had the highest understanding among the EBM terms (84.3%) while heterogeneity had the lowest understanding (60.2%). The practice with which doctors agreed the most was "I support EBM" (94.5%) and the least was "EBM reduces my burden" (49.3%). For the barriers, the item "I have access to the internet to practise EBM" received the maximum agreement (81.1%), while "My patient prefers me to practise EBM" received the least agreement (34.1%). **Conclusion:** Despite the fact that Malaysian doctors generally support EBM, they are not making the best use of the resources that are available for clinical decision-making. Patients' preference is the biggest barrier in EBM practice.

Knowledge, attitude, practices and concerns regarding COVID-19 vaccine among patients and caregivers in Sibu Hospital

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ABSTRACT

Introduction: Coronavirus disease 2019 (COVID-19) is a global pandemic which has claimed millions of lives since its outbreak in year 2019. While mass immunization is crucial to get the pandemic under control, it continues to confront challenges which include public hesitation about the new vaccines. This study aimed to assess knowledge, attitude, practices and concerns regarding COVID-19 vaccines among patients in Sibu Hospital. **Methods:** A cross-sectional study was conducted using a questionnaire, self-administered by the patients and caregivers who visited Outpatient, Inpatient or Drive Through Pharmacy, Sibu Hospital during office hours from December 2021 to January 2022. Data were collected using convenient sampling method and analysed using simple descriptive analyses. **Results:** 465 participants who completed the survey were included in the final analysis. 53.0%, 45.9% and 61.8% of participants understood that pregnant ladies, lactating mothers and chronic diseases patients were eligible to be vaccinated respectively. Perception regarding COVID-19 vaccination was mostly influenced by social media platforms (45.9%) and healthcare providers (40.8%). Participants felt motivated to receive COVID-19 vaccine as it was available for free (89.0%). More than half (61.3%) were concerned about COVID-19 vaccine as it was rapidly developed and approved. COVID-19 vaccine from Pfizer was the most preferred choice (57.5%) followed by Sinovac (36.5%). **Conclusion:** This study provided insights on different drivers and barriers of the population from Sibu Hospital towards COVID-19 vaccination. Multifaceted approaches to empower the public to reduce the knowledge, attitude, practices and concerns gaps on COVID-19 vaccination are needed to get the pandemic under control.

Assessing the performance of the scoring for the use of antiviral therapy to prevent COVID-19 disease progression in primary care setting

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ABSTRACT

Introduction: Nirmatrelvir/ritonavir (Paxlovid) was approved in December 2021 for infected individuals at high risk of progressing to severe COVID-19 and require hospitalization. A scoring was established in the local COVID-19 treatment guideline to select those infected and at high risk at primary care setting for Paxlovid therapy. The scoring quantified risk based on age, comorbidities, vaccine doses, body mass index (BMI), and chest radiograph changes. This study aimed to assess the performance of the scoring and parameters. **Methods:** A case was an infected individual who progressed and being hospitalized. A total 551 patients (98.7% symptomatic infections without pneumonia and 1.3% with mild pneumonia) were recruited including 260 (47.2%) cases and 291 (52.8%) controls between January and February 2022. Receiver-operating-characteristic (ROC) was applied to investigate performance and optimal cut-points for the scoring, as well as individual parameter. **Results:** The existing scoring presented a poor accuracy of 65.0% with 3 as the cut point score. The accuracy can be improved to 70.0% when using 2 as the cut point score. The accuracy would improve further to 74% by modifying the age cut point from 60 to 35 years, BMI from 30.0 to 35.0 kg/m2 and applying 100 days as the cut point for duration from the last vaccine dose. Hypertension, cardiovascular diseases, and chronic lung diseases presented a relatively high risk for disease progression and hospitalization, therefore should be assigned more points. **Conclusion:** The existing scoring was suboptimal and should be optimized by incorporating new cut points for age, BMI and vaccine duration, and giving more weightage to more significant comorbidities.

Duration of referral-to-death and its influencing factors among cancer and non-cancer patients: perspective from a community palliative care setting in Malaysia

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ABSTRACT

Introduction: Addressing timely integration of palliative care is prioritised due to increased burden of non-communicable diseases. **Methods:** This retrospective cohort study included decedents referred to palliative care in Hospis Malaysia between January 2017 to December 2019. Referral-to-death is the interval between first referral date to date of death. Besides descriptive analyses, negative binomial regression analyses were conducted to identify factors associated with referral-to-death duration among both groups. **Results:** Of 4346 patients referred, 86.7% (n=3766) and 13.3% (n=580) had primary diagnoses of cancer and non-cancer respectively. Median referral-to-death was 32 days (IQR:12-81) among cancer patients and 19 days (IQR:7-78) among non-cancer patients. The shortest referral-to-death duration among cancer patients were for liver cancer (Median:22 days, IQR:8-58.5). Non-cancer patients with dementia, heart failure and multisystem failure had the shortest referral-to-death duration at 14 days. Among cancer patients, longer referral-to-death duration was associated with women compared to men (IRR: 1.26, 95% CI: 1.16-1.36) and patients aged 80 to 94 years old compared to below 50 years old (IRR: 1.19, 95% CI: 1.02-1.38). Cancer patients with analgesics prescribed before palliative care had 29% fewer palliative care days compared to those with no analgesics prescribed before referral. Non-cancer patients aged 50 to 64 years old had shorter referral-to-death duration compared to below 50 years old (IRR: 0.51, 95% CI: 0.28-0.91). **Conclusion:** Shorter referral-to-death duration among non-cancer patients indicated possible access inequities with delayed palliative care integration. Factors influencing referral-to-death duration should be accounted for in developing targeted approaches to ensure timely and equitable palliative care access.

Ventricular tachycardia storm as predominant cardiac manifestation of lupus myocarditis

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ABSTRACT

Introduction: Systemic lupus erythematosus (SLE) is a multi-system autoimmune disease that can affect any part of the heart, causing arrhythmias on top of other cardiac manifestations. Malignant ventricular tachyarrhythmias are rare manifestations of SLE. **Case Description:** Our case is the first case reported in the literature of an SLE patient with multi-organ involvement who subsequently presented with ventricular tachycardia (VT) storm as a cardiac manifestation. The intractable VT storm was successfully treated with Stellate ganglion block while waiting for immunosuppressive drugs to take effect when chemical cardioversion and a total of twenty-six electrical cardioversions failed. The patient experienced critical illness myopathy after the initial acute presentation, but later fully recovered to baseline functional status after months of intensive rehabilitation. Cardiac MRI done three months after treatment showed no sign of myocardial inflammation or scarring, thus an ICD implant for secondary prevention was not indicated. **Discussion:** Anti-arrhythmic drugs are useful in the initial treatment of VT storm. Deep sedation and mechanical ventilation are the next steps in the management of intractable VT. Immunosuppression should be initiated to treat lupus myocarditis. While waiting for it to take effect, Stellate ganglion block can be an effective temporary measure to treat intractable VT storm when other therapies have failed. C**onclusion:** Lupus myocarditis with VT storm is a rare manifestation of SLE flare. Stellate ganglion block in treating VT storm along with timely administration of immunosuppressive drugs had resulted in good outcome for our patient.

Non-Hodgkin's Lymphoma presenting as intracardiac mass: A rare presentation

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ABSTRACT

Introduction: Primary cardiac lymphoma (PCL) comprises of 1-2% of primary cardiac tumour. It is classically associated with poor outcome. Oncologic emergency can arise due to its rapid propensity. **Case Description:** This case report described a rare case of PCL with rapid disease progression. A 51-year-old lady presented with 6 months of dyspnoea. Her transthoracic echocardiogram showed a large exudative circumferential pericardial effusion and biatrial masses. Her echocardiogram done 6 months ago during which she had atrio-ventricular disease requiring pacemaker implantation was normal. This signifies a rapidly growing intra-cardiac tumour within the span of 6 months. Endovascular tissue biopsy using intra-cardiac echocardiography (ICE) guidance revealed the diagnosis of diffuse large B-cell lymphoma. Staging computed tomography staged the disease at Ann Arbor IV E. She was started on R-CHOP chemotherapy. **Discussion:** The presentation of PCL is often non-specific. Tissue biopsy remains the gold standard of diagnosis. Difficulty in obtaining tissue biopsy poses diagnostic challenges. Different modalities had been described to obtained tissue biopsy. ICE had been used in our case for endovascular biopsy which had helped in obtaining adequate tissue sample for histopathological testing. Treatments of PCL include chemotherapy, which is the main treatment, and palliative surgery in the event of haemodynamic compromise. **Conclusion:** PCL is a rare disease with rapid disease progression and can present with non-specific symptoms. The use of ICE guidance endovascular tissue biopsy in obtaining tissue sample was recommendable and it allows for early diagnosis for timely administration of treatment, which is important in prognostic influence.

Survivability of patients admitted for stroke in a general healthcare facility

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ABSTRACT

Introduction: Accurate identification and routine preventive practices are crucial steps in lessening the incidence of mortality among patients with stroke. **Methods:** A retrospective study was conducted among patients who were admitted for stroke at Hospital Seberang Jaya which is a stroke centre in the state of Penang. Data collected included demographic characteristics, physical examination results, comorbid conditions, laboratory tests, and medications prescribed. **Results:** Major drug classes that were prescribed for stroke patients were anti-platelets (86.7%), statins (84.4%), and protein pump inhibitors (75.6%). Stroke category (p<0.001) and duration of hospitalization (p=0.009) were significantly associated with the survivability of the patients admitted for stroke. Highest percentage of mortality based on categories were ≤61 years (13.7%), male (13.2%), Chinese ethnicity (15.6%), non-smoking (16.8%), experienced ischemic stroke (56.0%), with ≥3comorbidities (19.2%), with the uptake of ≥11medications (18.3%) and duration of hospitalization of ≥4days (31.3%). Overall survivability using Kaplan-Meier analysis reported a significant difference of 10-day survival rate between stroke patients with ischemic stroke and haemorrhagic stroke (p<0.001). The 10-day survival rates of patients with ischemic stroke and haemorrhagic stroke were 53.5%, and 26.5% respectively. Similarly, Cox regression analysis revealed that the stroke category was the only factor that significantly contributed to mortality post-stroke. Stroke patients who experienced haemorrhagic stroke had a 6.60 higher mortality risk compared with those who experienced ischemic stroke. **Conclusion:** Type of stroke was the significant risk factor for mortality among patients with stroke. Clinician engagement, intensive resources, and regular monitoring are needed for enhancing care for stroke patients.

The knowledge, attitudes and practices of facemask practice during COVID-19 pandemic

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ABSTRACT

Introduction: The use of facemask as precaution from COVID-19 cross-transmission have been strongly advocated by healthcare agencies as a public health management strategy to mitigate the pandemic burden on the healthcare system. **Methods:** This cross-sectional study aimed to investigate the knowledge, attitudes and practices (KAP) according to facemask practice during COVID-19. Descriptive statistics, chi-square test, t-test and one-way analysis of variance (ANOVA) and multivariable linear regression was used to identify factor contributing to knowledge while Binomial analysis was used to investigate factors contributing to practice. **Results:** Among 268 participants included in the study, those with medical-grade facemask had better knowledge score (88.8%) compared to non-medical facemask (86.3%) and those without facemask (78.6%). Majority of participants had positive attitudes on controlling COVID-19 pandemic (88.8%), the ability in overcoming the pandemic (99.2%) and use of facemask in a public place (98.9%). Participants using medical-grade facemask (Adjusted Odds Ratio; AOR 5.9, 95% CI 1.9-18.0; p=0.002) have appropriate practices towards COVID-19. However, Participants using medical-grade facemask were 9.2 times (AOR 9.2, 95% CI: 3.5 to 24.5, $p<0.001$) more likely to reuse of facemask without washing. **Conclusion:** The results highlight adequate KAP among respondents. However, hygienic use of facemask needs to be disseminated among general population.

Massive pericardial effusion as the cardiac manifestation of salmonella enteritidis infection in a severely immunocompromised patient

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ABSTRACT

Introduction: Acute purulent pericarditis is not commonly encountered in clinical setting but can be potentially life-threatening if not identified early and adequately treated. In the last decade, salmonella pericarditis is mainly caused by Salmonella enteritidis compared to 19th century when Salmonella typhi predominated. **Case Description:** A 41 years old gentleman was admitted for reduced effort tolerance preceded by non-specific symptoms of weight loss, profuse sweating and urinary incontinence. Chest X-ray showed cardiomegaly and echocardiography showed large septated pericardial effusion. Emergency pericardiocentesis was performed and culture of pericardial fluid grew Salmonella enteritidis. He was also found to be immunocompromised due to retroviral infection with CD4 count of 10 cells/µL. Antibiotics were administered and he was started on HAART therapy. Pericardial drain was inserted due to rapid re-accumulation of pericardial fluid after initial pericardiocentesis. Repeated echocardiogram after treatment showed early signs of constrictive pericarditis. Intrapericardial fibrinolysis was considered but patient succumbed to opportunistic infection by cytomegalovirus before further treatment can be given. **Discussion:** The volume of pericardial effusion in Salmonella pericarditis might have prognostic significance as patient with massive pericardial effusion tends to have poorer outcome. Treatment of complicated and rapidly accumulating pericardial effusion include pericardiocentesis, antibiotic treatment and pericardial drain. The role of intrapericardial antibiotic is a field for potential future study. Intrapericardial fibrinolysis and pericardiectomy might have a role in the setting of constrictive pericarditis. **Conclusion:** The shifting trend of Salmonella pericarditis to S. enteritidis species in recent decades might have public health implication to immunocompromised group of patients.

A stormy chase of coronary artery spasm: Thyroid storm in acute myocardial infarction

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ABSTRACT

Introduction: Cardiovascular disease represents the largest cause of death globally with multifactorial causes. This is a case study of thyroid storm in acute myocardial infarction (AMI) resulting in hyperactive coronary arteries. **Case Description:** A 56 years old gentleman presented with left sided chest pain radiated to the neck. ECG showed shark fin pattern over inferior leads with reciprocal changes and cardiac enzymes were raised. Urgent invasive coronary angiogram revealed triple vessel disease with coronary artery spasm at multiple sites in which conservative approach was taken for the spasm as his blood pressure was too low to allow vasospastic treatment. He was intubated for acute pulmonary oedema post procedure and had persistent tachycardia with tachyarrhythmic episodes. Laboratory test revealed hyperthyroidism and he was treated for thyroid storm with Burch-Wartofsky Point Scale of 50 points. His clinical condition deteriorated rapidly with the development of acute kidney injury and severe metabolic acidosis. He eventually succumbed after 4 days of intensive care despite maximum multidisciplinary resuscitation effort. **Discussion:** Coronary artery spasm is a common finding in AMI with thyrotoxicosis. While intracoronary administration of nitrate or other vasospastic treatment can be effective in relieving coronary artery spasm, its role may be limited by hypotension. Patients who have cardiovascular disease with thyrotoxicosis may have poorer outcome compared to patients who do not have cardiovascular disease presenting as AMI. **Conclusion:** Routine thyroid function test screening in patients with myocardial infarction should be promoted to allow for early delivery of thyrotoxicosis treatment to improve mortality outcome.

Prevalence of simvastatin associated muscle symptoms among hypercholesterolemic patients receiving simvastatin and amlodipine of Kuala Muda District Kedah: A cross-sectional multicentre study

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ABSTRACT

Introduction: Simvastatin is generally safe with rare adverse drug effects such as statin associated muscle symptoms (SAMS) but risk of SAMS increases following combination with amlodipine. This study was aimed to investigate the prevalence of simvastatin and amlodipine combination, prevalence and predictor of SAMS and also to determine the most prominent muscle complaint in patient having SAMS in Kuala Muda. **Methods:** This was a cross-sectional multicentre study (2 phases). Retrospective data (Phase 1) of patient receiving amlodipine and simvastatin being collected for a year of 2019 using Pharmacy Information System (PhIS) before being analyzed using Microsoft excel for prevalence of the combination. Phase 2 (prospective) patients being selected using stratified systematic convenient sampling before verbally interviewed for muscle complaint and demographic data. All patients with muscle complaint were exposed to drug interaction probability scale and muscle questionnaire for determination of SAMS. **Results:** Prevalence of the combination in Kuala Muda was 56.7% (n=20719/36625) and prevalence of SAMS was 15.0% (n=29/195). Significant predictors of SAMS were dosage category (p=0.02, 2 times higher in combination with simvastatin more than 20mg/day) and also smoking status (p=0.04, 3 times higher in smoker). Most patients with SAMS will have nocturnal cramping at thigh calves which started at 3 to 12 months after being prescribed with the combination. The prevalence of patients on amlodipine and simvastatin combination in Kuala Muda was 56.57% and prevalence of SAMS was 15.0%. **Conclusion:** Risk of SAMS increases in smoker and combination with simvastatin more than 20mg/day. The most prominent muscle complaint in patients with SAMS was nocturnal cramping at thigh calves

Pharmaceutical expenditure share by households in Malaysia: A regional comparison

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ABSTRACT

Introduction: In Malaysia, out-of-pocket expenditure on pharmaceutical products is alarmingly high. However, the topic related to how profound the monthly spending is relative to household income remains unexplored. To our knowledge, there is a lack of nationwide studies investigating factors associated with the expenditure share for pharmaceutical products using a nationally representative household sample. This study aims to conduct an in-depth investigation of the sociodemographic and household factors associated with pharmaceutical expenditure share (PES) among households in different regions in Malaysia. **Methods:** The Household Expenditure Surveys 2014 and 2016 were used for pooled cross-sectional analyses (n=29,389). Two-part models were used to estimate consumption (yes vs. no) and amount (PES) decisions of pharmaceutical products. The regressions were stratified by regions categorised based on Gross Domestic Product (GDP) per capita. **Results:** On average, a Malaysian household had a PES of 0.8%, which was equivalent to pharmaceutical expenditure of RM30-40 per month. Households with younger, male (high-income states), less-educated and Bumiputera heads while not owning insurance (low- and high-income states) were less likely to consume pharmaceutical products and had lesser PES than others. Households with higher income, having tobacco users and in 2016 were more likely to consume but spent lesser on pharmaceuticals. Separated household heads had lesser PES than single heads in middle-income states. Urban households in low- and middle-income states had a higher PES than rural households. **Conclusion:** More public health clinics in urban areas of low- and middle-income states and townships with more elderly are among the recommendations this study suggests to improve access to essential medicines.

Impact of COVID-19 pandemic on national cataract surgical rate: An interrupted time-series analysis

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ABSTRACT

Introduction: Elective surgeries were suspended during the national lockdown implemented in March 2020 to curb the spread of the COVID-19 pandemic. Our study aimed to assess the impact of COVID-19 pandemic on national cataract surgical rates. **Methods:** We conducted an interrupted time series analysis of cataract surgeries from 2017 to 2021 in Malaysia to evaluate the change in cataract surgical rates before and after the lockdown. Incidence rate ratios were estimated using a seasonally adjusted Poisson regression model. Stratified analyses were performed to establish whether the effect of the lockdown varied by COVID-19 status of the hospital, sex, and age groups. **Results:** The mean monthly cataract surgical rates before lockdown was 14.1 per 100,000 population with an underlying trend of a 1.0% increase per month. The lockdown was associated with an abrupt 54.0% reduction in monthly rates (95%CI: 0.36-0.60; $p<0.001$). In May 2020, we observed a gradual recovery in the rates with a peak at 13.8 per 100,000 population in September 2020 although it has not rebounded to its pre-lockdown rate in December 2021. There was no evidence that the effect of the lockdown differed by COVID-status of the hospital, sex, or age groups. **Conclusion:** The initial lockdown period in March 2020 was associated with an immediate reduction in cataract surgical rates to nearly half of its baseline rate. Although cataract surgical rates have marginally trended upward after restrictions were eased, efforts should be taken to restore the delivery of cataract services to its pre-pandemic level to mitigate the negative effects caused by service disruption.

Correlation of visceral fat area with waist-hip ratio, waist circumference and body mass index in healthy adults

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ABSTRACT

Introduction: The accumulation of visceral fat (VF) is highly correlated with metabolic abnormalities that contribute to high-risk type 2 diabetes mellitus and cardiovascular diseases. VF can be estimated by using instrument such as Bio Impedance Analyzer (BIA). Measurement of Waist-Hip Ratio (WHR) can be used as a proxy for VF. The aim of this study was to find correlation of Visceral Fat Area (VFA) with (WHR), Waist Circumference (WC) and Body Mass Index (BMI) in healthy adults. **Methods:** This is a cross-sectional study that obtained baseline data from "TOCOVIF" trial which involved 60 healthy subjects in Penang. Data was analyzed by using SPSS version 22.0. **Results:** Majority were males (83%, n=50) and 17% were females. The subjects with high VF were selected for this study. Majority of males (84%) had WHR >0.9 and all females had WHR >0.8. We found a significant correlation between WHR and VFA (r=0.359, $p<0.05$) among males while no significant correlation among females (r=0.519, $p=0.124$). There was a significant correlation between WC and VFA (r=0.768, $p<0.05$) for males and no significant correlation for females (r=0.482, $p=0.159$). As for BMI and VFA, there was a significant correlation for males (r=0.934, $p<0.05$) and females (r = 0.755, $p<0.05$). **Conclusion:** Correlation was found between WHR and VFA in males but not in females. A larger study needs to be conducted as the measurement of WHR is simple and inexpensive tool to use as a surrogate to measure VF.

Knowledge, attitude and practice of pregnant women regarding anaemia during antenatal visit at Kampar Health Clinic

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ABSTRACT

Introduction: Anaemia has a major health impact on pregnant women and foetus. Knowledge, attitude and practice of pregnant women regarding anaemia are crucial in anaemia prevention and treatment during pregnancy. **Methods:** A cross-sectional study involving pregnant women attending antenatal clinic at Kampar Health Clinic was conducted in 2021. The sample size required was 385. Pregnant women who could not comprehend Malay language were excluded. Subjects were recruited after consenting. A validated questionnaire was self-administered to capture subjects' socio-demographic and antenatal characteristics as well as knowledge, attitude and practice regarding anaemia. A pilot study was conducted for questionnaire validation purpose, prior to actual study data collection. Ordinal logistic regression was used to analyse the socio-demographic and antenatal characteristics association with level of knowledge, attitude and practice of pregnant women regarding anaemia. **Results:** We recruited 418 subjects. Their median age was 30 (IQR: 8) years. Majority were Malay (70.1%), had secondary education as highest education (76.3%), and delivered a baby before (62.0%). Half of them (49.3%) consumed folic acid before current pregnancy. Majority had high level of knowledge (69.4%) and practice (84.5%) on anaemia. Only 39.0% had high level of attitude. Malays, tertiary education, more advanced gestation, folic acid consumption and obtaining anaemia information from healthcare workers were associated with higher knowledge level (p<0.05). Malays, tertiary education, more advanced gestation, folic acid consumption and obtaining anaemia information from talk were associated with higher attitude level (p<0.05). None was found to be significantly associated with practice level. **Conclusion:** Majority of the pregnant women attending Kampar Health Clinic had high level of knowledge and practice on anaemia.

A study on patient safety culture among healthcare workers in Shah Alam Hospital

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ABSTRACT

Introduction: Patient safety is one of the essential components of healthcare quality. Good patient safety culture contributes to the good outcomes of patient care. This study aims to assess the positive response of patient safety culture and associated factors among healthcare workers in Shah Alam Hospital. **Methods:** A cross-sectional study using Hospital Survey on Patient Safety Culture (HSOPSC) was conducted in March-May 2021. The questionnaire consists of 32 items which measure ten dimensions of patient safety culture. Stratified random sampling was used to select 426 respondents, and the response rate was 78.4%. Logistic regression analysis was used in this study. The dimension with the highest positive responses was communication about the error; the lowest was the staffing dimension. There was no area of strength in patient safety culture dimensions; meanwhile, six dimensions need to be improved. **Results:** The significant factors associated with the positive response to patient safety culture dimensions were socio-demographic factors, staff categories, service categories, working hours, and patient safety training. In addition, multivariate analysis showed that staff working in surgical services have a 2.51 (95% CI: 1.26, 5.00) increased probability of having a positive response to patient safety culture. **Conclusion:** This study has shown that the patient safety culture in Shah Alam Hospital needs improvement. A collaborative effort from all the stakeholders and continuous evaluation and monitoring is required to improve the patient safety culture.

The effectiveness of daily pre-packed medication with pictogram labelling (DPM-PL) in improving medication adherence of haemodialysis (HD) patients in Sibu Hospital

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ABSTRACT

Introduction: Medication non-adherence has been a common issue among haemodialysis (HD) patients with multi-pharmacological treatment. We aim to assess the efficacy of daily pre-packed medication with pictogram labelling (DPM-PL) to improve medication adherence among HD patients. **Methods:** A quasi-experimental study was conducted with 33 HD patients in Sibu Hospital for 3 months. HD patients who were taking ≥6 oral medications with poor medication adherence where Pill count (PC) <85% and Medication Adherence Assessment Tool (MyMAAT) score <54 were eligible. Pre-intervention PC, MyMAAT, medications Dose, Frequency, Indication and Time of administration (DFIT) score, pre-HD blood pressure (BP), and serum phosphate levels were compared against post-intervention readings. Data were analysed using paired-t test and repeated-measure of ANOVA test. **Results:** Based on PC, medication adherence showed significant improvement at week 4 (p=0.02) and week 6 (p=0.03). The mean post-intervention MyMAAT score (56.7 ± 3.91) was significantly higher compared to mean pre-intervention score (41.7 ± 9.49) with the mean score difference of 15 (p<0.001). Meanwhile, post intervention DFIT median [96.9 (IQR=7.3)] was significantly higher compared to pre-intervention DFIT median [91.7 (IQR=8.9)] with the median score difference of 5.2 (p=0.001, p<0.05). However, the difference in pre-HD BP over time was statistically insignificant (p=0.908 for systolic BP, p=0.761 for diastolic BP, p>0.05). The mean serum phosphate level decreased by 0.1mmol/L overall but was deemed statistically insignificant (p=0.273, p>0.05). **Conclusion:** This study depicted evidence that DPM-PL has a positive impact on patients' medication adherence over time based on PC, MyMAAT and DFIT score.

Halasz Syndrome in Malaysian lady

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ABSTRACT

Case Description: 70-years-old Malay lady with underlying hypertension. She was diagnosed to have anomalous right upper pulmonary vein (RUPV) drainage into inferior vena cava (IVC) at the age of 60 years old as an incidental finding during admission for femoral neck fracture and desaturated during surgery. Patient underwent Computed Tomography Pulmonary Angiogram (CTPA) to ruled out pulmonary embolism. Her CTPA revealed right upper lobe pulmonary vein draining into IVC. At this time, her Echocardiography (ECHO) showed good LV systolic function, LVEF of 60%, normal chambers with no significant pulmonary hypertension. Her coronaries was normal. A diagnosis of Halasz syndrome was made and she was referred to Heart Team for surgery but she opted for medical therapy as she was asymptomatic. She was under our care and throughout her follow-up noted her ejection fraction was slowly declining and her pulmonary artery pressure was rising. She had recurrent admission for heart failure and was optimised on heart failure guideline-directed medical therapy (GDMT). This time she was admitted again for acute decompensated heart failure (ADHF) precipitated by septicemia secondary to pneumonia and succumbed. **Discussion:** Halasz syndrome is primarily an imaging diagnosis. Three-dimensional computed tomography (CT) and cardiac-gated magnetic resonance imaging (MRI) are the best diagnostic modalities, providing an excellent delineation of the anatomy of the abnormal pulmonary vein, its course, connection, and drainage. Surgical treatment is achievable by a corrective method with a re-routing of the flow. **Conclusion:** Even though our patient had chosen medical therapy she was probably one of the oldest living Scimitar or Halasz syndrome patient.

Comprehensive cardiac rehabilitation in improving cardiovascular outcomes in patients with coronary artery disease

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ABSTRACT

Introduction: Cardiovascular rehabilitation (CR) is a multifactorial and comprehensive intervention in secondary prevention, aimed at obtaining clinical stabilization and reduce future cardiovascular events. CR has shown to reduce mortality, hospital readmissions and costs, improve exercise capacity and quality of life and is a class 1 recommendation for all patients with coronary artery disease (CAD). **Methods:** A retrospective cross-sectional study. Medical records from the period of January 2015 to December 2019 of the selected subjects will be reviewed and study data extracted. The data analysis will be done using the SPSS version 22. **Results:** All the patients showed significant improvement in coronary risk factors from baseline to the last sessions. After 8 sessions of cardiac rehabilitation, number of patients with normal fasting blood sugar (FBS) in CABG group increased from 33.0% to 86.0%, as compared to non-CABG treated from 49.0% to 72.0%. As for fasting lipid profile (FLP), 41.0% subjects who was in normal range rose to 95.0% for CABG group as, compared to non-CABG. **Conclusion:** Results of the present study indicates that cardiac rehabilitation might have more positive impact on the modification of coronary risk factors more after CABG then the non-CABG treated suggestive of and increase awareness among the patients after undergone open heart surgery as no gain without pain. Improvement in medical education could be another factor for it.

Factors associated with quality of life during COVID-19 pandemic

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ABSTRACT

Introduction: The worldwide lockdown in response to the COVID-19 pandemic has been reported to have an impact on many people's quality of life. This study aims to measure the quality of life for Malaysians during this time and its associated factors. **Methods:** This national online survey from August to December 2021 via placement of QR codes in public places such as shopping malls, vaccination centres, and hospital outpatient clinics. The QR code is linked to a google form in Malay, which consists of four sections, including: socio-demographic; validated Fear of COVID-19 Scale; validated Brief COPE scale to assess coping strategies as well as regulating cognition in response to stressors coping mechanisms, and quality of life, measured using a validated WHOQOL-BREF questionnaire. The data collected were analysed via linear regression to obtain the final model. **Results:** There were 4904 Malaysian adults who participated in this survey with a mean of age 32(SD=9.2), and the majority being female (83.7%). Based on the finding, 59.1% claim to have had a low overall quality of life during the pandemic. Age, education status, and income as well as psychological related predictors (fear of COVID-19, coping strategies, and psychological distress) are the predictors that explain 69% of the total variance in quality of life among Malaysians. **Conclusion:** Targeting modifiable factors such as psychoeducation on fear of COVID-19, and coping strategies can potentially improve the quality of life during the COVID-19 pandemic among Malaysians.

Effects of time restricted feeding on metabolism syndrome severity in the obese adults – A pilot randomized control trial

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ABSTRACT

Introduction: Central obesity is a component of metabolic syndrome (MetS) which is also made up of dyslipidaemia, impaired glucose tolerance, and hypertension. Time Restricted Feeding (TRF) is a form of daily intermittent fasting, which involves an extended physiological overnight fast of 12-16 hours. Short studies (8-12 weeks) in the research laboratory have shown that TRF is effective in weight reduction. However, randomized controlled trial a in real-world setting is limited. This study aims to investigate the effect of 16:8 time restricted feeding (16:8 TRF) on MetS severity among obese adults. **Methods:** This is an open-label, randomized controlled trial with a 74 subjects sample size. Subjects were randomized into either the control group, which practices Quarter-Quarter Half (QQH) dietary plan or intervention group, which practices 16:8 TRF as an adjunct to QQH dietary plan. Subjects were followed up at 3 months and 6 months. Metabolic scores and weight differences between the two groups were analysed using univariate analysis and repeated measure ANOVA. **Results:** Two formulas were used to calculate the subject's MetS (age-based and gender based). Univariate analysis (Student's t-test) showed no difference between the two groups at all three timepoints (baseline, 3-month and 6-month). Using repeated measure ANOVA, there was also no significant difference between the two groups for both age-based MetS (p=0.427) and gender-based MetS (p=0.899). **Conclusion:** 16:8 TRF did not improve MetS score in the obese adults.

Public sentiment analysis, emotion detection and topic modelling on YouTube regarding Generational End Game (GEG) law

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ABSTRACT

Introduction: The anti-smoking laws for the first time have been proposed in the Parliament of Malaysia on 27th July 2022. The anti-smoking laws or referred to as the Generational End Game (GEG) law, will ban anyone who was born after 2007 from buying tobacco. Therefore, this study performed sentiment analysis, emotion detection, and topic modelling on textual data from YouTube comments regarding the GEG law. **Methods:** We searched for the term "GEG" or "generational end game", with a timeline limited to the period between August 1st to 21st, 2022, and collected 1305 YouTube comments. We performed data pre-processing on YouTube comments using R software version 4.2.1. Calculation of the sentiment analysis and detection of the emotion in the data was performed using the syuzhet package and National Research Council (NRC) Emotion Lexicon, respectively. Finally, this study further investigates by identifying the topics using the Louvain method. **Results:** In total, 1281 comments and 14958 words were selected for the data analysis. The sentiment analysis regarding GEG law in YouTube comments is mostly negative (56.9%), followed by positive (33.3%) and neutral (9.8%). The emotion analysis indicates that fear is the most present emotion, followed by trust and sadness. Our analysis identified five topics, almost half of the word associations regarding GEG law were related to the "Propose to take action against the use of vape and close the factory" topic (48.6%). **Conclusion:** Our findings may help the government to identify and understand netizens (network citizens) sentiments, emotions, and topics.

Clinical trials from the general public perspective: A preliminary qualitative study in Kuantan, Pahang

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ABSTRACT

Introduction: Clinical trials (CT)s are necessary for developing medical knowledge and improving healthcare. The current study identifies the public's awareness, experiences, and perceptions regarding CT participation and dissemination at the community level. **Methods:** The study employed in-depth qualitative interviews with public participants from various demographic backgrounds who stayed in Kuantan. Participants were recruited until saturation was reached. We used a topic guide to facilitate the interviews and audio-recorded it for content analysis. Interviews were recorded on paper and translated from the local Malay language to English for analysis. **Results:** Five males and five females, aged 20 to 80 years old, participated in the interview. Four main themes were identified: awareness, benefits, concern about side effects, and sources of information. The understanding and awareness about CTs are very low, making them hesitate to participate. Only a few participants could associate CTs with medicine or the development of new vaccines. **Conclusion:** There is a need to create awareness about CTs which helps the participants to participate in CTs based on their own decision. These IDI findings require validation in a larger sample. Better information, interactive leaflets, Tiktok social media, and greater emphasis on face-to-face discussion are suggested to understand more about CTs, side effects, and how the procedures are done to them. A further survey is needed to improve the general public's understanding, motivation, and barriers to participating in CTs.

Utility and diagnostic yield of whole-exome sequencing (WES) for patients with suspected genetic disorders in Penang Hospital

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ABSTRACT

Introduction: Genetic disorders occur at a rate of 40 - 82 per 1000 live births worldwide. Investigations available for patients referred to genetic clinic include karyotyping, metabolic analysis and single gene testing. Chromosomal microarray is not routinely available due to lack of funding. Multigene panel testing in private labs is only available to patients who can afford out-of-pocket expenses; hence, many patients remain undiagnosed for years. **Methods:** This retrospective study was conducted in genetic clinic, Penang Hospital. 513 patients with suspected genetic disorders without a molecular diagnosis who were seen over a period of 17 months from August 2020 to December 2021 were included. Proband-only WES was performed and the results were analysed. **Results:** A total of 85.0% (435/513) paediatric patients, including 26 neonates and 78 adults presented with a wide range of phenotypes. 174 patients received positive results with pathogenic or likely pathogenic variants and 240 patients received negative results. 81 of 99 patients with inconclusive results had probable genetic diagnosis as 90/115 variants of uncertain significance (VUS) were potentially causal. Four patients received dual molecular genetic diagnoses and 11 patients had copy number variants (CNV). Inheritance pattern of diagnosed disorders were 65.0% autosomal dominant (167/259), 25.0% autosomal recessive (66/259) and 10.0% X-linked (26/259). Of the 78.0% (401/513) of patients opted for receiving secondary findings, 6.5% (26/401) received a positive result, mainly in cardiac disease-related genes. **Conclusion:** 50.0% (255/513) received a genetic diagnosis by WES. This supports the importance of prompt and accurate molecular diagnosis at an early stage to identify potential treatments, provide anticipatory guidance, prognosis and genetic counselling.

Making sense of whole-exome sequencing (WES) results

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ABSTRACT

Introduction: WES is increasingly used to clinch an accurate molecular diagnosis and inform patient care in a timely manner for patients suspected with rare genetic disorders. Patients and treating physicians are challenged by the relatively high cost of test and interpretation of variants of uncertain significance (VUS) and secondary findings. **Methods:** This retrospective study was conducted in genetic clinic, Penang Hospital. Proband-only WES was performed from August 2020 to December 2021. Of total 513 patients, 273 patients received positive or inconclusive results with 35.0% (115/330) being VUS. Remaining 240 patients (46.8%) with negative results were subjected to automated daily reanalysis. **Results:** For 99 patients who received inconclusive results, further genotype-phenotype correlation, disease pathomechanism evaluation and variant segregation studies suggested that 90 of the 115 VUS could potentially be causal. Through additional phenotype information and reanalysis, 11 of 240 WES-negative patients, eventually received an updated report with detection of variant in a new disease gene and reclassification of VUS to pathogenic or likely pathogenic (P/LP). 78.0% (401/513) opted to receive secondary findings of which 6.5% (26/401) was positive with majority in genes for cardiovascular disorders (65.0%, 15/23) and cancers (26.0%, 6/23). As these were medically actionable variants, genetic counselling including reproductive planning and cascade screening, initiation of appropriate surveillance, avoidance of unnecessary investigations and change of treatment were provided. **Conclusion:** Positive WES results provide tremendous benefits to patient management. Initial negative results may become positive later through reanalysis and periodic phenotypic review, hence increasing diagnostic yield. VUS resolution and secondary finding management may entail additional medical cost and clinical burden.

Predicting factor affecting stress among stroke survivors in Terengganu

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ABSTRACT

Introduction: Post-stroke stress (PSS) is one of the most prominent mental health problems observed among stroke survivors. Mental health disorders have an equal or greater impact on the severity of impairment and decline in quality of life among stroke survivors. The purpose of this study was to examine the prevalence and factors influencing stress among stroke survivors in Terengganu. **Methods:** This was a cross-sectional survey study using the Stress Scale from the Depression, Anxiety and Stress Scale (DASS 21) questionnaire. It was conducted within a period of 07 July to 22 August 2022, involving ischemic stroke survivors who were under follow-up at Neurology Clinic Hospital Sultanah Nur Zahirah. Data regarding stroke Oxfordshire Community Stroke Project (OCSP) location, duration, risk factors, and functional disability were obtained from the National Stroke registry case report form. The data were analysed by using SPSS 26. **Results:** There were 123 stroke patients aged 25 to 75 years with a mean (SD) stress score was 15.3 (2.96). There were 37.4% of patients had extremely severe stress and 43.9% of them reported to be severe stress. Based on multiple linear regression analysis, there was a positive moderate relationship ($r=0.467$, $p<0.001$) between stroke OCSP and location, risk factors, and functional disability factor which contributed as much as 21.8% to stress. **Conclusion:** There was a high prevalence of severe stress in Terengganu with stroke OCSP, location, duration, risk factors, and functional disability were identified to be the contributing factors.

Application of Westgard Sigma Multi-Rules as quality assessment tool in clinical research laboratory

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ABSTRACT

Introduction: Multi rule Quality control (QC) has been implemented in laboratories to ensure the reliability of test results in clinical decision-making process. However, a proliferation of all of these rules can result in a lack of coherence in quality. In order to achieve top-notch quality in a clinical research laboratory, it is essential to establish optimal Westgard QC Rules. **Methods:** A retrospective study was conducted on a data set consisting of internal quality control and external quality control of 30 assays collected between January 2021 and June 2022. The sigma metrics (σCLIA, σBV) of these assays run on automated haematology analyser (Sysmex XS1000i) and automated dry chemistry analyser (Fuji Dri-Chem NX500) was calculated based on imprecision (CV%), inaccuracy (bias %), total allowable error (TEa) with the formula of Sigma = (TEa-bias)/CV. **Results:** Nine out of 30 assays achieved Six Sigma quality performance, which showed $\sigma \geq 6$. Thirteen assays described $\sigma>3$, which met the process performance in a clinical research laboratory setting while the remaining eight assays failed to achieve the minimum six sigma quality performance with metrics less than three. **Conclusion:** Westgard sigma rules are essential for timely error detection and scrutinize between the two most common sources of error; bias and imprecision. This serves as a gold standard for obtaining high quality test.

Prevalence of tuberculosis (TB) treatment outcomes among TB/HIV co-infected patients in East-Coast Malaysia: 5 years record review

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ABSTRACT

Introduction: Tuberculosis (TB) is an infectious disease that remains a major global health concern. In Malaysia, the prevalence of Tuberculosis (TB) treatment success rate among TB/HIV co-infection is still below the success target of the World Health Organisation (WHO). Our objective was to assess the prevalence of successful TB treatment outcomes among TB/HIV co-infected patients in East Coast Malaysia. **Methods:** This was a cross-sectional study involving the secondary data from MyTB online system from January 2016 to December 2020, carried out at TB/Leprosy Sector, Ministry of Health Malaysia. The data were analysed using SPSS version 25.0 and STATA 14. The ethics approval was obtained from MOH's Medical Research Ethics Committee (MREC). **Results:** There were 1223 TB/HIV co-infection in East-Coast Malaysia (Kelantan=506, Pahang=371, Terengganu=346). The mean age was 42.1 ± 12.06 years, and the mean duration of treatment was 5.6 ± 3.87 months. The successful TB treatment outcomes range from 59.0% to 66.4%. The overall prevalence of successful TB treatment outcomes was 62.7%, with 33.5% cured and 29.2% completed treatment. While the unsuccessful was 37.3%, with 6.4% defaulted and 30.9% died. There were no treatment failure cases identified. **Conclusion:** A slightly consistent trend was observed from 2016 to 2020. The magnitude of successful TB treatment in this study is low and still under the international target by WHO. It is essential to know the associated factors related to successful treatment. Therefore, further investigation should be carried out, and other interventions should be organized once the associated factors have been identified.

Retrospective study on adverse effects following COVID-19 vaccination among teenagers in Klang Valley

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ABSTRACT

Introduction: Preventive approach via vaccination remains one of the most effective ways of controlling the COVID-19 pandemic. Safety concerns especially among children and teenagers is a concern. The aim of the study was to determine the adverse effects of COVID -19 vaccine among teenagers in Klang Valley. **Methods:** A retrospective study involved 12 to less than 18 years old received COVID-19 Pfizer-BioNTech (BNT162b2) mRNA vaccine from 1st September 2021 until 15th November 2021 in Hospital Tunku Azizah. They were interviewed via telephone on the adverse effects of COVID -19 vaccination after available parental consent and assents. **Results:** A total of 300 teenagers recruited. There were 166 (55.3%) males and their mean age was 13.8 ± 1.7 years. During first vaccination, 267 (87.0%) experienced local adverse effects (injection site pain, swelling and redness), 58 (18.0%) had systemic adverse effects and 77 (25.0%) had general symptoms (fever, lethargy, giddiness, chills and flush) during first 48 hours. About 5% had symptoms by second to seven days post-vaccination. Almost all adverse effects resolved by second week. For second vaccination, 251 (83.0%) had local adverse effects, 39 (13.0%) had systemic adverse effects and 71 (24.6%) had general symptoms within first 48 hours. Less than 6.0% had side effects between second to seventh day and almost all resolved by second week of vaccination. Adverse side effects were not related to their underlying medical problems, age and gender. **Conclusion:** Common adverse effects following COVID-19 vaccination among teenagers were localised to injection within the first 48 hours.

Biomarkers associated with kidney function and the role of statin: A clinicopathologic analysis at a single institution

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ABSTRACT

Introduction: The absolute benefit of treatment with statin appears to be greater among patients with nondialysis-dependent chronic kidney disease (CKD). Our study aims to determine the effect of different type of statin on kidney function and the associated factors. **Methods:** We performed a cross-sectional study involving patients with new statin prescription from January 1st, 2020, till December 31st, 2020. Convenient sampling was performed on statin-dispensing registry, and laboratory results were traced from local database of a single healthcare facility in northwest peninsular Malaysia. Information on baseline demographics, type and dosage of statin, and pertinent biomarkers within the next 6 months of statin initiation were collated. Multivariate analyses with linear regression were performed to determine the effect of selected variables on estimated glomerular filtration rate (eGFR). **Results:** A total of 406 patient records were analysed. Majority was male (59.1%), mean age of 61.2±13.68 years old, with Stage 4 CKD (36.0%). There were no significant effect of statin type on total cholesterol level, $F(2, 395)=0.88$, $p=0.415$ and eGFR, $F(2, 395)=1.94$, $p=0.146$. Multiple linear regression determined that age (b=-0.72, 95%CI: -0.97, -0.46) and fasting blood sugar (b=-1.49, 95%CI: -2.38, -0.61) was negatively associated with eGFR while haemoglobin level had a significant linear relationship (b=5.13, 95% CI: 3.42, 6.84). **Conclusion:** These findings suggest that appropriate and timely control of glycaemia in people with CKD is crucial to prevent complications. Anaemia on the other hand, is a direct consequence of advanced CKD, hence iron supplementation or erythropoiesis-stimulating agent may be offered early and optimised.

Rare cause of Guillain-Barré Syndrome: Japanese encephalitis

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ABSTRACT

Introduction: Guillain-Barré syndrome (GBS) is an acute inflammatory demyelinating radiculopathy which may be triggered by infection and Japanese Encephalitis (JE) virus infection is one of the rare provoking agents. **Methods:** We report a 36-year-old male who presented with acute ascending paralysis preceded by JE virus infection. **Results:** This is a case of a 36-year-old man, who presented with acute onset of ascending weakness preceded by fever, headache and altered mental status. On examination, he was febrile, tachycardic and drowsy. He was also tetraparesis with lower limbs worse than upper limbs. Knees and ankles reflexes were absent. Cranial nerves, upper limbs reflexes and sensory examination were unrevealing. Initial Computed Tomography (CT) of the brain was unremarkable. He was empirically treated as meningoencephalitis and intravenous ceftriaxone and intravenous acyclovir were administered. His condition deteriorated and requiring mechanical ventilation following days owing to impending respiratory failure. Cerebrospinal fluid analysis revealed albumino-cytological dissociation while neurophysiological studies suggestive of acute motor axonal neuropathy. Magnetic Resonance imaging of whole spine showed nerve root enhancement of the cauda equina. His CSF JE IgM was positive. This prompted diagnosis of GBS associated with JE infection and intravenous immunoglobulin were commenced. Despite initial improvement of his limb strength and mental status, he suffered recurrent bouts of nosocomial infections resulting in cardiorespiratory arrest leading to severe hypoxic ischaemic injury. Conclusion: This case highlights JE as one of the provoking microorganisms for the GBS. Early detection will assist the public health surveillance to prevent the spread of this vector borne disease.

A case report of successful mechanical thrombectomy in acute basilar artery occlusion at extended window period

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ABSTRACT

Case summary: Benefit of mechanical thrombectomy (MT) for anterior circulation stroke and up to 24 hours is well documented. However, evidence for MT in acute basilar artery occlusion (BAO) remains inconclusive and largely extrapolated from randomized trials for anterior circulation stroke. We present a case of a 56 years old man with acute BAO, who received thrombolytic therapy with intravenous alteplase at 160 minutes and subsequently underwent MT at 13 hours of symptoms onset. He presented with left-sided body weakness, facial asymmetry and slurring of speech with National Institutes of Health Stroke Scale (NIHSS) score of 11/42. Blood pressure (BP) was 160/100mmHg. Computed Tomography (CT) scan of brain was unremarkable with ASPECT score of 10. An hour after thrombolysis, his Glasgow coma scale (GCS) dropped to 10/15, and NIHSS increased to 18. Hence was sent for a plain CT brain and CT angiography (CTA) of brain. CTA brain revealed proximal BAO with presence of left fetal posterior communicating artery (PComA) and a posterior circulation-collateral score of 6. After thorough explanation, family agreed for the patient to be sent to a private hospital for MT. MT was successful and Thrombolysis in Cerebral Infarction (TICI) 3 was achieved at 13 hours of onset. Post MT, patient was put on double antiplatelet. NIHSS was 7 and GCS was 15 on day 6 of stroke. We postulate presence of good collaterals to the posterior circulation, largely via fetal-type PComA in this patient, contributed to the good outcome in this patient despite MT being done at the extended window period of time.

Identification of COVID-19 pneumonia changes on CT scan thorax: Comparison between deep learning module and radiologists' findings

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ABSTRACT

Introduction: During the initial pandemic phase, rapid diagnosis of COVID-19 pneumonia is crucial for disease prevention and management. This study aimed to compare the deep learning (DL) module (AXIAL Skymind version 1.0) and radiologists' findings in detecting COVID-19 pneumonia changes in CT-Thorax. **Methods:** A cross-sectional study from March to August 2021. 10 case studies HRCT thorax i.e. 9 studies confirmed COVID-19 pneumonia and a normal study. Patient IDs were removed and labelled by research series number. Data collected from their HRCT reports were standardized including their site and type of lesions (ground glass changes, consolidation and crazy-paving patterns) which were commonly found in COVID-19 pneumonia cases. Inter-observer agreement was measured using Fleiss Kappa (95% confidence interval). The radiologist's findings compared with the results generated by the DL module, Axial Skymind version 1.0. **Results:** A total of 330 CT-scan reports by 33 trained radiologists analysed. We used 70% agreement among radiologists as significant findings. However, the DL module managed to detect and report ground glass changes only and could not identify consolidation and crazy-paving patterns. Comparing the radiologists' findings and DL modules on ground glass changes, the average percentage of agreement for the site was 72.5%, ranging from 0-100%. The severity of the ground glass changes was not detected by DL modules. **Conclusion:** There was significant differences between DL modules and radiologists' findings on HRCT Thorax of COVID-19 pneumonia. The DL module needs to be strengthened and improve its accuracy and reliability before the potential use in clinical practice.

Prevalence, aetiology, outcome and management of moderate and severe hyponatremia on hospital admission

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ABSTRACT

Introduction: Hyponatremia is a common electrolyte disturbance seen in hospitalized patients. Published data had shown the prevalence of hyponatremia between 2.5% to 30.0% but the data is lacking in Malaysia. This study aimed to describe the prevalence, aetiology, outcome and management of moderate and severe hyponatremia on admission. **Methods:** All adults admitted to medical wards from June to October 2021 in Hospital Putrajaya were retrospectively screened. Patients with at least 2 serum sodium including on admission were included. All patients with moderate (sodium 126 to 129 mmol/L) and severe hyponatremia (<125 mmol/L) were included. Main outcome were length of hospitalization and in-hospital mortality. **Results:** From total of 1775 admission, hyponatremia was present in 39.6% of patients, with moderate to severe hyponatremia was 268 (15.1%). Mean age was 54.5±16.8 years and predominantly male 168 (62.7%). More than half (63.1%) admitted due to pneumonia. Hypovolemia was the most common cause hyponatremia (64.0%). Most of the patients (84.0%) were treated with normal saline. Only 17(6.3%) patients needed hypertonic saline and oral salts. The median length of stay was 6 days ± 7 days. All cause in-hospital mortality was 43 (16.0%). Two hundred twenty patients (82.1%) had normal sodium before discharge. **Conclusion:** Hyponatremia is common in hospitalized patients. Hypovolemia is the most common cause and most of the patients responded to treatment within a week of stay.

Retrospective study on maternal and perinatal outcomes of pregnancy with diabetes mellitus

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ABSTRACT

Introduction: Many literatures showed diabetes mellitus (DM) during pregnancy has significant impact on both mother and child. DM during pregnancy is categorized as pre-gestational diabetes mellitus (PGDM) either type 1 or type 2 DM, or gestational diabetes mellitus (GDM). This study aims to determine the maternal and neonatal outcomes of women with DM during pregnancy. **Methods:** Women with DM during pregnancy under follow-up and delivered in a Women Children Hospital (Hospital Tunku Azizah, HTA) between 1st September 2019 until 29th February 2020 were included. Exclusion criteria were foreigners, termination of pregnancy before 25 weeks and obstetric deliveries/ termination of pregnancies due to other underlying maternal medical illness and un-booked pregnancies. DM classified as uncontrolled (UCDM) and controlled DM (CDM) based on their HbA1c level. **Results:** A total of 173 pregnant women with DM were included, PGDM (39, 22.5%) and GDM (134, 77.5%). The median age was 33 years (19, 45). UCDM is more common in PGDM (63.4%) than in GDM. UCDM had higher occurrence of maternal obesity (29, 74.4%), pregnancy-induced hypertension (12, 29.3%), pre-term delivery (9, 22.0%), neonatal macrosomia (5, 12.2%), neonates with ventilator support (9, 22%), neonatal sepsis (3, 7.5%), neonatal respiratory distress (13, 31.7%) and neonatal hypoglycaemia (4, 9.8%) compared to CDM. Neonatal mortality was higher in UCDM (4.9%) compared to CDM (4.5%). Neonates not discharged from hospital by 28 days higher in UCDM (4.9%) compared to CDM (0) mothers. **Conclusion:** Uncontrolled DM during pregnancy leads to many adverse outcomes for mother and neonate including prematurity, neonatal mortality and increase healthcare expenditure from prolonged stay.

Predictability of modified SA2Me-TR score among non-valvular atrial fibrillation (NVAF) patients at Malaysian public hospitals

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ABSTRACT

Introduction: Anticoagulation control (INR Control) prior to warfarin initiation among atrial fibrillation (AF) patients can predicted using scoring tools. The Modified SA2Me-TR score is an alternative to the SAMe-TT2R2 score that can be used to predict anticoagulation control yet to be validated in the Malaysian population. **Methods:** This multicentred retrospective observational study was conducted at Hospital Tanjung Karang and Hospital Serdang. Patient medical records on warfarin were used to collect 10 international normalized ratio (INR) readings after one month of initiation and other details required to stratify the Modified SA2Me-TR score. Linear regression, Independent t-test, Chi-Square, Phi, and Cramer V analysis were used to analyse the predictability. **Results:** A total of 266 patients who met the selection criteria were included in the final analyses. This study found that the Modified SA2Me-TR score has a statistically significant moderate negative correlation with time in therapeutic range (TTR) in the study population (p<0.001 R=-0.399). For every 1-point patient score, the study exhibited a decline in TTR by -6.563 to -11.670 (p<0.001). Modified SA2Me-TR score explains 15.9% of changes in TTR (p<0.001 R2 adjusted 0.159 CI 95% [-11.670, -6.563]). Ten potential clinical factors that alter the TTR were studied, only heart failure HF (p<0.001, 95%CI [-21.623, -10.329]) and proton pump inhibitors (PPI) (p<0.001, 95%CI [-20.135, -5.703]) showed statistical significance. **Conclusion:** Modified SA2Me-TR was shown to have a few limitations as a predictor model. Further studies incorporating additional criteria such as PPI should be considered to improve the model.

Did the first Movement Control Order impact healthcare seeking behaviour and healthcare access among Malaysians? Findings from a cross-sectional survey

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ABSTRACT

Introduction: In March 2020, Malaysia initiated the first Movement Control Order (MCO) to curb the spread of COVID-19 infections. While healthcare services remained operational, fears of contracting COVID-19 may have impacted health seeking behaviours and healthcare access. A survey was conducted to investigate how the first MCO impacted actions of individuals experiencing upper respiratory tract infection versus other symptoms, routine follow-up visits, and refill prescription practices. **Methods:** A cross-sectional survey among adult Malaysians was conducted from November to December 2020. A self-administered questionnaire was developed, validated, and disseminated on social media and communication platforms. **Results:** 3001 participants responded to the survey. 486 (16.0%) of them reported being unwell during the MCO. Regardless of symptoms, actions taken to seek medical care were similar. The most common action on average was visiting a medical doctor (55.0%), followed by self-medicating at home (38.0%). 588 participants had a scheduled appointment for their medical condition during the MCO. 253 of them had their appointments affected by the lockdown, for examples, 85.0% postponed, 12% cancelled, 9.0% referred. Only 42.3% of these affected participants saw a doctor within 3 months after the first MCO. Out of 487 participants who regularly collected medications from the pharmacy, 69.0% had a prescription refill appointment during the lockdown. Only 15.0% of them did not collect their medications on the scheduled date. **Conclusion:** The first MCO did not severely affect health seeking behaviour and prescription refill practices. However, there are concerns over timely access to follow-up appointments due to extensive rescheduling and backlogs triggered by the pandemic.

A liquid biopsy approach to detect copy number variations by low coverage whole genome sequencing in Hodgkin Lymphoma and post-transplant lymphoproliferative disorder

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ABSTRACT

Introduction: Liquid biopsy is a minimally-invasive approach that could be used for early detection of cancer, monitoring disease progression or response to personalised therapy. Genomic aberrations such as single nucleotide variant, translocations/fusions and copy number variations (CNVs) can be detected in liquid biopsies. In this study, low coverage-whole genome sequencing (lcWGS) was used to investigate the feasibility of detecting CNVs in liquid biopsies collected retrospectively. **Methods:** Cell-free DNA (cfDNA) was isolated from pre-treatment plasma of 44 classical Hodgkin lymphoma (cHL) patients, 16 monomorphic post-transplant lymphoproliferative disorder (PTLD) patients and ten controls. Six tissue samples from PTLD patients were also included for comparison. All samples were subjected to lcWGS at an average coverage of 0.2X. CNV analysis was performed with R packages CNAclinic and ichorCNA. **Results:** CNVs were detected in cfDNA of 59.1% cHL and 68.8% PTLD patients but not detected in any of the controls. Full concordance (100%) was observed for CNVs detected in paired cfDNA and tissue in PTLD patients. Estimated tumour fraction based on CNVs were 0-21.8%, 0-90.7% and 0-4.7% in cHL, PTLD and controls, respectively. **Conclusion:** CNVs detected by liquid biopsy reflect that of the tissue, indicating that cfDNAs are derived from tumour. Low estimated tumour fraction in few controls were likely due to clonal haematopoiesis of indeterminate potential. The sensitivity to detect CNV in liquid biopsies was good despite minimal amount of cfDNA from retrospective samples were used, and sequencing was performed at low coverage. In conclusion, this approach is minimally-invasive, low cost and could be applied in the clinical setting for informed decisions.

Post COVID-19 infection: Impact of demography and symptom persistence on functional outcome post hospitalization

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ABSTRACT

Introduction: Post-COVID-19 syndrome has emerged as we learn more about COVID-19 but its influence on patient well-being after discharge is not well researched. The study examined the impact of demography and symptom persistence on functional outcome post hospitalization. **Methods:** A single-centre, cross-sectional study was conducted via retrospective review of medical records of patients who attended the post-COVID-19 clinic follow-up from September 2020 until August 2021. Associating factors with functional status was analysed using logistic regression. **Results:** The mean age of 201 patients was 55 (SD: 14.1) years old, with population match ethnic proportions and equal gender distribution. Most were diagnosed with COVID-19 Stage 3 or higher. Hypertension (57.1%) and diabetes (39.1%) were the common comorbidities. Cough (59.3%), dyspnoea (43.3%), and fever (42.5%) were the most prevalent hospitalization symptoms, while malaise (21.0%), dyspnoea (17.8%), and cough (17.4%) were the most common post-discharge symptoms. Slightly less than half (46.6%) had poor functional outcome. Patients with malaise [AOR: 4.76 (95% CI: 1.89, 12.02), p=0.001] and cough [AOR: 2.97 (95% CI: 1.17, 7.55), p=0.022] had higher odds of poor functional outcome. Twenty-three patients sought treatment for persistent symptoms, but only three contacted the COVID team for advice. **Conclusion:** Persistent symptoms like malaise and cough which was associated with poorer functional outcomes alongside low health-seeking behaviour implying a lack of knowledge about the impact of symptom persistence on their quality of life. This serves as a guide for patient's education on recovery and future follow-up plans in the post-COVID-19 clinic.

Estimating patient long-term survival outcomes and characterizing uncertainty associated with enzyme replacement therapy (ERT) treatment for Hunter Syndrome

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ABSTRACT

Introduction: Recent application of reconstructing individual-patient data underlying published Kaplan-Meier curves represents a methodological breakthrough where quantitative data are scarce in rare disease research. This approach was utilized to; (1) estimate a pooled hazard ratio using meta-analysis and combined reconstructed survival data; (2) simulate the progression-free survival (PFS) curve for the treatment arm using the survival statistics obtained from (1) for a disease progression model; (3) estimate the treatment-related life-year gained in comparison to standard-of-care. **Methods:** A partitioned survival model was characterized by four health states (stable, pre-progression, post-progression, and death) based on the selected outcome measures. Time-delayed progression was assumed when estimating PFS by applying the hazard ratio (HR) to the overall survival. The good fit of Weibull and Gompertz parametric models was contrasted to account for the survival plausibility beyond the observed period. The associated uncertainty was generated using the bootstrapped procedure. The probabilities of being in the different disease states were determined using the area under the curve method. Finally, the clinical experts validated the modelled progression. All steps were conducted in R-platform. **Results:** The treatment group demonstrated a 64% lower risk of death (pooled HR [95% CI]: 0.36 [0.25-0.51]). The patients' movement was graphically represented to illustrate the treatment's potential in attaining longer survival years (95% CI) consistent with current observation for the following states: stable 0.38 (0.01-1.01), pre-progression 3.18 (1.30-4.75) and post-progression 0.88 (0.05-2.38). **Conclusion:** The model can be used to evaluate the changes in the quantity (mortality) and quality (morbidity) of life composite outcomes for future cost-effectiveness assessments.

Differences in colorectal cancer stage and mortality by ethnicity in Malaysia

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ABSTRACT

Introduction: While ethnicity groups were known to have impact on CRC incidence, little is known about its influence on stage and survival. This study aimed to evaluate the differences in CRC stage and mortality among patients in Northern Malaysia. **Methods:** This cross-sectional study utilised secondary data from the National Cancer Patient Registry-Colorectal Cancer (NPCR-CC) focusing on three northern states i.e. Perlis, Kedah and Pulau Pinang. All CRC cases between January 2008 and December 2017 were included. The data cleaning and analyses were performed using the R Software for Windows version 3.5.11. Descriptive analysis was summarized as frequencies and percentages. Multinomial logistics regression was used to assess the influence of ethnicity on CRC stage at presentation. Multiple Cox Proportional-Hazards regression was used to describe the survival among the ethnicities. **Results:** Malay patients were mostly diagnosed at stage III (OR 1.82) or Stage IV (OR 2.65) (p<0.001), highest among all ethnicities. Among male, Malay was demonstrated to have the highest risk of Stage III and IV (p-value<0.001) but not for Stage II. Risk of advanced staged cancers by ethnicity was more pronounced for colon compared with rectum and rectosigmoid junction. The overall risk of CRC mortality was highest in Malay (p-value<0.001). Interestingly, there is no significant difference in risk of mortality across all stages in all ethnicities and gender. **Conclusion:** The findings call attention to the delayed diagnosis of CRC in Malaysia, particularly in the Malay ethnic group.

Adversarial attacks on medical deep learning models

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ABSTRACT

Introduction: Adversarial attacks are a great threat to deep learning (DL) as they can generate imperceptible perturbations in images which severely affects model performance. More worryingly, recent works have shown that medical DL models are vulnerable to such attacks. The DL process flow is susceptible to various kinds of adversarial attacks. Specifically, causative attacks occur before a model is built, during training, and exploratory attacks occur after model training, during the inference phase. Furthermore, these attacks can be exploited to compromise overall model accuracy, or influence results on specific targeted classes. This research aims to study the impact of causative and exploratory attacks for non-targeted and targeted purposes, on medical DL models built for image classification tasks. **Methods:** Warping Based Backdoor Attack and Universal Adversarial Pattern Attack were selected due to their superior performance in generating imperceptible adversarial samples for non-targeted and targeted attacks. DL models were produced from both original and perturbed ISIC-2019 dermoscopic and COVID-NET chest X-ray image datasets. These models were subsequently evaluated on their classification performance. **Results:** Experiments on models achieving above 90.0% accuracy revealed that both causative and exploratory attacks could lower model accuracy by at least 45.0%. In the best-case adversarial attack scenario, model accuracy was reduced by up to 99.0%. **Conclusion:** These results provide a better understanding on the damaging nature of causative and exploratory adversarial attacks as well as vulnerability of medical DL models. The findings can serve as a starting point towards building effective defence approaches that are vital for medical systems utilising DL algorithms.

Adaptation of a population pharmacokinetic model to inform tacrolimus therapy in heart transplant recipients

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ABSTRACT

Introduction: Existing tacrolimus population pharmacokinetic models are unsuitable for guiding tacrolimus dosing in heart transplant recipients. This study aimed to develop and evaluate a population pharmacokinetic model for tacrolimus in heart transplant recipients that considers the tacrolimus-azole antifungal interaction. **Methods:** Data from heart transplant recipients (n=87) administered the oral immediate-release formulation of tacrolimus (Prograf®) were collected. Routine drug monitoring data, principally trough concentrations, were used for model building (n=1099). A published tacrolimus model was used to inform the estimation of Ka, V2/F, Q/F, and V3/F. The effect of concomitant azole antifungal use on tacrolimus CL/F was quantified. Fat-free mass was implemented as a covariate on CL/F, V2/F, V3/F and Q/F on an allometry scale. Subsequently, stepwise covariate modelling was performed. Significant covariates influencing tacrolimus CL/F were included in the final model. Robustness of the final model was confirmed using prediction-corrected visual predictive check (pcVPC). The final model was externally evaluated for prediction of tacrolimus concentrations of the fourth dosing occasion (n=87) from 1–3 prior dosing occasions. **Results:** Concomitant azole antifungal therapy reduced tacrolimus CL/F by 80%. Haematocrit (ΔOFV = -44, $p<0.001$) was included in the final model. The pcVPC of the final model displayed good model adequacy. One recent drug concentration is sufficient for the model to guide tacrolimus dosing. **Conclusion:** A population pharmacokinetic model that adequately describes tacrolimus pharmacokinetics in heart transplant recipients, considering the tacrolimus-azole antifungal interaction was developed. Prospective evaluation is required to assess its clinical utility to improve patient outcomes.

Socio-demographic characteristics of women who had tubal ligation in a single institution in Sabah

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ABSTRACT

Introduction: In 2019, the number of live births in Sabah was 52,686; the third highest recorded by state in Malaysia. In order to balance the population pyramid structure, tubal ligation is offered as a permanent contraceptive method for fertility regulation. The aim of our study is to describe the socio-demographic characteristics of women who had tubal ligation in Sabah Women and Children Hospital (SWACH). **Methods:** This is a cross-sectional study. Simple random sampling is used to select the subjects. A total of 241 women who had tubal ligation in SWACH in the year 2019 are included in the study. Relevant data such as age, ethnicity, occupation, surgical history and number of children are collected from the case notes. **Results:** The mean age for women who had tubal ligation is 36 years (SD 3.87) with 67.9% (n= 163) being aged 35 years and above. Thirty percent (n= 72) were of Dusun ethnicity. The mean number of children is 4 (SD 1.68) with more than half having 3-4 children (50.9%, n= 122). Majority of the women are housewives (62.5%, n= 150). More than 90.0% (n= 220) of the women had their tubal ligation immediately after a caesarean section. **Conclusion:** The results suggest that increased risk of complications with advanced maternal age, increased family financial burden with the addition of a child and easy accessibility to tubal ligation service are likely to influence women's decision to have tubal ligation. Future studies should include multiple study sites, factors such as education, income and other available methods of contraception into consideration.

COVID-19 vaccine uptake - what motivates & what hesitates?

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ABSTRACT

Introduction: Vaccination against COVID-19 can help prevent serious complications and death. The World Health Organization (WHO) Strategic Advisory Groups of Experts (SAGE) collated few evidences that vaccine hesitancy was due to socio-psychological factors like decreased trust on the safety or the effectiveness of the vaccines. In Malaysia, the main challenge was to ensure the broadest possible acceptance of COVID-19 vaccinations. This study aimed to assess the association between complete vaccination status with health factors and perception towards COVID-19 vaccine uptake amongst people living in Seberang Perai, Penang. **Methods:** A cross-sectional study among 410 adults aged ≥18 years old was carried out using convenience sampling technique in September 2021. Validated items related to vaccine perceptions were adapted from previous literature. Baseline vaccination data were obtained from the vaccination centre at Hospital Seberang Jaya. Descriptive and inferential statistics were conducted using SPSS version 22.0. **Results:** The mean age of the respondents was 31 (standard deviation (SD) ± 10) years. A total of 317 respondents were women. More than half of them, 219 (53.7%) were tertiary educated. Total of 147 respondents completed vaccination and there was a significant difference between gender and age, $p<0.001$ and $p=0.013$, respectively. There was also a significant difference between vaccination status and perceptions on COVID-19 vaccines to be safe and effective (OR: 4.8, 95% CI: 1.2, 18.2, $p=0.013$). **Conclusion:** There were no associations between vaccination and health status, while those perceived COVID-19 vaccine to be safe and effective were more likely to be vaccinated as compared to those who did not.

Association between HbA1c with lifestyle, health & demographic factors among people in Penang, Malaysia

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ABSTRACT

Introduction: The definitive link between diabetes risk factors and glycosylated haemoglobin (HbA1c) level is unclear. We aimed to compare the mean of HbA1c between healthy and diabetic patients in Penang across several factors. **Methods:** A total of 211 healthy and 198 diabetic patients aged ≥30 years were purposively sampled across general hospitals, health clinics, and community centres in Penang between February 2016 and January 2018. **Results:** The association between HbA1c and age, gender, family history of diabetes, smoking and alcohol consumption was conducted using an independent t test. HbA1c levels in older patients (>60 years) were significantly lower (mean=7.60) than in younger diabetic patients (<60 years) (mean=8.51) (p=0.001). In diabetic patients, those who consumed alcohol had lower HbA1c (mean=7.54) compared to those who never consumed alcohol (mean=7.54) (p=0.001). In healthy population, HbA1c was significantly lower in younger aged group (mean=5.63) compared to elderly (mean=5.80) (p=0.001). One-way ANOVA and Post-Hoc tests were used to analyse the comparison of HbA1c among different ethnicities and Body Mass Index (BMI) categories. For ethnicity, the healthy population showed significantly lower HbA1c in Malays (mean=5.58) and the highest in Indians (mean=5.84) (p=0.001). Among diabetic patients, Indians showed significantly higher HbA1c (mean=8.99) than Chinese (mean=7.17) (p<0.001). There are significant differences in the healthy population between the underweight (mean=5.57) and obese (mean=5.99) populations (p=0.018). **Conclusion:** HbA1c was associated with age, ethnicity, and BMI in the healthy population. In diabetic patients, it was associated with age, ethnicity, and alcohol consumption. Health screening should concentrate more on populations with risk factors.

Glycemic and metabolic control among elderly type 2 diabetes mellitus patients on basal-bolus insulin regime

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ABSTRACT

Introduction: The 6th Malaysian Clinical Practice Guideline on the Management of Type 2 Diabetes Mellitus (T2DM), recommends intensification of insulin to basal-bolus regime in patients with inadequate glycaemic control. However, the use of basal-bolus insulin is challenging and increase risk in elderly. This study aims to describe the characteristics, glycaemic and metabolic control of elderly T2DM patients on basal-bolus insulin. **Methods:** A cross-sectional study was conducted among elderly T2DM on basal-bolus insulin attending endocrine clinic, Putrajaya Hospital in 2019. Demographic data, glycaemic and metabolic parameters were gathered and analysed. **Results:** Of the 366 elderly patients, 185 were women, and the mean age was 67 years. More than half of them were found to be obese (BMI ≥ 27.5 kg/m²) with mean BMI of 30.18±6.08 kg/m². Mean duration of T2DM was 18.6±8.14 years. The most common comorbidities were hypertension with dyslipidaemia (74.9%). Diabetic nephropathy emerged as the most prevalent diabetes-related complication (67.2%) followed by retinopathy (59.3%). Mean HbA1c was 8.43% ±1.76. Two-third of the patients (74.3%) received combination treatment of basal-bolus insulin with oral glucose lowering drugs. The mean of total daily insulin requirement was 78.05 (±35.753) units/day. Majority of the patients (78.1%) had blood pressure ≥ 130/80 mmHg. Median LDL-cholesterol was 2.40±1.3 mmol/L, median triglyceride was 1.50±0.9 mmol/l and median HDL-cholesterol was 1.30±0.4 mmol/L. **Conclusion:** Despite on basal-bolus insulin regime, most of the elderly diabetes patients had suboptimal glycaemic and metabolic control.

Epidemiological characterization of patients under Community Hospice Service provided by Kasih Hospice Foundation

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ABSTRACT

Introduction: Community hospice service is an integral component to the ecosystem in providing end-of-life care to patients and their family. However, data from this community service remains scarce. We studied the characteristics of patients received community hospice care from Kasih Hospice Foundation (KHF). **Methods:** This retrospective observational study included 7080 terminally-ill patients under the care by KHF between January 2005 and June 2022. Data on demographics and clinical histories were extracted, verified and cleaned from pre-existing database. Descriptive analyses were performed using SPSS version 23.0. **Results:** A total of 6737 patients with complete data were included. More than half (53%) were females with a mean age of 64.5 (15.78) years. Two-third were ≥60 years old, with 31.2% aged 18-59 years, 0.7% aged 12-17 years and 0.8% aged <12 years. About 53.1% were of Chinese ethnicity, followed by 33.6% being Malay and 11.6% being Indian. Majority of patients received hospice care due to disease progression related to malignancies (76%), with lung cancer being the commonest (15.3%), followed by breast (11%) and colorectal (10.1%) carcinoma. KHF also provided end-of-life support for patients with end stage renal disease (8.7%), neurodegenerative diseases (1.2%), severe heart failure (0.6%), chronic pulmonary diseases (0.7%), liver failure (0.2%) and congenital diseases (0.2%). Services provided was free-of-charge, which included home visits and care, teleconsultation, lending of equipment and bereavement process. **Conclusion:** The scope of community hospice service is broad to cater the needs for terminally-ill patients from all age groups and various diseases. Understanding the epidemiological characteristics of patients allows the organization to optimize her limited resources, and organize and deliver her services effectively.

Barriers to thalassaemia treatment from the healthcare provider's perspective

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ABSTRACT

Introduction: Thalassaemia is a complex inherited blood disorder requiring life-long medical care and the high prevalence of thalassaemia in Malaysia is financially challenging to the public healthcare system. Thalassaemia patients largely seeks treatment in public healthcare facilities. This study aims to identify the barriers to thalassaemia treatment from the healthcare provider's perspective. **Methods:** Semi-structured face-to-face interviews were carried out in selected hospitals providing care to thalassaemia patients. Interviewees are generally from two groups, healthcare providers, that include key personnel working in providing care and treatment to patients either directly or indirectly. Participants were selected using maximum variation sampling with a focus on the expertise of participants. **Results:** A total of 12 participants were interviewed in five different states. Interviews conducted lasted on average 30 to 40 minutes each. Data saturation was achieved after eight subject interviews however, additional three participants were included to confirm the data saturation. Four types of barriers to providing thalassaemia care to patients were identified after an analysis of the transcription of the interviews. The themes are fund allocation, human resources, patient adherence and patient awareness. **Conclusion:** This study reveals the vital insight of health care providers' challenges in providing treatment to thalassaemia patients in public hospitals. The findings suggest a concerted effort to take active measures must be taken to ensure optimal healthcare delivery to thalassaemia patients in Malaysia.