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Clinical Abstracts

C1

Benign Ectopic Thyroid Presenting as ENT Emergencies: Two Life-Threatening Encounters

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Introduction: Benign ectopic thyroid is also known as thyroid ectopia. A Developmental defect during thyroid gland embryogenesis causes the thyroid tissue to inoculate at ectopic sites such as the oropharynx or even as far as the mediastinum. Most cases remain asymptomatic, hence undiagnosed. The severity of the symptoms is closely related to tumour size and anatomic location of thyroid ectopia.

Objective: To present cases and discuss the outcome, management and post-operative treatment.

Methods: Case Report.

Results: Here we present two cases of ectopic thyroid where one patient came with stridor and impending airway collapse and another patient with intractable bleeding from mass at the base of the tongue. Both may be fatal if not managed promptly. A combination of surgical approach and thyroid suppressive therapy was used in the management of both patients with excellent outcomes.

Conclusions: A high index of suspicion is warranted while encountering such cases. An ectopic thyroid may present in any form and is most dreaded when they present in an emergency.

C2

Radiologist Diagnostic Performance: Synthesized two-dimensional (2D) versus Standard two-dimensional (2D) Digital Mammogram

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Introduction: Although synthesized two-dimensional (syn-2D) mammography was introduced to address the additional radiation exposure issue associated with standard two-dimensional (std-2D) digital mammography, current studies have found no valid justification to support syn-2D's complete replacement of std-2D mammography.

Objective: This study aimed to determine the diagnostic performance of radiologists when interpreting different types of mammograms.

Methods: Test sets with 14 abnormal cases and 14 normal cases of std-2D and syn-2D images were prepared. Readers were asked to mark the lesion and provide a confidence score during image interpretation. The diagnostic performance was evaluated by lesion and case sensitivity, specificity and receiver operating characteristics area under the curve (AUC). Paired t-test was used to analyse lesion, case sensitivity and AUC while Wilcoxon signed-rank test for lesion and case specificity.

Results: The results showed no significant difference in the overall diagnostic performance for std-2D and syn-2D with lesion sensitivity ($M = 0.71$, $SD = 0.12$ and $M = 0.74$, $SD = 0.14$, respectively); $t(10) = -0.81$, $p = .44$, case sensitivity ($M = 0.78$, $SD = 0.13$ and $M = 0.77$, $SD = 0.14$); $t(10) = 0.27$, $p = .79$, AUC ($M = 0.86$, $SD = 0.05$ and $M = 0.86$, $SD = 0.68$, respectively); $t(10) = -0.24$, $p = .81$, lesion specificity ($Z = -0.69$, $p = .50$), and case specificity ($Z = -0.97$, $p = .33$, respectively).

Conclusion: Due to the comparable diagnostic performance between both modalities, syn-2D could be a substitute for std-2D with the advantage of lower radiation exposure to patients.

C3

Radiologist's Eye Fixated Longer at Breast Lesion on Standard-2D Digital Compared to Synthesized-2D Mammogram

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Introduction: Recently, eye-tracking technology has been used in mammography, particularly to study the causes of diagnostic errors and radiologists' search patterns.

Objective: This study aimed to determine the effect of standard two-dimensional (std-2D) and synthesized two-dimensional (syn-2D) mammograms on the visual search patterns of radiologists.

Methods: Ten radiologists were recruited, and two test sets of std-2D and syn-2D mammograms (each test set consisted of 14 normal and 14 abnormal cases) were prepared. During the session, the readers had to wear an eye-tracking tool and were required to rate a confidence score and mark the lesion in the answer form provided. Data of total fixation duration, fixation count and time to the first fixation were collected during the interpretation session.

Results: Our study showed significant differences observed in radiologist's total fixation duration for true positive cases in std-2D when compared to syn-2D ($M = 4.74$, $SD = 3.44$ versus $M = 3.44$, $SD = 2.05$, respectively); $t(10) = 2.25$, $p = .05$. No significant difference was observed in fixation count, $t(10) = 1.16$, $p = .27$, and time to first fixation, $t(10) = 1.86$, $p = .09$, between std-2D and syn-2D. The heat map and gaze plot data showed that syn-2D allows more evident visualization in certain types of malignant lesions such as architectural distortion compared to std-2D.

Conclusion: As syn-2D led to a faster search in true positive cases compared to std-2D, the former helps to further improve the radiologist's diagnostic performance while aiding towards a more advanced and accurate breast cancer detection.

C4

Pain Perception, Attitude and Diet Quality of Patients Undergoing Fixed Orthodontic Treatment: A Cross-Sectional Study

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Introduction: Orthodontic treatment with fixed appliances is often associated with some discomfort caused by tooth movement. Previous studies have reported that patients who experienced less pain acquired a more positive attitude towards their orthodontic treatment and vice versa. Most orthodontic patients are adolescents who require good nutrition to support pubertal changes and optimal growth. Orthodontic treatment may impede dietary intake due to pain, thereby affecting their nutritional status. Awareness of the relationship between pain perception, attitude and diet would help in improving patient satisfaction, nutritional status and treatment success.

Objective: This study aimed to determine the correlation of pain perception with attitude and diet quality of patients undergoing fixed orthodontic treatment.

Methods: One-hundred and three patients with fixed orthodontic appliances on both arches were recruited from an oral health clinic in a private medical university. Information on pain perception, attitude and diet quality was collected through self-administered questionnaires. The correlation between variables was analysed using Pearson Correlation Coefficient.

Results: Low levels of pain were perceived by 90% of orthodontic patients, while 98% had a positive attitude throughout treatment. About 49.5% of patients had a moderate diet quality. There was no significant correlation between pain perception and diet quality ($P>0.05$), whilst a significant negative weak correlation between pain perception and attitude was observed ($r=-0.289$, $P<0.05$).

Conclusion: Patients undergoing fixed orthodontic treatment had an overall low pain perception, positive attitude and moderate diet quality. A holistic approach with appropriate dietary advice by a nutritionist during treatment could support the patient's treatment compliance.

C5

Experts vs Novices: Diagnostic Performances as an Assessment Tool in Mammographic Interpretation

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Introduction: Synthesized two-dimensional (s2D) is a promising technique to replace Full-Field Digital Mammography (FFDM). As this technique is still new in Malaysia, the effect on reader diagnostic performance, especially diverse expertise while dealing with the most recent modality, should be explored.

Objective: The purpose of this study was to assess the relationship of the reader's experience on the diagnostic performance when reading different types of mammographic images (FFDM versus s2D).

Methods: Six experts (with six years and above experience) and four novices (experiences less than six years) interpreted two mammographic image test sets consisting of 14 normal and 14 abnormal cases in FFDM and s2D. Their sensitivity, specificity and area under the curve (AUC) between experience and modality were analysed using Spearman and Pearson correlation test.

Results: There was an overall positive correlation among experts in FFDM between sensitivity ($r = 0.34, n = 6, p = .52$), specificity ($r = 0.54, n = 6, p = .27$) and AUC ($r = 0.36, n = 6, p = .48$) with years of experience. Among novices, positive correlations were seen in s2D between sensitivity ($r = 0.32, n = 4, p = .68$), specificity ($r = 0.58, n = 4, p = .42$) and AUC ($r = 0.72, n = 4, p = .28$) with years of experience.

Conclusion: In conclusion, when the readers have more experience, their diagnostic performance increases regardless of the types of 2D mammograms.

C6

The Effect of Mammography Technique and Experiences on Visual Search Pattern

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Introduction: Synthesized 2D (s2D) mammography with lower radiation exposure has the potential to replace Full-Field Digital Mammography (FFDM). The transition of modality might influence the reader's visual search pattern when reading different types of mammograms.

Objective: This study aimed to evaluate the effect of different mammographic image formats on reader's visual search patterns with different experiences.

Methods: Two test sets of mammographic images in FFDM and s2D with each set consisting of 14 abnormal cases and 14 normal cases were interpreted by the reader while wearing an eye tracker. A total of six experts (with experience of six years and above) and four novices (with experience of fewer than six years) interpreted the images by marking the lesion and providing their confidence score. The visual search data (the average of total fixation duration and time to first hit fixation) were analysed using Mixed-design ANOVA.

Results: The result shows no significant difference in the average total fixation duration ($p = 0.70$) and average time to first fixation ($p = 0.91$) between experts and novices when interpreting mammograms in different types. Average total fixation duration for the expert in FFDM and s2D ($M = 7.44$, $SD = 3.99$, $M = 6.53$, $SD = 2.84$, respectively) and average time to first fixation ($M = 1282.02$, $SD = 463.93$, $M = 985.72$, $SD = 368.50$, respectively). When comparing FFDM and s2D, the novice had lower average total fixation duration ($M = 9.78$, $SD = 2.54$, $M = 6.61$, $SD = 1.96$, respectively) and average time to first fixation ($M = 846.55$, $SD = 138.84$, $M = 867.65$, $SD = 337.10$, respectively).

Conclusion: In summary, as experts and novices have a slightly similar scanning pattern in both modalities, FFDM may be substituted with s2D without compromising their performance, regardless of experience level.

C7

The Significance of Anti-nuclear Antibody Indirect Immunofluorescence Pattern and Titration in the Diagnosis of Systemic Autoimmune Rheumatic Diseases

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Introduction: Indirect immunofluorescence (IIF) is considered the gold standard laboratory method for screening of antinuclear antibody (ANA) in clinical samples. The test is used to screen for underlying systemic autoimmune rheumatic diseases (SARDs). In any ANA-IIF positive result, the report will include titration and the fluorescence pattern observed.

Objective: This study was conducted to determine the correlation between ANA-IIF pattern and titration for the diagnosis of SARDs among the positive ANA-IIF samples.

Methods: All positive ANA-IIF samples from the patients aged 18 years and above were retrospectively analysed. ANA-IIF pattern and titration were determined by using the NOVA View® instrument. The serial double dilution titration was performed at titrations of 1:80 until 1:640. The last well with the fluorescence signal was taken as the end titration for each sample. The demographic data and final diagnosis of each patient were retrieved.

Results: One hundred and five patients were included with the majority of the females (80%) with a mean age of 53.75 years \pm 16.79. The majority of the patients had ANA-IIF titration of 160 and less (N=63, 60%). The speckled pattern was the predominant pattern observed in 58 patients (55.2%). Eighteen patients (17.1%) were finally diagnosed with SARDs. The titration of at least 320 and homogeneous patterns was significantly associated with SARDs ($p < 0.0001$). Patients diagnosed with SARDs were significantly younger with a mean age of 38.33 years \pm 3.42 ($p < 0.001$).

Conclusion: ANA-IIF titration of 320 and homogeneous pattern are important in SARDs diagnosis.

C8

Success Rate of Adrenal Venous Sampling (AVS): A Study of a Malaysian Cohort from a Single Tertiary Centre

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Introduction: Adrenal venous sampling (AVS) is the current gold standard to properly subtype the lateralisation of primary aldosteronism (PA) caused by an adrenal lesion. A successful AVS can help to identify unilateral PA, giving the option of adrenalectomy of the affected adrenal as a one-off treatment instead of life-long medication. However, due to the invasive nature of the technique and the difficulty in identifying, cannulating and withdrawing blood from the adrenal vein, AVS is not always successful.

Objective: This study was conducted to elucidate the clinical-laboratory characteristics associated with successful AVS in PA patients.

Methods: One-hundred AVS procedures between 2017 and 2020 were conducted at the National University of Malaysia (UKM) Medical Centre, Kuala Lumpur, Malaysia was analysed retrospectively. The success of AVS, sociodemographic characteristics and blood results of the patients involved were compared pre-adrenalectomy.

Results: Of the 100 AVS procedures studied, 54 were performed on men and 46 were on women. Malay patients presented the highest frequency of patients (n=53) followed by Chinese (n=47). AVS was most frequently performed in patients aged 36-45 years (n=38) followed by 26-35 years (n=20), 56-65 years (n=16), 46-55 years (n=15), 66-75 years (6 patients), 16-25 years (4 patients) and 76-85 years (1 patients). Sixty-three patients obtained successful AVS, whereas 37 patients were unsuccessful. Variables significantly associated with a successful AVS were Malay ethnicity (p=0.048) and high serum sodium levels (p=0.019).

Conclusion: Successful AVS in PA patients was most significantly associated with high serum sodium and it might be an appropriate measure for PA disease activity.

C9

Extralong Uvula: Atypical Presentation of Soft Palate Squamous Papilloma

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Introduction: Squamous papilloma of the oral cavity is frequently seen in adult age groups where it is typically presented as painless exophytic granular to cauliflower-like lesions over the tongue, the floor of mouth, palate, uvula, lips, and faucial pillars. Most of the lesions are solitary and grow rapidly to about 0.5 cm.

Objective: To report a case of an atypical presentation of soft palate squamous papilloma.

Methods: Case report.

Results: We describe a case of a 51-year-old Malay male, active smoker, with a complaint of throat discomfort for a two-year duration and worsening symptoms for the last one week. There was no history of fever, odynophagia, dysphagia, or constitutional symptoms. Physical examination revealed a long strand of tissue arising from the tip of the uvula up to the anterior one-third of the tongue, measuring about 5.0 cm, with an exophytic granular end. The patient underwent surgical excision of the mass under an office setting and histopathology examination; revealing a squamous papilloma of the uvula. The patient was well during subsequent follow-up and the foreign body sensation completely disappeared.

Conclusion: Oral squamous papilloma has no known malignant potential, with conservative surgical excision being the treatment of choice. Recurrence is rare. It occasionally causes symptoms unless the presentation is atypical, such as in our case. The size of the lesion may vary individually but the symptom would bring them to seek treatment. Thus, proper examination, correct diagnosis and appropriate management would improve patient quality of life.

C10

Wernicke Encephalopathy as The First Presentation of Neuromyelitis Optica Spectrum Disorder with Horizontal Nerve Palsy

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Introduction: Neuromyelitis Optica Spectrum Disorder (NMOSD) is an autoimmune disease characterized by severe optic neuritis and/or longitudinally extensive transverse myelitis. Wernicke Encephalopathy (WE) is a metabolic brain disease resulting from thiamine deficiency, characterized by the triad of ophthalmoplegia, altered mental state and ataxia.

Objective: To highlight similarities between NMOSD and WE in a young patient.

Methods: Case report.

Results: We described a 20-year-old female patient who presented to the Emergency Department for a classical triad of mental state changes, ataxia and horizontal gaze palsy with a blurring of vision. There was preceding profuse vomiting for the past month. These symptoms were initially attributed to WE and the patient was started on thiamine supplement. However, magnetic resonance imaging (MRI) of the brain revealed changes suggestive of NMOSD. Cerebrospinal fluid was negative for culture and inflammatory biomarkers but anti-aquaporin-4 (AQP4) receptor antibody titer was positive. The patient was treated with Methylprednisolone and planned for Azathioprine subsequently. She was eventually discharged well.

Conclusion: Despite the different pathophysiology, WE can clinically mimic NMOSD. Neuroimaging evidence can help distinguish NMOSD from WE, especially in young women.

C11

Intravitreal Ozurdex® in Non-intact Posterior Lens Capsule: Case series and dilemma

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Introduction: Ozurdex® is a dexamethasone intravitreal implant that has been approved by the US Food and Drug Administration (FDA) to treat macular oedema secondary to retinal vein occlusion and non-infectious uveitis affecting the posterior segment. However, due to its well-known potential side effect, the drug is rendered as not a first-line treatment in most cases. Ozurdex® is relatively contraindicated in patients with non-intact posterior lens capsules. However, in some challenging cases, the need for the implant arises when the disease has been recalcitrant to various other options of treatment. We are reporting the follow-up and management of Ozurdex® implantation in non-intact capsule eyes. The complication of anterior chamber migration if at all occurred, was managed accordingly.

Objective: To report three cases of implantation of intravitreal Ozurdex® in the non-intact posterior lens capsule.

Methods: Case series

Results: The first two cases in our case series were post-vitrecomized eyes. Both cases had anterior migration pos-Intravitreal Ozurdex® injection. Whereas, migration did not occur in the third case (non-vitrecomized eye). This is likely due to the bulk of the vitreous which remained in the posterior cavity.

Conclusion: A close follow up is needed in patients with non-intact posterior lens capsules receiving intravitreal Ozurdex® to monitor the risk of anterior chamber migration of the implant.

C12

Effects and Acceptability of Remotely Monitored Virtual Exercise Gaming on Upper Limb Function in Stroke Survivors: A Study Protocol

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Introduction: Impairment of the affected upper limb (UL) is one of the most common deficits post stroke. Virtual reality (VR) games can be an additional treatment with conventional rehabilitation to intensify UL rehabilitation following stroke. However, there is limited evidence of the effects of remotely monitored VR exercise gaming in stroke survivors.

Objective: To examine the effect and acceptability of remotely monitored VR on UL function in stroke survivors

Methods: This prospective randomized controlled trial (RCT) will be performed in two phases, a pre and post-intervention, and phase 2 (semi-structured interviews: acceptance, satisfaction and perceptions of both therapist and participants in the intervention group). Thirty-six participants will be randomly allocated into either an experimental (standard plus VR games) or a control group (standard treatment) for a 12-weeks intervention. UL motor and sensory ability in activities of daily living, patients' intrinsic motivation and self-regulation, quality of life and overall improvement will be assessed in pre and post 6 and 12 weeks of intervention. Phase 2 will be conducted simultaneously at week 1 and after 12 weeks. Data will be analyzed using SPSS version 25.0 and the six-step thematic analysis using Nvivo qualitative data software for quantitative and qualitative data respectively.

Conclusion: This study will provide knowledge regarding the effectiveness of remotely monitored VR for UL rehabilitation. It may also lead to further studies in identifying the best protocols for recovery using remotely monitored VR. The acceptability of both clients with stroke and physiotherapists towards this technology will inform end user's satisfaction.

C13

Unsupported Upper Limbs Test is Safe and Feasible as a Functional Outcome Measure following Cardiac Surgery via Median Sternotomy

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Introduction: There is no consistency in current practice on the prescription of upper limb resistance exercise (ULRT) (less than 6 weeks) following cardiac surgery. A preliminary result will be reported on the safety and feasibility of the unsupported upper limbs test (UULEX) from the main randomized controlled trial (RCT).

Objective: To determine the safety and feasibility of UULEX as an outcome measure for ULRT following cardiac surgery.

Methods: A new weighted PVC exercise bar used in UULEX was developed by our team to prevent distraction forces on the sternum during ULRT. Participants received ULRT and were assessed pre-operatively, before discharge and 4-6 weeks post-operatively. The primary outcomes on UL function were measured using UULEX and patient-reported pain using a Numeric Rating Scale (NRS) (0-10). Data were analysed using the Friedman-ANOVA test for within-group differences.

Results: Eight males following median sternotomy (mean age of 61.2 ± 10 years) were recruited in the resistance arm to date. There was no statistical within-group difference on UULEX on the level achieved and patient-reported pain ($p > 0.05$) across all three time points. However, there were statistical differences in weight

(kg) and time (minutes) at similar time-points with $p < 0.05$. The level, weight and time scores for UULEX were $8.0(\pm 0.0)$, $1.2(\pm 0.7)$, $25.1(\pm 9.9)$ at pre-op, $6.5(\pm 2.3)$, $0.5(\pm 0.3)$, $11.6(\pm 7.2)$ before discharge and $6.9(\pm 1.6)$, $0.51(\pm 0.3)$, $10.9(\pm 6.3)$ 4-6-weeks post-operatively. No increase in NRS for UL movements at any time-points. No adverse event such as sternal wound infection or mediastinitis post-operatively.

Conclusions: UULEX demonstrated safety and feasibility as a functional measure for ULRT following cardiac surgery with no increase in patient-reported pain.

C14

Exercise Prescription Following Cardiac Surgery Performed via a Median Sternotomy in Malaysia: A Web Survey

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Introduction: There is no definitive evidence to support the clinical application of sternal precautions (SP) that limit the use of the upper limbs after cardiac surgery to prevent sternal complications.

Objective: The study aimed to investigate current physiotherapy practice regarding SP and upper limbs exercise guidelines after cardiac surgery in Malaysia.

Methods: Both constructed web survey methods and questionnaires were based on a previously published study. The questionnaire was then validated by a group of volunteers consisting of 30 physiotherapists from 2 teaching hospitals. Following this, 113 Physiotherapists were invited to participate in the online survey and directed to questions in each section based on their preceding answers.

Results: Data was collected from eighty-three participants with a 73% response rate (from 13 public and 5 private hospitals). The majority of respondents, 97.6% (n=81), prescribed upper limb exercises to patients following median sternotomy, with 80.5 % placing restrictions on these exercises. At 6 weeks postoperatively, 61% and 74% of respondents still placed restrictions on unloaded and loaded unilateral upper limb elevation exercises, respectively. 56% and 74% placed restrictions on unloaded and loaded bilateral upper limb elevation exercises, respectively. However, there was a lack of consensus on the type and timing of these restrictions,

with patient-reported pain being the main parameter used to guide upper limb exercise prescription and progression. Screening for sternal instability was reported by 80.7% of participants and if detected, the majority based their management on clinical experience.

Conclusion: There was a significant variation in practice on prescription and progression regarding upper limbs exercise. Restrictive SP was prescribed in the first 4 – 8 weeks. Research is warranted to establish evidence-based guidelines for the upper limb rehabilitation of patients for this population.

C15

An Uncommon Case of Recurrent Anterior Uveitis in Retinitis Pigmentosa

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Introduction: Retinitis pigmentosa (RP) refers to a group of inherited disorders that involves progressive retinal degeneration due to photoreceptor cell death. It is the leading cause of blindness among younger patients. Studies have reported that uveitis in RP patients is uncommon.

Objective: To report a case of recurrent anterior uveitis in retinitis pigmentosa.

Methods: Case report.

Results: We reported a case of a 33-year old Malay man, known case of retinitis pigmentosa, who presented with bilateral, painful red eyes associated with reduced vision and photophobia. No headache and vomiting were noted. He had a history of recurrent bilateral anterior uveitis in the past 2 years which responded well with topical steroids. He also had a strong family history of Retinitis pigmentosa among the male siblings. On ocular examination, the best-corrected visual acuity (BCVA) was 6/12 RE and 1/60 LE. Slit-lamp examination revealed BE non-granulomatous anterior uveitis and fundus examination showed both eyes (BE) bony spicules with LE macula scar. Routine investigations for anterior uveitis were done and unremarkable. He initially responded well with topical steroids and went into remission after 2 weeks, however, he had another episode of severe bilateral anterior uveitis after 1 month with worsening left eye vision. During this time, he responded poorly with topical steroids. Hence, oral prednisolone 1 mg/kg was started after discussing with medical retina (MR) team. Following this, the uveitis was tremendously improved. However, LE vision remained poor.

Conclusion: Anterior uveitis associated with retinitis pigmentosa is uncommon. Recurrent episodes increase the risk of complications such as secondary glaucoma and poor visual prognosis.

C16

The Human Papillomavirus (HPV) Self-Sampling Test Acceptability among Muslim Women - A Systematic Review

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Introduction: The Human Papillomavirus (HPV) self-sampling test could increase the cervical cancer screening rate worldwide. As every test comes with its pros and cons, it is believed that culture and religion could be the determinants of the acceptance of the test. This systematic review aims to identify and review the acceptance of the HPV self-sampling test among Muslim women from existing literature.

Methods: This systematic review uses the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) review protocol. The articles were evaluated using the Mixed Method Appraisal Tool (MMAT), and data from selected papers were extracted and analysed using thematic analysis.

Results: This systematic review includes seven articles studying the acceptance of the HPV self-sampling test among Muslim women. These included studies showing that the HPV self-sampling test was accepted among Muslim women and many positive aspects of the test determine their acceptance. However, the test's negative aspects were discussed as the test's barriers among the said population. The positive aspects included convenience, cultural sensitivity, and availability, while the negative aspects included religious taboo, less self-confidence, and perceived cost.

Conclusion: This systematic review highlighted the positive and negative aspects affecting the acceptance of the HPV self-sampling test among Muslim women. Identifying the driving factors and barriers for the acceptance of HPV self-sampling test will help the policymaker to have a better perspective on cervical cancer screening programs and become a guide for future planning.

C17

Spindle Cell Metaplasia in Papillary Thyroid Carcinoma: A Rare Encounter

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Introduction: Spindle cell metaplasia, although rare, was described in reactive, benign as well as malignant thyroid lesions. The presence of spindle cell foci in a thyroid lesion could be challenging diagnostically due to a myriad of differential diagnoses, which may affect patients' management if the diagnosis was undefined.

Objective: We described a case of spindle cell metaplasia in association with papillary thyroid carcinoma (PTC) in a 51-year-old Iranian female.

Results: The patient presented with a four-month history of painless, gradually enlarging anterior neck swelling. Examination revealed an irregular, firm left solitary thyroid nodule. Ultrasonography showed a suspicious hypoechoic nodule measuring 16mm with irregular borders. Fine needle aspiration cytology of the nodule demonstrated features consistent with PTC. Total thyroidectomy and neck dissection were performed. Gross examination revealed a poorly circumscribed mass occupying almost the entire left thyroid lobe. Histological examination of the mass disclosed neoplastic cells in papillary arrangement, exhibiting enlarged irregular nuclei with optically clear chromatin, nuclear grooves and intranuclear pseudo inclusion. An incidental encounter was a 3 mm fairly circumscribed lesion comprised entirely of uniform, elongated spindle neoplastic cells. No bizarre-looking nuclei or mitosis was found. The spindle cell components showed TTF-1 and thyroglobulin immunopositivity, while they were negative for S100 and desmin. A diagnosis of PTC with spindle cell metaplasia was made. The patient was treated with radioactive iodine post-surgery and showed good recovery.

Conclusion: PTC with spindle cell metaplasia is extremely rare. Recognising such an entity is of utmost importance to avoid confusion with the anaplastic transformation of PTC. The role of immunohistochemistry stains cannot be overemphasized.

C18

Comparative Study of the Manual and Semi-Automated Segmentation Technique in Computed Tomography (CT) Lung Cancer: A Radiomics Study

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Introduction: Medical image segmentation is crucial in extracting features of tumour characteristics, including lung cancer. The features cover both macroscopic (tumour volume) and microscopic (radiomics study) features. Various advances in segmentation algorithms are currently available, yet there is no so-called ‘the best segmentation technique’ that can be used in medical imaging modalities.

Objective: This study aimed to compare the manual and semi-automated segmentation techniques of CT lung cancer images and to evaluate the radiomics features of the examination.

Methods: This study utilized 3D slicer (V 4.10.2) software for both manual and semi-auto segmentation processes. The semi-auto segmentation using a region-growing algorithm and all radiomics features were extracted from the same platform by enabling the PyRadiomics plugin. All segmentation processes were performed by two independent observers on 45 sets of contrast-enhanced CT lung cancer images.

Results: We observed 84.62% and 33.33% of the shape features and the first order of texture analysis were comparable, respectively. It is indicated that the spatial agreement between semi-automatically segmented tumour volume and manually segmented tumour volume were commensurate based on the average Hausdorff distance (1.02 ± 0.71 mm) and Dice similarity coefficient value (0.83 ± 0.05).

Conclusion: In conclusion, the semiautomated segmentation could perform as well as the manual segmentation during lung tumour volume measurement pertaining to radiomic features extraction.

C19

Development and Validation of Early Intervention Guidebook on Toileting for Children with Autism in Bahasa Malaysia

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Introduction: An increasing number of children are being detected with autism spectrum disorder (ASD) at the early age of 18 months in Malaysia. Children with autism often experience toileting difficulties which will eventually influence their occupational performance. However, there is no comprehensive toileting guidebook available in Bahasa Malaysia for use in the Malaysian population.

Objective: This study aims to develop and validate an early intervention toileting guidebook in Bahasa Malaysia for children with autism aged 18 to 36 months.

Methods: This study was a mixed-method cross-sectional design which consisted of two phases: i) development of a toileting guidebook via literature review, ii) validation of the guidebook through focus group discussion (FGD), face validity, content validity and cognitive interviewing. Nine experts with at least five years of working experience in paediatric rehabilitation participated in FGD, face and content validation. The verbal probing method was used to conduct cognitive interviews with three parents of children with autism. Thematic analysis, Content Validity Index (CVI) and Modified Cohen's Kappa were used to analyse the data.

Results: The guidebook consisted of five items: i) Introduction; ii) Toileting problems; iii) Strategies to toilet train; iv) Adaptive equipment, and v) Safety measures. The findings showed good face validity and excellent content validity in terms of relevance, simplicity, clarity and ambiguity as CVI and Modified Kappa values ranged from 0.80 to 1.00. There was no item being removed and only some revisions were required in terms of appearance and content.

Conclusion: This guidebook has excellent validity to serve as a guideline for parents, caregivers and health practitioners to toilet train children with autism in Malaysia.

C20

The Utility of P57 Immunohistochemistry and Ploidy Status in Hydatidiform Mole

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Introduction: Hydatidiform mole is one of the gestational trophoblastic diseases that is more common in Asian countries. There is considerable overlap in the histological features between complete and partial moles, which results in significant inter-observer variability. This represents a diagnostic challenge for pathologists.

Objective: This study aimed to determine the ability of combined P57 immunohistochemistry and ploidy study to differentiate complete from partial moles.

Methods: A total of 47 cases consisting of 18 complete moles, 24 partial moles and 5 hydropic abortuses were retrieved from our archive. P57 immunostains and fluorescence in-situ hybridisation for ploidy status were performed on all cases. Only nuclear staining of cytotrophoblasts was considered as positive for the p57 antibody. They were divided into 3 categories: i) P57-/diploid, ii) P57+/triploid and iii) P57+/diploid.

Results: Of the 18 cases that were initially diagnosed as complete moles, 17 were P57-/diploid and one was P57+/diploid, while for the partial moles, 10 were P57-/diploid, eight P57+/triploid, and six were P57+/diploid. All hydropic abortuses were P57+/diploid. The percentage of correct diagnosis in each category for complete mole, partial mole and hydropic abortus were 94.4%, 33.3% and 100%.

Conclusion: This finding demonstrated that the histological diagnosis of complete mole and hydropic abortus was accurate. However, only about one-third of partial mole diagnosis was correct, while the rest were reclassified into either complete mole or hydropic abortus. This indicates that it is important for pathologists to be aware that the use of ancillary study is required to prevent misdiagnosis.

C21

Comparison between Red Tinted Contact Lenses of Various Tones on Color Deficient Subjects

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Introduction: Colour vision deficiency (CVD) is a congenital ocular condition where colour perception is affected. At present, there are various tinted lenses prescribed for CVD with limited known efficacy in improving colour perception. However, there are no specific guidelines for contact lens practitioners in prescribing these lenses.

Objective: This study aimed to relate the efficacy of 4 types of red-tinted contact lenses (CL) with the Total Error Score (TES) from the Farnsworth-Munsell 100 Hue test on colour deficient subjects.

Methods: Six congenital CVD subjects were recruited. After colour vision screening using Ishihara plate, Farnsworth-Munsell 100 Hue test was carried out to determine the type and severity of colour vision deficiency. Four types of red-tinted CL (Type A, B, C and D) were used where Type A and B were produced by local manufacturers and Type C and D were from international manufacturers. The efficacy of these lenses was determined through the comparison of error scores in the Ishihara test before and after wearing a tinted contact lens on only the non-dominant eye. Then, the transmittance of each tinted CL was determined using a spectrophotometer.

Results: For subjects with a TES value less than 180, CL Type B showed the largest improvement in the Ishihara error score (50%) compared to the other three lenses. Whereas, CL Type A showed the best performance in TES value of more than 180, with an improvement of 80% in Ishihara score. CL Type C and D did not show satisfactory results in both TES groups. CL Type A has the lowest transmittance at the confusion wavelength (450-568nm), followed by CL Type B, D and C.

Conclusion: The TES value can be a potential guide to select the type of red-tinted CL with the best performance.

C22

A Rare Cause of Orbital Apex Syndrome

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Introduction: Orbital apex syndrome (OAS) occurs when a disease is affecting various orbital apex structures. The involvement of various important vascular and neural structures including ophthalmic artery and cranial nerves II, III, IV, VI as well as the ophthalmic division of V defines OAS.

Objective: To describe a case of orbital apex syndrome secondary to malignant otitis externa with the base of skull osteomyelitis.

Methods: Case Report

Results: A 70-year-old male with multiple comorbidities, presented with sudden onset, painless, loss of right eye vision for one day and a protrusion for one week. He was diagnosed with base of skull osteomyelitis secondary to malignant otitis externa in 2020 with recurrent growth of Methicillin-Resistant *Staphylococcus Aureus*. On examination, right eye (RE) vision was non-perception to light with the presence of a relative afferent pupillary defect. Left eye (LE) vision was 6/24. The RE was proposed with total ophthalmoplegia. Cranial nerve examinations revealed right 2, 3, 4, 6, 7 and 8 palsies. Anterior segment examination showed bilateral lagophthalmos with lower lid ectropion and RE inferior chemosis. Intraocular pressure of RE was 07 and LE was 10. Fundus examination revealed RE inferior exudative retinal detachment (ERD) involving the macula. Blood investigations were suggestive of active infection with elevated white cell count, erythrocyte sedimentation rate and C-reactive protein. Computed tomography of brain and orbit showed thickened and enhanced right cavernous sinus with extension into the orbital apex, petrous apex and bilateral otomastoiditis. The patient was co-managed with the otorhinolaryngology team and treated with Intravenous ceftazidime and vancomycin for two weeks. The patient sustained total right eye vision loss with clinically improving ERD.

Conclusion: OAS is a rare complication of malignant otitis externa. Thus, a high degree of clinical suspicion is necessary to look for the source of infection for OAS which includes a base of skull infection.

C23

A Proposal on the Investigation of Virgin Coconut Oil (VCO) Contact Lens Role in Changing Tear Quality and Tear Quantity on Dry Eye Subjects

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Introduction: The prevalence of dry eye has increased in recent years and the remedies commonly used are artificial tears and eye lubricants. Prolonged use may potentially cause side effects and irritation. Recently, virgin coconut oil (VCO) drops have been tested as an ocular rewetting agent on rabbit eyes and was proven safe and non-toxic.

Objective: To investigate the changes of tear quality and tear quantity in dry eye subjects using contact lenses soaked in VCO.

Methods: Fifty subjects who score more than 15-points in Ocular Surface Disease Questionnaire were recruited as subjects in this study. The preliminary tests and baseline data were recorded before the clinical trial. The VCO lens was fitted on one eye at random and the other eye acted as a control. Measurement was taken at 0, 15 minutes after VCO contact lens fitting and 15 minutes after lens removal. The parameters recorded and analysed were the Tear Break-Up Time (TBUT) and Schirmer Test.

Results: A previous study using raw and emulsified VCO where CL was soaked minutes, before being fitted into the human eye, showed an increase in tear quality and quantity. Tear quality and quantity in this are expected to cause significant changes after 15 minutes of wear and it is anticipated to sustain even after the removal of VCO contact lens wear.

Conclusion: VCO contact lens is a new method to improve tear quality and quantity and posed as an option for treatment of the dry eye.

C24

Current Advances in Posttraumatic Epilepsy Research and Management: A Thematic Review

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Introduction: Posttraumatic epilepsy (PTE) is a recognised sequela of traumatic brain injury (TBI) which confers a significant socioeconomic burden. The complexity of PTE management and treatment resistance has led to many investigations undertaken. Despite the advanced knowledge in PTE, there is no review paper discussing the type of current research concerning it. This review was motivated by the belief that a potential post-TBI window exists for interventional opportunities before conversion to PTE occurs.

Objective: This review aimed to synthesise literature from 2016 to 2021 on the newly emerging research on PTE using ATLAS.ti 9.

Methods: A thematic review procedure was applied to systematically analyse and interpret the available evidence from PubMed, Embase, Scopus and Web of Science. The search concept used was 'emerging' or 'current' AND 'posttraumatic epilepsy' AND 'research' AND 'management' or 'treatment' or 'therapy'.

Results: Sixty-seven peer-reviewed articles originating from 7 countries (USA, Finland, Australia, Iran, Israel, Brazil and UK) involving clinical and preclinical studies were identified. However, after the inclusion and exclusion process, only 41 articles were used in the final review. A thematic review of these 41 articles identified 16 initial codes characterising the current research undertaken in PTE grouped in 8 clusters: epidemiological study, biomarkers, pharmacological agent for potential prevention and treatment, potential pharmacotherapies, the effectiveness of prophylaxis drugs, modelling of PTE and tools for seizure detection.

Conclusion: The results may benefit the future study on the way forward in PTE management strategies to meet disease-modifying therapies.

C25

Does Screen Time Affect Eye Health? Preliminary Comparative Findings from the Standard Patient Evaluation of Eye Dryness (SPEED) and the Ocular Surface Disease Index (OSDI) Questionnaires among Young Adults

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Introduction: Modern lifestyles of prolonged exposure to digital screens are a major factor of increased prevalence in dry eye (DE) diseases. Young adults of today's 'digital generation' may be affected more due to increase screen-time on electronic gadgets daily.

Objective: This study investigated relationships between screen-time to DE ocular signs (non-invasive-tear-break-up-time (NIBUT), tear-break-up-time (TBUT), blinking rate/type and fluorescein staining test), and ocular symptoms reported from two different DE questionnaires-the Standard-Patient-Evaluation-of-Eye-Dryness (SPEED) and the Ocular-Surface-Disease-Index (OSDI).

Methods: The study was conducted at the Faculty of Health Sciences, UKM. Participants were required to report their mobile phone screen-time in the past week before DE ocular signs' clinical assessment. The SPEED and OSDI questionnaires were distributed to record participants' DE ocular symptoms. The Spearman correlation test was used to analyse the relationships between parameters.

Results: 56 participants (mean age=20.55 ± 1.39 years) completed the study. The mean screen-time recorded was 5.60 ± 1.97 hours. DE ocular signs were graded based on clinical norm values. The majority have mild DE symptoms based on mean SPEED and OSDI scores of 4.93 ± 4.14 and 19.66 ± 14.39, respectively. No significant correlations were found between mobile phone screen-time to DE ocular signs and symptoms. However, low negative significant correlations were found between SPEED score to NIBUT ($r=-0.35$, $p=0.009$) and TBUT ($r=-0.35$, $p=0.007$).

Conclusion: Our study showed no significant relationships between screen-time to DE signs and symptoms. Although no associations were found, clinicians should rely on decrease NIBUT and TBUT values as significant ocular signs when diagnosing DE cases. SPEED was able to detect DE symptoms better than OSDI as it showed a better correlation to the DE ocular signs.

C26

Wound Outcomes Following Ionic Silver and Chlorhexidine (SiO₂- Ag⁺ Chlorex) Spray Compared to Conventional Dressing in Split Skin Graft (SSG) Donor Site Wounds: A Randomised-Control Trial

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Introduction: SiO₂-Ag⁺Chlorex spray promotes wound healing and prevents wound re-infection following SSG. Its application in SSG donor wounds has not been investigated in a Malaysian population.

Objective: To assess wound outcomes and pain in the SSG donor site, comparing SiO₂-Ag⁺Chlorex spray against conventional dressing.

Methods: A double-blinded, single-centre randomised-controlled trial involving 23 patients who underwent SSG in a tertiary centre were recruited. Participants in the intervention group had their donor wounds dressed using SiO₂-Ag⁺Chlorex spray, while the control group utilized the conventional hydrocolloid dressing. The percentage of wound re-epithelialisation was assessed using photographic Adobe® software. The pain was assessed using the Likert Visual Analogue Scale (VAS). Intention-to-treat analysis was employed. Data were analysed using the Friedman Anova test.

Results: The participant's median age was 59.5 (IQR 36.7-67.5) years with a mean BMI of 18.26 (SD 6.21). Seventeen (70.8%) and 13 (54.2%) of participants had diabetes mellitus and hypertension, respectively. There were no inter-group differences in baseline demographic, clinical and surgical characteristics. The Post-op day 1-20 pain score was identical for both groups. The re-epithelisation rate was faster in the intervention group (98.0 ± 3.9 %) vs. (91.8 ± 26.2 %) at Day-20 postoperatively. No adverse effects of the intervention were observed.

Conclusion: $\text{SiO}_2\text{-Ag}^+$ Chlorexspray dressing could be a good alternative for donor-site SSG wounds because it was associated with faster re-epithelialisation compared to conventional dressing, with identical pain scores.

C27

Development and Validation of Knowledge, Attitude and Practice Questionnaire among New Soft Contact Lens Wearers

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Introduction: Contact lens is one of the common methods of correcting refractive errors. The previous study has shown that soft contact lens wearers are more prone to contact lens complications. The current trend of online purchase of soft contact lenses is putting more risk of complications to new wearers.

Objective: To develop and validate a questionnaire to evaluate knowledge, attitude and practice (KAP) among new soft contact lens wearers.

Methods: The questionnaire underwent four stages of the validation process to determine its content validity. The first stage was to develop the items under domains of knowledge, attitude and practice. The second stage was to conduct a discussion with the focus group. Then, the content validity index (CVI) was calculated and a pilot study was conducted among 34 new soft contact lens wearers.

Results: The validation process resulted in a questionnaire that comprised four main sections: sociodemographic characteristics, knowledge, attitude and practice. 37 items covering the KAP domains resulting in acceptable minimum CVI - the knowledge domain was 0.915, the attitude domain was 0.943 and the practice domain was 0.891. Overall, the questionnaire had a CVI of 0.890. All 34 eligible SCL wearers were required to answer the finalized questionnaire.

Conclusion: The developed questionnaire of KAP among new soft contact lens wearers demonstrated a satisfactory content validity.

C28

Cost of Intravenous Immunoglobulin for Guillain Barre Syndrome in Hospital Canselor Tuanku Muhriz

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Introduction: Guillain-Barre syndrome (GBS) is an acute, immune-mediated polyneuropathy that classically presents with ascending paralysis with complications of autonomic dysfunction, oropharyngeal and respiratory weakness. The treatment of GBS is largely based on immunotherapy such as intravenous immunoglobulin (IV-IG).

Objective: In this study, we determine the cost of intravenous immunoglobulin in GBS patients.

Methods: This was a retrospective analysis of GBS patients from 2012-2018. The patient's clinical records and cost of IV-IG were traced from the records and pharmacy. All patients received IV-IG doses 0.4 g/kg/day for 5 days under the hospital's budget.

Results: One hundred and fifteen cases of GBS were recruited, consisting of 59 male patients (51.3%) and 56 female patients (48.7%). The median age was 58 years with an interquartile range of 29. The total days of admission median were 11 days with an interquartile range of 14 days. Fifty-eight patients (86.6%) who were above 55 years old had comorbidities, while 52 (77.6%) were bed-bound on admission. The average cost of IV-IG was MYR 283,004.00 per year.

Conclusion: Intravenous immunoglobulin is recommended for non-ambulant patients with GBS. This study showed the substantial cost of IV-IG in this hospital. Plasma exchange and IV-IG are equally effective in GBS. The advantage for use of IV-IG over plasma exchange is the rapid availability, greater convenience and relatively safe side-effect profile. A further detailed study of the economic expenses of IV-IG may provide further information for the cost-effectiveness of health measures in the treatment of GBS.

C30

Umbilical Cord Serum versus Conventional Eye Drops in Treatment of Moderate to Severe Dry Eye Disease: A Randomized Clinical Trial

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Introduction: Dry eye disease (DED) is a chronic ocular surface disease that is believed to be one of the most common ocular problems. Tear replacement treatment is the most practised treatment by ophthalmologists worldwide, with umbilical cord serum (UCS) eye drops being one of the available treatments. However, UCS eye drops are not widely used yet due to manufacturing issues.

Objective: This study was conducted to compare the effectiveness of using UCS eye drops versus conventional artificial tears preservative-free (ATPF) eye drops for the treatment of moderate to severe DED.

Methods: One hundred and one subjects were randomly prescribed either UCS or ATPF eye drops. Both eye drops were used six times per day, with the subjects' DED parameters recorded at baseline, day-28 and day-56.

Results: The UCS group showed significant improvement on the Oxford grading scale but not in the ATPF group. Both treatment groups showed significant improvement in Ocular Surface Disease Index (OSDI) and tear break up time (TBUT) at day-56 post-treatment. However, there was no significant difference between groups. The Schirmer test, first and average non-invasive tear break up time (NITBUT) showed improvement in mean values, however statistically not significant.

Conclusion: In our study, UCS eye drops were superior to ATPF eye drops in terms of cornea epitheliopathy healing. Both groups were equally effective in OSDI score and TBUT improvement. The UCS eye drops are safe for the treatment of DED.

Pre-clinical Abstracts

P1

Structural and Functional Changes of Nucleus Accumbens in Excessive Smartphone Users: A Systematic Review

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Introduction: Nucleus accumbens (NAcc) involves in reward processing. Studies in other addictions have reported remarkable changes in NAcc, which is attributable to the development and preservation of addiction.

Objective: This systematic review aimed to determine the NAcc structural and functional changes among smartphone users.

Methods: The articles were retrieved from PubMed, Scopus and EBSCOhost using keywords of “smartphone” AND “nucleus accumbens” from inception to June 2021. Clinical studies and English articles were included, while preclinical studies were excluded.

Results: Eighteen articles were initially retrieved, but only three articles were included in the final analysis. One study reported lower functional connectivity among excessive smartphone users compared to controls between the orbitofrontal cortex and NAcc, but higher between NAcc and midcingulate cortex in the right hemisphere. In contrast, no significant connectivity in the left hemisphere was reported. Furthermore, the left frontostriatal connectivity was negatively associated with internet withdrawal symptoms and cortisol concentration among excessive smartphone users. Two studies reported remarkable negative correlations between grey matter volume of NAcc and social media usage – Facebook and WeChat. The association in the former application were reported in both hemispheres and terms of frequency and duration of Facebook usage. The latter association (WeChat) was reported only in the paying-in-the-store function of WeChat.

Conclusion: Excessive smartphone use was associated with various changes in NAcc. Further studies should be conducted to confirm other related changes and temporal relationships between smartphone usage and NAcc changes.

P2

The Effectiveness of Integrative Community-Based Control and Prevention of Dengue in Selangor

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Introduction: WHO has to recommend imperative strategies to control dengue by implementing integrated vector management.

Objective: The objective of this study was to determine the effectiveness of community-based integrated methods in dengue control and prevention in Selangor.

Methods: The study took place in Damansara Damai as the intervention area and in Sri Damansara as the control area. The study took 59 weeks to complete. The intervention package inclusive of dengue health education through talks, mural and community mobilization through search and destroy activity. Questionnaires were distributed to evaluate the knowledge, attitude and practice on dengue prevention and control among the respondent. Stratified random sampling was employed to determine the sample size using G-Power analysis (n=90 in the intervention area and n=97 in the control area).

Results: The study showed an increase in knowledge scores after the intervention in both areas ($p < 0.05$). The perceptions in Health Belief Model in both areas showed a significant increase of positive perception after the intervention for perceived severity, perceived of barrier, perceived of benefit, self-efficacy and cue to action ($p < 0.05$). Univariate analysis showed a positive correlation between races and house ownership with knowledge level ($p < 0.05$) and attitude level ($p < 0.05$) in the intervention area while dengue history showed a positive correlation with practice level ($p < 0.05$).

Conclusion: The pursuit of global dengue reduction can be achieved through integrated vector management and community mobilization.

P3

The Effects of *Marantodes pumilum* Var *Alata* Extract on Wound Reduction and Hydroxyproline Content in Burn Wound of Rat Model.

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Introduction: Burns is considered one of the most serious conditions in emergency medicine, resulting in physical, psychological, and chronic disabilities. Silver sulfadiazine is the gold standard in topical burn treatment but was reported to be toxic to keratinocytes and fibroblasts, which may delay wound healing.

Objective: This study was performed to determine the healing effect of *Marantodes pumilum* Var *Alata* (MPVa) extract on thermal-burn wounds in rats.

Methods: A total of 50 Sprague-Dawley male rats were divided into five groups. Group I was left untreated (normal control), Group II (negative control) was given an ointment base and Group III (positive control) was given silver sulfadiazine. Groups IV and V were given 2% MPVa leaf and root extracts, respectively. Burn wounds were induced at the loin region of the rat by applying a heated steel rod at 80°C for 10 seconds. Wound sizes were measured macroscopically using a digital calliper at Day-0, 3, 7, 14 and 21 of treatment. The wounds were excised for hydroxyproline content on Day 14 of treatment.

Results: For wound size measurement, both the leaf and root extracts of MPVa showed a significant reduction in burn wound size on Day 7 onwards when compared to the negative control group. For the hydroxyproline content, only the leaf extract of MPVa produced significantly higher content compared to both negative and normal control groups.

Conclusion: Both the leaf and root extracts of MPVa could promote the healing of thermal-burn wounds. The wound healing properties of MPVa leaf extract was better than the root extract in terms of the hydroxyproline content.

P4

The Fabrication of Gelatin-Elastin-Nanocellulose Composite Bioscaffold as a Potential Acellular Skin Substitute

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Introduction: Gelatin is a viable alternative to collagen as a material for developing a porous biological scaffold in the management of chronic wounds, as it possesses desirable properties such as good biocompatibility and low antigenicity. However, gelatin is mechanically weak and requires the incorporation of other materials to provide stability to its structure.

Objective: This study aimed to fabricate and characterize the physical properties of a composite bioscaffold comprising of gelatin, elastin and nanocellulose crosslinked with genipin.

Methods: The composite bioscaffold consisted of natural-based materials; bovine-derived gelatin, elastin extracted from poultry skin and nanocellulose based from oil palm empty fruit bunch. The bioscaffold was fabricated by a freeze-drying process and subsequently crosslinked with 0.1% (w/v) genipin solution. The composite bioscaffolds contained varying concentrations of nanocellulose at 0.01% (w/v), 0.05% (w/v) and 0.1% (w/v). A crosslinked pure gelatin bioscaffold was set as the control.

Results: The physical characteristics were evaluated based on the porosity, swelling capacity and degradation behaviour. Results indicated an upward trend of increasing porosity with the increasing concentration of nanocellulose. Swelling analysis indicated that the bioscaffold containing the least concentration of nanocellulose (0.01% (w/v)) possessed the greatest swelling capacity (>1000%). However, the bioscaffold containing the highest concentration of nanocellulose (0.1% (w/v)) possessed the greatest resistance to enzymatic biodegradation.

Conclusion: In conclusion, the fabricated composite bioscaffold possess the desired physical properties and is a potential candidate as a skin substitute.

P5

Validation and Reliability of Sexually Transmitted Infections (STIs) Health Care-Seeking Behaviour Questionnaire based on the Theory of Planned Behaviour, and Stigma-Shame Scales among Men who have Sex with Man (MSM) in Malaysian Borneo

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Introduction: The rising numbers of men who have sex with men (MSM) population showed a significant health issue in recent years. However, the utilisation of sexually transmitted infections (STI)-related health care services among MSM was found to be very low. Understanding the factors is essential in improving the STIs healthcare-seeking behaviour among MSM.

Objective: This pilot study aimed to evaluate the instrument's feasibility for a full-scale study and assess the respondents' experience answering the questionnaires.

Methods: Sexually transmitted infections healthcare-seeking behaviour was measured based on the frequency of the visit to STIs services in 12 months using the theory of planned behaviour (TPB) variables (i.e. attitudes, subjective norms, and perceived behavioural control). Besides, the STIs knowledge and STIs-related stigma-shame scales were also evaluated for content validity and internal reliability.

Result: Within 12 months, 54.3% of respondents had frequent visits (>1 time), 17.1% had infrequent visits and 28.6% never visit the services. About 85.7% of participants had ever had an STI test. The item-level content validity index (I-CVI) for 47 items scale ranged between 0.67 to 1.00. The scale-level index per average (S-CVI/Ave) for subscales ranged between 0.94 to 1.00. The Cronbach's alpha coefficient for each subscale ranged from 0.844 to 0.929 with an overall scale was 0.892.

Conclusion: The scales were valid and reliable measures for assessing possible contributing factors of STIs healthcare-seeking behaviour among MSM in Malaysian Borneo. The scales could be used for a full-scale study.

P6

Preliminary Study on Characterisation of Gelatin-Cellulose-Chitosan Bioscaffold as a Potential Wound Dressing

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Introduction: Management of chronic wounds remains to be challenging even in the 21st century. Conventional wound dressing is ineffective while skin graft may end with failure. Thus, a natural-based bioscaffold that mimics the natural extracellular matrix is in demand.

Objectives: This study aims to fabricate composite bioscaffold from buffalo raw bone-derived gelatin, shrimp exoskeleton derived chitosan and palm-tree based nanocellulose via lyophilisation to produce a porous sponge, which is then crosslinked with genipin or quercetin.

Methods: The physical characteristics included degree of crosslinking, swelling percentage, microporous structure study, in-vitro biodegradation behaviour, mechanical strength and simultaneous thermal analysis. The chemical analyses were energy-dispersive X-ray spectroscopy (EDX), Fourier transforms infrared spectrophotometry (FTIR), and X-ray diffraction (XRD).

Results: The current physiochemical characterisation was based on the degree of crosslinking, swelling percentage and in-vitro biodegradation rate. Uncross linked scaffolds showed the highest swelling percentage, followed by crosslinking with quercetin 0.1% with genipin 0.1% recording the lowest swelling percentage. Increasing chitosan concentration in the scaffold initially reduced the swelling percentage, with the lowest at G6C4Ncc (60% gelatin, 40% chitosan), followed by increasing swelling percentage. Increasing chitosan concentration in the scaffold showed a downward trend of in-vitro biodegradation rate. Crosslinking with genipin 0.1% (w/v) lowered in-vitro biodegradation rate, but not with quercetin 0.1% (w/v).

Scaffolds crosslinked with genipin 0.1% (w/v) or quercetin 0.1% (w/v) showed a lower concentration of free amine group compared to the uncrosslinked scaffolds in the ninhydrin assay.

Conclusion: Overall, gelatin-cellulose-chitosan bioscaffold crosslinked with genipin may be potentially used in wound healing management.

P7

Effect of E Jiao on Body Composition Changes in Postmenopausal Osteoporosis

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Introduction: In postmenopausal women, oestrogen deficiency alters body composition by decreasing muscle mass and bone mineral density (BMD). E Jiao is a traditional Chinese medicine rich in collagen content and used to nourish the blood as well as promoting bone and joint health.

Objective: This study aimed to evaluate the effects of E Jiao on the body composition of rats with oestrogen deficiency induced by ovariectomy.

Methods: Three-month-old female Sprague-Dawley rats were assigned to 6 groups (n=8). Ovariectomy was performed on all groups except the sham group. Two-month treatments were initiated 7 days after ovariectomy. The sham and ovariectomy control received tap water orally; the positive control received 1% CaCO₃ in drinking water; the low-, medium- and high-dose E Jiao-treated groups received 0.26 g/kg, 0.53 g/kg, 1.06 g/kg E Jiao orally. Dual-energy X-ray absorptiometry scanning of the rats was conducted at baseline, 1 month and 2 months after initiation of treatment to determine their body composition at the respective time points.

Results: Ovariectomy induced a significant increase in total mass, body fat mass and body fat percentage in rats (p<0.05, month 0 vs month 2). This was not observed in the sham group (p>0.05). High-dose E Jiao and calcium supplementation prevented increased body fat mass and percentage in ovariectomised rats (p>0.05, month 0 vs month 2).

Conclusion: High-dose E Jiao supplementation can prevent the increase in body fat due to oestrogen deficiency.

P8

Comparison of Lipid Extraction Protocols for Plasma and Tissue using Liquid Chromatography-Mass Spectrometry

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Introduction: The lipidomic study is a growing field that simultaneously identifies and quantifies thousands of lipids in a sample. It can be applied to understand disease pathogenesis and environmental exposure based on lipid metabolisms and signalling. Comprehensive lipidomic profiling relies on an efficient extraction method.

Objective: We compared the effectiveness of four different lipid extraction methods for plasma and tissue using liquid chromatography-mass spectrometry.

Methods: Plasma and the whole brain were collected from rats. Lipid extraction was performed using the Folch, Bligh-Dyer, MTBE, and BUMS methods. The aqueous polar phase was compared with the standard metabolomic extraction using 80% methanol. MS-DIAL was used to pre-process data and annotate lipid via LipidBlast. Enrichment analysis was conducted using MetaboAnalyst.

Results: Signal intensities of lipids were higher in the Folch method than others. Combined with positive and negative ion modes, 949 and 1620 lipid species were identified in plasma and tissue, respectively. A total of 22 and 26 lipid subclasses were found in plasma and tissue, respectively. The predominant lipid subclasses for both sample types were diacylglycerols, acylcarnitines, lysophosphatidylcholines and phosphatidylcholines. Furthermore, acylethanolamines, lysophosphatidylserines and phosphatidylserines were enriched in tissue. The aqueous phase of the Folch method had a similar profile as the standard metabolomic extraction method.

Conclusion: Overall, the Folch method was the most effective lipid extraction protocol for plasma and tissue. It covered a broad range of lipid classes with higher recovery. The biphasic layers in this method allowed both lipidomic and metabolomic profiling to be conducted from the same sample.

P9

Preclinical Evaluation of The Effects of *Moringa oleifera* on Rheumatoid Arthritis: A Systematic Review

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Introduction: *Moringa oleifera*, locally known as drumstick tree or 'kelor', has been dubbed as 'The Miracle Tree' due to its health and nutritional benefits. The plant contains multiple bioactive compounds which exert antioxidant and anti-inflammatory effects. These properties can be exploited medicinally to treat diseases associated with oxidative stress and inflammation, such as rheumatoid arthritis (RA).

Objective: This systematic review aimed to provide an overview of the mechanism of action and potential benefits of *M. oleifera* extract against RA.

Methods: A comprehensive search was conducted from October to December 2020 using PubMed and Scopus using the string "*Moringa oleifera* AND rheumatoid arthritis". Cellular and animal studies reporting the effects of *M. oleifera*, as a single agent, on RA were considered.

Results: The literature search found 75 articles on this topic, but only 6 articles met the inclusion criteria and were included in this review. Results showed that *M. oleifera* restores the joint structures of animals with RA and reduced the inflammatory cytokine levels (e.g. tumour necrosis factor-alpha, interleukin-6, and interleukin-1). *M. oleifera* extract also reduced oxidative damage by scavenging free radicals, upregulating antioxidant proteins, enzyme levels and activities in vitro and in vivo studies of RA.

Conclusion: *M. oleifera*, particularly the ethanol or methanol extract, exerts anti-RA effects through its anti-nociceptive, anti-oxidant and anti-inflammatory properties.

P12

A Methodological Approach to Value of Statistical Life (VoSL) of Road Traffic Injuries (RTIs) in the Malaysian Trauma Registry (MTR)

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Introduction: It is important to note that policymaker programs focusing on protecting life and increasing safety often involves significant costs. However, such main and incidental costs are not immediately recognised. The underlying issues revolving around this notion includes the isolation of individuals who are directly involved in Road Traffic Injuries (RTIs) but lack involvement in improving road fatality and injury risk reduction efforts.

Objective: This study aimed to investigate the Value of Statistical Life (VoSL) through the Willingness to Pay (WtP) with the Contingent Valuation Method (CVM) approach.

Methods: The study adopted a cross-sectional design based on the Strengthening the Reporting of Observational in Epidemiology (STROBE) guidelines. The participants involved in this study comprised of inpatients and outpatients aged from 18 to 64 years, injured due to road accidents; recruited at the Trauma and Emergency Departments of two public hospitals listed under the Malaysian Trauma Registry (MTR). These patients include motorcyclists, pillions, pedestrians, as well as motorcar drivers and occupants. A WtP questionnaire was administered to identify the patient's preference for RTIs fatality and injury risk reduction where the VoSL was estimated. The variables which influenced the patient's WtP was investigated. Subsequently, a traffic injury burden of cost analysis was also be projected.

Results: The WtP outcomes are postulated to reflect a maximum of 2% increment compared to the previous local figure which would assist policymakers in road fatality and injury risk reduction decision making.

Conclusion: This study will aid in improving the country's decision-making process by tapping into cost evidence-based data.

P13

Service quality perceptions and patient satisfaction: A study in an Otorhinolaryngology Head & Neck Surgery Clinic in Perak

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Introduction: Patients are the main customer of health care services. Predictor levels of patient's satisfaction are critical for evaluating the effectiveness of the health care delivery and the quality provided.

Objective: This study aims to determine the level of patient's satisfaction on service quality dimension and its associated factors, as perceived by patients who attended the Otorhinolaryngology-Head & Neck Surgery clinic at the Taiping General Hospital, Taiping, Perak.

Methods: A cross-sectional study was conducted at the clinic whereby 359 patients were selected using every odd patient number registered for the day between 1th of April 2020 and 30th of April 2020. Information was obtained from a validated structured questionnaire (SERVQUAL KKM).

Results: The response rate was 100% (359 respondents), of whom 346 patients (96.4%) were satisfied and 13 patients (3.6%) were not satisfied with the level of service quality as perceived. There was 1 factor that was significantly associated with the level of patient's satisfaction; education ($p=0.018$). The largest mean gap between mean expectations and mean perceptions according to the dimensions was for the tangible dimension. The overall mean score as perceived by patients attending the clinic was good.

Conclusion: The classification of good and poor service quality scores in this study only served as a relative indicator. There is a significant difference between the expectations and perceptions as perceived by patients and patient's perception was generally higher than expectations reflecting the high satisfaction among patients. The results implied that tangibly affects the patient's satisfaction the most.

P14

Development of Real-time Data Acquisition and Signal Processing for Electromyography Signal and Arm Movement at Biceps Muscle

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Introduction: Electromyogram (EMG) signal contains a wealth of information about muscle functions with there being many approaches in measuring the EMG signal. It is important to have real-time measurements and to process EMG signals and arm movement.

Objective: This study aimed to develop a low-cost real-time data acquisition system for EMG signal and arm movement.

Methods: The experimental setup for EMG signal acquisition followed procedures recommended by Europe's Surface Electromyography for Non-invasive Assessment of Muscle (SENIAM) project. Subjects were requested to lift an arm at a certain desired elbow angle without load and with dumbbell loads of 2kg, 4kg and 6kg. The lifting process was done according to the biceps curl exercise.

Results: The muscle force and arm movement at the elbow joint were analysed to provide sufficient information on the relationship between an EMG signal and arm movement. Increases in the amplitude of the EMG signal indicated an increase in the energy or forces exerted by the biceps muscle, which was also proportional to the size of the load increment. The findings showed that the developed data acquisition system was able to indicate the changes of the EMG signal amplitude with different angles of arm movement and different weight loads.

Conclusion: The proposed system could be used as an alternative solution due to its low cost, non-complex design and portable solution.

P15

Development and Validation of Early Intervention Guidebook in Dressing for Children with Autism Spectrum Disorder in Malaysia

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Introduction: Children with Autism Spectrum Disorder (ASD) often exhibit impairments in performing functional dressing activities. Early dressing training with parent involvement is necessary to support them in learning and mastering the dressing skills at the later milestones. However, a comprehensive guideline is lacking to systematize and conduct dressing training for children with ASD in the early stage of life.

Objective: This study aimed to develop and validate an early intervention guidebook in dressing for 18 to 36 months old children with ASD in Malaysia.

Methods: This study was conducted in two phases: (i) development of the guidebook, (ii) validation of the guidebook, through a Focus Group Discussion (FGD) session, face and content validation process and cognitive interviewing. Nine expert panel with an occupational therapy background, having between 6 to 20 years of working experience in a paediatric setting, were involved in the FGD session, face and content validation process. For cognitive interviewing, three parents of children suspected or diagnosed with ASD were recruited, participating voluntarily.

Results: The result indicated that the guidebook had adequate face validity and high overall content validity (S-CVI/Average range: 0.98-1.00; S-CVI/Universal Agreement range: 0.80-1.00). The guidebook was also found to have high content validity in all five domains (I-CVI range: 0.89-1.00).

Conclusion: In conclusion, the newly developed early intervention guidebook in dressing can be a valid instrument. The guidebook can provide a systematic guideline for parents to train dressing in children with ASD starting from the early stage of life.

P16

The Effect of Reduced Visual Functions on Visual-Motor Integration Skills in Preschool Children

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Introduction: Visual-motor integration (VMI) skills are crucial for young children. VMI is related to learning-related tasks that require hand-eye coordination such as writing and discriminating letters. Suboptimal visual functions, as usually discovered in children who fail vision screening, may affect their VMI skills.

Objective: This study was conducted to determine the association between visual functions (failing or passing vision screening) and visual-motor integration skills in preschool children.

Methods: A vision screening program was conducted in 15 preschools within Klang Valley, involving 450 children (mean age: 5.94 ± 0.47 years). Distance visual acuity (DVA), near visual acuity (NVA), and stereopsis was measured. A reduced visual function was indicated if the child fulfilled one of three fail criteria: habitual DVA $0.3 \log \text{MAR}$, NVA $0.4 \log \text{MAR}$ or stereopsis 250 arc sec . VMI skills were measured with the Beery-Bucktenika Test of Visual-Motor Integration. A <85 score indicated below-average VMI. The association between vision screening outcomes and VMI skills was analysed using multinomial logistic regression.

Results: Sixty-five (14.3%) preschool children failed the vision screening. Forty-three (9.9%) had a below-average VMI score. Although children who failed vision screening were 77.3% more likely to have below-average VMI, the finding was not statistically significant (odds ratio: 1.77, 95%CI: 0.58-5.41, $p=0.317$).

Conclusion: Preschool children who failed vision screening (i.e. with reduced visual function) appear to have reduced VMI skills. However, the association between vision screening outcome and VMI skills was not significant.

P17

Development and Validation of Early Intervention Guidebook in Interaction with Pet for Children with Autism Spectrum Disorder in Malaysia

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Introduction: Care of pets is an instrumental activity of daily living for an individual. The task might be a burden for toddlers with Autism Spectrum Disorder (ASD). However, studies found that interaction with pets is beneficial to children with ASD. This early intervention guidebook was developed to serve as a guideline for parents or caregivers to teach children with ASD the proper way to interact with pets, using cats as an example.

Objective: This study aimed to develop and validate an early intervention guidebook in interaction with pets for children with ASD, aged 18 to 36 months in Malaysia.

Methods: The study consisted of two phases. First was the development of the guidebook. Ideas of the guidebook content were generated from previous related studies and reliable websites. The second was the validation phase which included focus group discussion, content validity testing and cognitive interviewing.

Results: The items of the guidebook included an introduction, suggestion of suitable pet, implementation of appropriate strategies and safety measures. All experts panel (N=9) rated a high content validity for the early intervention guidebook on each section with regards to relevance, simplicity, clarity and ambiguity (I-CVI = 1), as well as its overall content validity (S-CVI/Ave = 1; S-CVI/UA = 1). All parents (N = 3) who participated in the cognitive interviewing expressed that the early intervention guidebook was suitable for their use.

Conclusion: The developed early intervention guidebook was validated to be used as a guideline for parents to teach children with ASD the proper way to interact with pets.

P19

Method for Artificial Intelligence Image Processing and Robotics in Repetitive Medical Experimentation

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Introduction: Clinical and medical laboratory experimentations in medical research would require numerous repetitions to produce reliable and consistent data. This experimentation required repetitions to capture medical imaging data from the Ultrasound (U/S) machine coupled with precise localisation. Manual analysis of raw data would be a laborious task and hinder experimental progress.

Objectives: The aim of this article is to evaluate the utilisation of artificial intelligence (AI) image processing and robotics as part of experimentation method and subsequently to propose the utilisation of this tool as part of regular clinical laboratory methodology.

Methods: A robotic device was built to carry out repetitive tasks in our experimentation of medical imaging. The motion of the robot was computer controlled and incorporated images from a camera and a U/S machine. Data were processed using image processing algorithms thresholding and contour extraction to extract the region of interest automatically for further analysis. A laser line beam was attached to the machine to measure repeatability.

Results: Statistical analysis was carried out using the R language. The repeatability of the machine had a standard deviation of 0.1499 and coefficient of variation (COV) of 0.1562 with number of samples, $n = 747$, for a duration of 182 minutes.

Conclusion: Certain experimentation tasks involve repetitive action. AI image processing and robotics provide tools to enhance work including colour differentiation, motion tracking and time-series imaging data. Having utilised AI in this experimentation, the use of AI as a tool is promoted to complement and strengthen clinical research and medical science methodology.

P20

Comparison of Chondroprotective Potential between Annatto and Palm Tocotrienol using SW1353 Chondrocytes

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Introduction: Despite the burgeoning prevalence of osteoarthritis in the ageing society, effective pharmacological agents for managing this condition are still lacking. Our previous study showed that annatto tocotrienol effectively preserved the cartilage integrity in a rat model of osteoarthritis induced by monosodium iodoacetate (MIA). However, it remains uncertain whether annatto or palm tocotrienol would be more effective in preventing osteoarthritis and their chondroprotective mechanisms.

Objective: This study compared the effects of annatto and palm tocotrienol on SW1353 chondrocytes stimulated with MIA in viability and cartilage health markers.

Methods: SW1353 chondrocytes were co-treated with MIA and a series of annatto or palm tocotrienol to determine their viability through MTT assay. The effects of both tocotrienol mixtures on 8-isoprostane F₂- α level and protein expression of collagens, metalloproteinases, SRY-box 9 and aggrecan with or without the presence of MIA were determined using immunoassays.

Results: Co-incubation of annatto or palm tocotrienol and MIA prevented the reduction of SW1353 chondrocytes viability. Both tocotrienol mixtures reduced the 8-isoprostane F₂- α level and the ratio of type II/type I collagen in MIA-stimulated chondrocytes. Only annatto tocotrienol increased the protein expression of type II collagen, SRY-box 9 and aggrecan of chondrocytes stimulated with MIA.

Conclusion: Annatto tocotrienol was more effective than palm tocotrienol in preserving chondrocyte viability. It may act by activating repair mechanisms in chondrocytes suffering from damage.

P21

Self-reported Dry Eye and Convergence Insufficiency symptoms among Faculty of Health Sciences UKM Students during Covid-19 Pandemic

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Introduction: Since the beginning of the COVID-19 pandemic, students often spend time indoors with the amount of time spent using electronic devices drastically increasing. This is because virtual learning is applied to replace face-to-face learning among undergraduate students, putting increased pressure on the visual system which could lead to dry eye and convergence insufficiency problems.

Objective: This study aimed to determine the relationship between self-reported dry eye and convergence insufficiency symptoms among undergraduate students.

Methods: A cross-sectional questionnaire-based study was carried out among undergraduate students of the Faculty of Health Sciences, Universiti Kebangsaan Malaysia (UKM) from March to July 2021. The Ocular Surface Disease Index (OSDI) and Convergence Insufficiency Symptoms Survey (CISS) questionnaires were used.

Results: A total of 207 students participated in this study. The mean age of the participants was 22.46 ± 1.36 years old with 81.2% (n=168) females and 18.8% (n=39) males. The participants' mean average hours of exposed time to the Visual Display Unit (VDU) was 7.32 ± 2.10 hours per day. Out of 207 participants, only 81 (39.1%) of them had no symptoms of dry eyes based on OSDI score while 126 (60.9%) participants showed higher scores in OSDI with 100 females and 26 males showed dry eye symptoms; 21.8% (n=45) mild, 14% (n=29) moderate and 25.1% (n=52) severe in dry eye symptoms. Based on the CISS score, 65.7% (n=136) of them had no symptoms of convergence insufficiency while 34.3% (n=71) participants showed the presence of convergence insufficiency symptoms. The chi-square test was statistically significant, $\chi^2 (1, N=207) = 28.46, p < 0.05$, illustrating that participants with dry eye symptoms were more likely to have convergence insufficiency symptoms.

Conclusions: There was a high percentage of dry eye symptoms and convergence insufficiency symptoms recorded among the Faculty of Health Sciences students during the COVID-19 pandemic. There was also a statistically significant relationship between dry eye symptoms and convergence insufficiency, indicating an individual with dry eye symptoms may also have convergence insufficiency symptoms.

P22

The Development and Validation of Early Intervention Guidebook in Bathing/Showering for Children with Autism Spectrum Disorder

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Introduction: Children with autism spectrum disorder (ASD) often experience self-care difficulties such as bathing/showering. Parents play a primary role in teaching their children bathing/showering skills. Hence, a valid bathing/showering guidebook for children diagnosed or suspected with ASD is crucial to facilitate independent bathing/showering among them.

Objective: This study aimed to develop and validate an early intervention guidebook in bathing/showering for children with ASD aged 18 months to 36 months in Malaysia.

Methods: Nine participants with Occupational Therapy (OT) backgrounds were enrolled to rate the 5 items in this guidebook in terms of relevance, clarity, simplicity and ambiguity. The Content Validity Index (CVI) was computed for each item in each scale (I-CVI) as well as for the overall scale (S-CVI). Kappa was used to determine the inter-rater agreement. Five participants for the cognitive interview were asked whether the instructions provided in the guidebook could be easily understood. Their feedbacks were recorded for further modifications.

Results: The I-CVI for all items and all scales were very high (I-CVI > 0.76) with the modified Kappa agreement among the raters demonstrating excellent agreement ($k > 0.76$). The S-CVI was high for all scales (Relevance = 1.00; Simplicity = 1.00; Clarity = 0.98 and Ambiguity = 0.98). Three of the participants were concerned about the physical appearance of the guidebook.

Conclusion: This newly developed early intervention guidebook is valid for health practitioners to refer to during treatment. Parents who have children diagnosed or suspected of ASD could also use when training their children's bathing/showering skills.

P23

Anticancer Effects of Annatto Tocotrienol, Gamma-Tocotrienol and Delta-Tocotrienol on Human Chondrosarcoma Cells

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Introduction: Chondrosarcoma is a type of malignant primary cartilaginous bone cancer naturally resistant to chemotherapy and radiotherapy. The currently recommended treatment options for chondrosarcoma are either surgical resection or intra-lesion curettage. Tocotrienol has been proven to possess anticancer activity. However, the anticancer effects of tocotrienol in chondrosarcoma have not been investigated.

Objective: This study aimed to determine the anti-chondrosarcoma effects of annatto tocotrienol (AnTT), purified gamma-tocotrienol (γ -T3) and delta-tocotrienol (δ -T3) using human chondrosarcoma SW1353 cells.

Methods: The MTT assay was performed to determine the half-maximal inhibitory concentration (IC₅₀) of 24h tocotrienol treatment on SW1353 cells. Subsequently, the mode of cell death, cell cycle analysis and microscopic observation of tocotrienol-treated SW1353 cells were conducted according to the respective IC₅₀ values. Lastly, a modified MTT assay was used to determine the proliferation of SW1353 cells in low seeding density, with or without the 72h of tocotrienol treatment.

Results: The current finding demonstrated that AnTT, γ -T3 and δ -T3 were antiproliferative and cytotoxic towards SW1353 cells by inducing G1 arrest in the early phase of treatment (24h), which progressed to apoptosis upon 48h of

treatment. In the antiproliferative and cytotoxicity assessment, δ -T3 was the most potent isoform, followed by AnTT and γ -T3. Furthermore, tocotrienol-treated SW1353 cells also exhibited large cytoplasmic vacuolation, suggestive of paraptotic or paraptotic-like cell death.

Conclusion: AnTT, γ -T3 and δ -T3 possess promising anticancer properties against chondrosarcoma cells. Further study is required to confirm their effectiveness as chondrosarcoma adjuvant therapy.

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The Profile in Pediatric Optometry Clinic, Faculty of Health Sciences, Universiti Kebangsaan Malaysia

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Introduction: Patient profiles is a list of patient data recorded for the convenience of tracking a patient's latest health status. The data usually included the patient's personal information, case history, examination results, diagnosis, treatment and management. All these data are important for healthcare providers to know and understand a patient's current health status.

Objectives: This study was conducted to determine the patients profile in the Pediatric Optometry Clinic, Faculty of Health Sciences, Universiti Kebangsaan Malaysia from 2010 to 2016.

Methods: A total of 309 patient files were analysed in this study. The parameter involved in this study was the patient's age during the first visit, gender, race, birth history, disability status (OKU), optometric diagnosis and treatment and management.

Results: The result showed the majority of patients who came to the Pediatrics Optometry Clinic were male (61.2%), Malay (71.8%) and aged between 4 to 6 years old (45.6%). Among the 309 patients in this study, 82.5% were born full-term whereas only 13.3% were registered as OKU. The common eye problems found among patients in the Pediatrics Optometry Clinic were refractive error (57%) and strabismus (18.1%) and most of them were low hyperopias (46.6%). The most frequent treatment and management given were follow up appointments (48.9%), followed by giving prescriptions with follow up (18.4%).

Conclusion: Most patients having refractive error and strabismus, therefore healthcare providers need to focus on treatment and management as well as to educate parents on the importance of children's vision.

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Does the COVID-19 Pandemic Influence Physical Activity Level among Medical Students? An Online Survey

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Introduction: COVID-19 was classified as a global pandemic by the World Health Organization (WHO) with public health recommendations and governmental measures that included lockdowns. There is limited evidence to evaluate the effect of lockdowns on physical activity.

Objective: This study aimed to determine the changes in physical activity level among medical students before and during the COVID-19 pandemic and its associated factors.

Methods: This cross-sectional study was conducted among 225 Universiti Malaysia Sabah (UMS) medical students for a week. The research instruments were questionnaires that contain information about socio-demographic, physical activity levels based on International Physical Activity Questionnaire (IPAQ) and associated factors. The paired t-test was used to compare the metabolic equivalent of task (MET) score of total physical activity before and during COVID-19 while the independent t-test was used to compare the association between MET score differences of physical activity level and the socio-demographic characteristic and associated factors.

Results: There were changes in physical activity before and during COVID-19 where the MET level in the former was higher than the latter (p -value = 0.02). M40 household income (p -value = 0.04), no fixed activity schedule (p -value = 0.01), high family demand (p -value = 0.03) and lack of access to exercise facilities (p -value = 0.04) were the only factors that were found to influence the difference in physical activity before and during COVID-19.

Conclusion: The strategy to mitigate the COVID-19 pandemic has had an effect on physical activities among medical students. Family income and other environmental factors play a role in changes in physical activity. Health-promoting measures directed towards inactive individuals may be essential to improving well-being.

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Comparative Study of *Gynura procumbens* (Sambung Nyawa) and *Catharanthus roseus* (Madagascar Periwinkles) Extract on Wound Healing, Full Blood Count and Catalase Level in Streptozotocin-Induced Diabetic Rats

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Introduction: Diabetes Mellitus (DM) is a chronic metabolic disease that consequently contributed to health complications such as impaired wound healing. Antioxidants are being investigated for their therapeutic effect to neutralize free radicals which leads to oxidative stress.

Objective: This study was conducted to compare the effectiveness of *Gynura procumbens* (Sambung Nyawa) and *Catharanthus roseus* (Madagascar Periwinkles) extract on wound healing, blood glucose level and catalase level in Streptozotocin-induced diabetic rats.

Methods: Thirty-six male Sprague Dawley rats were divided into two different extractions, *Gynura procumbens* and *Catharanthus roseus* which consist of three groups, n=6 (Control, Treated, Untreated). 24 rats were then induced with Streptozotocin (STZ) to develop diabetes before commencing treatment and establishment of the wound. The parameters that were measured included wound size, fasting blood glucose (FBG), full blood count (FBC) and weight of the rats. The rats were sacrificed to evaluate the antioxidant enzyme (catalase).

Results: The extraction of the *Catharanthus roseus* showed a significant change in wound healing and catalase enzyme activity, while the extracts of the *Gynura procumbens* exhibited significant changes in FBG and weight among all groups. However, the FBC of the DM rats treated with *Gynura procumbens* showed insignificant changes for other blood components that were measured.

Conclusion: Both *Gynura procumbens* and *Catharanthus roseus* may possess wound healing properties in preventing diabetic wounds among DM patients.