Medical Deans
AUSTRALIA AND NEW ZEALAND
RESEARCH EDUCATORS NETWORK

Three Minute Talk plus One Question Competition (3+1Q) 2022 – Abstract Book

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1) Illness perceptions in people with gout

Daniel Selvadurai[1,2]

Eindra Aung[1,2], Matthew Coleshill[1,2], Nancy Briggs[3], Marcel Schulz[1,2], Richard Day[1,2].

[1]Department of Clinical Pharmacology & Toxicology St Vincent's Hospital
[2]School of Clinical Medicine, Faculty of Medicine and Health, UNSW Sydney, Australia.
[3]Stats Central, UNSW Sydney, Sydney, NSW, Australia.

Background and Aims: Gout is the most common inflammatory arthritis in men. Illness perceptions are beliefs patients form in response to a health condition which may influence self-management behaviours and chronic disease outcomes. Since sub-optimal outcomes occur despite effective gout medication, addressing pessimistic illness perceptions is a novel strategy to improve management. There is, however, a paucity of quantitative studies that investigate illness perceptions in gout. This study aimed to identify gout sufferers who are likely to experience pessimistic illness perceptions and examine how such perceptions relate to current and future health outcomes.

Method: A prospective cohort study (n=493) was undertaken where participants completed surveys at baseline, 6- and 12-month follow-ups. The Brief Illness Perception Questionnaire (B-IPQ) quantified illness perceptions. Using stepwise regression, multivariable linear models identified patient factors associated with each B-IPQ item. Logistic and linear regression, adjusted for age and sex, determined whether baseline B-IPQ items could predict health outcomes.

Results: Older gout sufferers were more likely to experience optimistic illness perceptions. Advancing age was associated with higher B-IPQ treatment control scores (β: 0.02; 95% CI: 0.01, 0.03; p=0.025), and lower B-IPQ consequence scores (β: -0.03; 95% CI: -0.04, -0.01; p<0.001). This represents the optimistic perceptions that gout is treatable and not functionally limiting, respectively. Pessimistic illness perceptions predicted recurrent gout attacks, poorer medication adherence and impaired health-related quality of life. Every 1-point increase in B-IPQ treatment control decreased the probability of experiencing a recent gout attack prior to baseline (OR: 0.67; 95% CI: 0.53, 0.85; p<0.001). Statistical significance persisted at 12-months (OR: 0.85; 95% CI: 0.76, 0.96; p=0.01).

Conclusions: This Australian-first research found that pessimistic illness perceptions predicted poorer health outcomes in gout, thereby supporting illness perception modifying education. As aging was associated with optimistic illness perceptions, these interventions may most benefit younger individuals.

2) Unveiling the mechanism of cloaking antibodies: Insights into antibody-mediated enhancement of chronic Pseudomonas aeruginosa infection and avenues for translation

Joshua N Monteith [1]

Emma L Ledger [1] , Ian R Henderson [2] , David W Reid [3 4 5] , Daniel Smith [4] , Daniel C Chambers [6] , Simon H Apte [6] , Timothy J Wells [1 5]

1. *Frazer Institute, University of Queensland, Brisbane, Queensland, Australia*
2. *Institute for Molecular Bioscience, University of Queensland, Brisbane, QLD, Australia*
3. *QIMR Berghofer Medical Research Institute, Brisbane, Queensland, Australia*
4. *The Adult Cystic Fibrosis Centre and Department of Thoracic Medicine, The Prince Charles Hospital, Brisbane, Queensland, Australia*
5. *Australian Infectious Diseases Research Centre, University of Queensland, Brisbane, QLD, Australia*
6. *Lung Transplant Laboratory, The Prince Charles Hospital, Brisbane, QLD, Australia*

Introduction: During chronic *P. aeruginosa* lung infection, a subset of patients develop an impaired antibody response that inhibits complement-mediated killing. These 'cloaking antibodies' [cAb] were correlated to worsened disease and found to be IgG2 specific to O-antigen lipopolysaccharide [LPS] that block access of serum complement factors to the bacterial outer membrane. In light of this finding, three patients with chronic, multidrug resistant *P. aeruginosa* infections underwent plasmapheresis as a salvage therapy to deplete cAb leading to improved patient outcomes up to 15 months post-treatment (1,2). However, key lapses in our current understanding require; (i) elucidation of novel cAb targets, (ii) characterising cellular origins of cAb, and (iii) novel strategies for targeted depletion of cAb – all of which this project addresses.

Methods: Fourty-four serum samples and sixty-three matched *P. aeruginosa* isolates from patients with CF at the Adult Cystic Fibrosis Unit at Prince Charles Hospital, Brisbane, Australia, with culturable *P. aeruginosa* were collected under ethics LNR/2019/QPCH/6302. Patient serum responses towards bacterial LPS were examined via bactericidal assays, ELISA, and Western blot techniques. Patient O-antigen specific B cells were investigated via tissue culture, flow cytometric analysis, and immunological function assays. Targeted depletion of cAb from patient serum was conducted using affinity chromatography, immunological techniques and bactericidal assays.

Results: These investigations found three key outcomes. The first of which confirmed common-antigen – the dominant form of LPS in chronic infection – as a novel target for cAb. This investigation also detected cAb-specific B cells from patient peripheral blood mononuclear cells - confirming the presence, surface markers, and cAb production from these cells. Thirdly, this investigation confirmed mechanistically that selective removal of cloaking antibody from patient sera *in vitro* not only restores, yet improves bactericidal complement activity in comparison to supplemented donor immunoglobulin.

Discussion: These investigations provide further insight into the mechanisms behind cloaking antibody, and lay the foundations to improve translational therapies for patients with chronic, untreatable *P. aeruginosa* infection.

1.Wells TJ, Davison J, Sheehan E, Kanagasundaram S, Spickett G, Maclennan CA, Stockley RA, Cunningham AF, Henderson IR, De Soyza A. 2017. The Use of Plasmapheresis in Patients with Bronchiectasis with Pseudomonas aeruginosa Infection and Inhibitory Antibodies. American journal of respiratory and critical care medicine 195:955-958.

2. Divithotawela C, Pham A, Ledger EL, Hopkins P, Wells TJ, Chambers D. 2019. Treatment of life-threatening Pseudomonas aeruginosa infection by pheresis of inhibitory antibodies. The Journal of heart and lung transplantation : the official publication of the International Society for Heart Transplantation 39

3) Multidisciplinary weight management improves body weight and body mass composition in breast cancer women

Vivien Nguyen

Macquarie University

Vivien Nguyen[a], Juliana Chen[a,b,c], Reginald Lord[b,d] and Veronica Preda[a]

[a]Faculty of Medicine, Health and Human Sciences, Macquarie University, Macquarie Park, Australia
[b]Healthy Weight Clinic, MQ Health, Macquarie Park, Australia
[c]Susan Wakil School of Nursing and Midwifery, Faculty of Medicine and Health, Charles Perkins Centre, The University of Sydney, Camperdown, Australia
[d]Department of Surgery, School of Medicine, University of Notre Dame, Sydney, Australia

Introduction: Weight gain during chemotherapy for breast cancer is a well-documented adverse effect. The purpose of this study was to investigate how multidisciplinary weight management involving endocrinology, dietitian, and exercise physiology care, in a real-life Healthy Weight Clinic (HWC) would impact body weight and mass composition in breast cancer women post-adjuvant chemotherapy compared to a cohort of non-cancer women who have been matched by age, ethnicity, smoking and menopausal status.

Methods: Body weight (kg), BMI (kg/m^2), skeletal muscle mass (SMM %), fat mass (FM %) and waist circumference (cm) were collected at baseline of the first HWC appointment, three-months after baseline, and six-months after baseline. A total of 32 women were included, 11 in the breast cancer cohort and 21 in the control cohort, that matched inclusion and exclusion criteria based on a retrospective chart review from 28th July 2017 to 19th July 2021.

Results: By six-months, the breast cancer women had a mean weight change of -6.99kg (SD=3.87, p=.003, n=11) and change in BMI by -2.72kg/m2(SD=1.62, p=.004, n=11). There was a change in SMM of 1.21% (SD=0.73, p=.005, n=11), a change in FM of -2.76% (SD=1.33, p=.002, n=11) and a change in waist circumference of -8.13cm (SD=4.21, p=.031, n=3). By six-months in the breast cancer cohort, there was a larger change in body weight in women who did not have MetS (-8.72kg, SD=2.41, n=6) in comparison to women with MetS (-2.65kg, SD=3.75kg, n=3) (p=.045).

Conclusion: Findings indicate that multidisciplinary weight management has a positive role in early-stage breast cancer survival through improving body weight and mass composition. These results can add to the development of long-term treatment plans for survivors in order to shine a light on ways to reduce risk recurrence and chronic disease mortality.

4) Supporting our soldiers through prehab

Chelsea Smith

James Cook University, College of Medicine & Dentistry

Incurring an injury is embarrassing and could be costly due to the extensive and painstaking physical rehabilitation. However, getting injured and going through rehabilitation is much worse for army personnel whose job requires them to be fit in order to perform occupational duties such as sprinting across a battlefield with heavy loads whilst under fire. Consequently, 'prehabilitation', individualised physical training to prevent musculoskeletal injury, has recently become popular. Prehabilitation targets a person's weaknesses in order to minimise future injury. Whilst prehabilitation has produced reductions in musculoskeletal injury risk for elite athletes, it has yet to be studied within the military. Therefore, the current study aimed to: 1) examine the effects of 5-weeks of standard group-based army training compared with individualised prehabilitation training on physical performance; and 2) determine the reliability of force plate tests to identify and monitor individual's weaknesses and potential musculoskeletal injury risk. Individualised prehabilitation was as good as standard group training for improving physical performance with individualised training resulting in greater improvements for muscular strength, a fitness domain associated with lower musculoskeletal injury risk. The reliability of the force plate tests was moderate-good for most metrics highlighting the appropriateness of this simple tool to monitor musculoskeletal injury risk factors for army personnel. Individualised prehabilitation training with regular force plate monitoring may support the development of greater physical fitness while minimising musculoskeletal injury risk in army personnel. Future studies will clarify the benefits of prehabilitation on long-term physical performance and injury risk in the military.

5) Comorbidities implicated in progression of cognitive decline in patients with mild cognitive impairment presenting to a memory clinic

Jessica Falon

University of Sydney

Background: Alzheimer's disease (AD) is the most common cause of dementia, and is a leading cause of mortality. The progressive neurodegenerative disease causes irreversible damage in its later stages, yet may be reversible in mild cognitive impairment (MCI), or prodromal AD. Importantly, not all patients with MCI progress to AD, a phenomenon which is only partially explained by differences in genetic risk. It is therefore hypothesised that the presence of certain comorbidities may increase the risk of progression. Aims: To investigate the comorbidities present in a population of patients with MCI compared to those with normal cognition (NC), and to assess whether this influenced the progression of cognitive decline at 12-month follow-up.

Methods: 113 patients presenting to the Royal North Shore Memory Clinic were categorised as having NC or MCI. Baseline demographics, apolipoprotein E (ApoE) genotype, and comorbidities were compared between the two groups. Each comorbidity was then assessed for association with progression of cognitive decline at follow-up.

Discussion: Sleep disorders, hypertension, and dyslipidaemia were significantly increased in prevalence in MCI, though were not associated with progression of cognitive decline at 12 months. ApoE genotype alone similarly had no association with progression, but markedly increased the proportion who experienced cognitive decline when seen in combination with hypertension or B12 deficiency.

Conclusions: Certain common comorbidities, including hypertension and B12 deficiency, may contribute to progression of cognitive decline in genetically vulnerable patients. The effect of early identification and management of these conditions on cognition and neuropathological markers of AD should be explored.

6) Tasmanian STEMI Network – A Whole System Evaluation

Giorgia Hill[1]

J. Sharman[2], J. Campbell[2], T. Murray[3], N. Anderson[4], S. Foale[3], M. Ruigrok[3], R. Singh[5], U. Hayat[5], R. Barthwal[5], M. Burley[3], E. Eberhardt[3], L. Dare[3], A. Black[2, 6].

[1] School of Medicine, University of Tasmania
[2] Menzies Institute of Medical Research, University of Tasmania
[3] Tasmanian Health Service, Tasmania
[4] Ambulance Tasmania, Tasmania
[5] Department of Cardiology, Launceston General Hospital, Tasmania
[6] Department of Cardiology, Royal Hobart Hospital, Tasmania

Background: ST-elevation myocardial infarction (STEMI) is a time critical emergency requiring rapid restoration of flow through the occluded culprit coronary artery. Optimal management requires a co-ordinated system involving ambulance services, retrieval, emergency departments and interventional cardiology teams. Best practice treatment for STEMI is reperfusion within 90 mins of first medical contact, although this target can be challenging to achieve outside of metropolitan areas. The Tasmanian STEMI Network was implemented on April 30, 2018 to streamline state-wide STEMI management and improve reperfusion times. The Network involved new rural lysis sites and education sessions, development of a state-wide lysis pathway, clear retrieval pathways, and an ambulance ED bypass protocol for STEMIs presenting directly to Royal Hobart Hospital. Evaluation of the effect of the Network on state-wide reperfusion times was 'whole of system', with a broader focus than hospital door-to-balloon times.

Method: A retrospective observational study was undertaken reviewing 610 STEMI cases presenting between July 1, 2016 and June 30, 2020.

Results: The state-wide median time of first medical contact to reperfusion reduced following Network implementation (145 vs 118 mins, $p<0.001$). Reperfusion times reduced significantly at most sites: Royal Hobart Hospital (n=231) 114 vs 99 mins ($p<0.01$), Launceston General Hospital (n=172) 133 vs 130 mins ($p=0.97$), North-West Regional Hospital (n=75) 166 vs 137 mins ($p=0.54$) and Mersey Community Hospital (n=94) 224 vs 148 mins ($p<0.01$).

Conclusion: Implementation of a system-wide approach to STEMI management significantly improved treatment times in Tasmania. Identifying areas where reperfusion times remain suboptimal, informing future allocation of resources.

7) Do they care? Medical students' attitudes and perspectives towards evaluation and research requests

Jessica Tater

Otago Medical School

Introduction

Medical Students have a significant number of teaching staff from multiple departments contributing to their curriculum which results in a large number of course evaluation requests. Medical students are regarded as a highly motivated population so are also greatly sought-after research participants. This study aimed to determine the volume and frequency of these evaluation and research requests to second- and third-year students at Otago Medical School (OMS) and investigate student attitudes and perceptions towards them.

Methods

An online survey was developed to understand student experiences of receiving evaluation and research requests. An audit of evaluation and research requests to students during 2022 was performed and presented as data to reflect on in the survey. A retrospective audit (2017-2021) of research requests (n=2950) was also undertaken, based on Otago University ethics applications.

Results

Students received n=39 (Y2), 32 (Y3) evaluations, and n=8 (Y2), 10 (Y3) research requests in 2022. This is consistent with previous years. Survey responses (overall response rate 29%) indicated that 70% of students felt they received too many evaluation requests, 76% felt that the OMS should limit evaluation request volume, and 30% noted receiving evaluation requests was ‘a little stressful’. Students preferred to receive requests at the start of the semester, with exam and holiday times least preferred. Current research request trends (one or less per month) were viewed as reasonable.

Discussion

Findings indicate that many students feel over-evaluated and stressed by requests, with many suggesting evaluation requests should be regulated and restricted to half the current volume. Many students expressed that they could see the value in the requests but didn’t have the time to complete them. Therefore, receiving fewer requests has the potential to reduce stress for students increasing engagement and the quality of their responses.

8) Artificial Intelligence for the Prediction of Local Recurrence of Lung Cancer

Alli Jan

University of Wollongong, Graduate School of Medicine

Purpose: to assess the likelihood of local recurrence of lung malignancies following stereotactic ablative radiotherapy (SABR) by evaluating clinical and imaging features with machine learning and novel use of deep learning methods.

Methods: pre-treatment CT images were obtained from seventy patients with primary lung malignancies. The malignancy was segmented by the treating radiation oncologist and 107 radiomic features were extracted from the image. The data underwent feature reduction via Spearman's correlation and selection with adapted LASSO regression analysis. A random forest model and a multilayer perceptron (MLP) with cost-sensitive classifier were independently used to assess for local recurrence of malignancy. The recurrence likelihood predictions from each of these were used to stratify patients into groups with high and low risk of recurrence. These were assessed for time-to-event predictions using Kaplan-Meier analyses and Gray's test to evaluate the separation between the high and low-risk groups. The prognostic capacity of the models was evaluated with a concordance index, 95% confidence intervals and bootstrapping (10,000 iterations).

Results: the MLP was able to predict the recurrence of malignancy with 100% sensitivity and 91% specificity (AUC 0.95). The MLP predictions showed statistically significant separation of high and low-risk patients, and robust model fit ($p=0.02$, $c=0.82$), which out-performed random forest model predictions ($p=0.15$, $c=0.41$) that did not reach statistical significance.

Conclusions: radiomic data analysis with an MLP showed improved prediction potential within this dataset compared to random forest models for predicting local recurrence of lung cancer.

9) Hand Trauma in Rural WA

Thomas Flimer

Medical School, University of Western Australia

Acute hand injury is a common presentation to emergency departments worldwide, accounting for up to 30% of all injury presentations. Prior research in the field has centred on urban settings and occupational injuries, with a dearth of objective investigation into hand injuries occurring in a rural setting. This study aimed to construct a baseline picture of the mechanisms and management of hand injuries occurring in the rural town of Margaret River, Western Australia. Data was collected on 534 patients presenting to Margaret River Emergency Department in 2018 with acute hand injuries. Raw data was sourced from electronic medical records (EMR) and discharge summaries. Demographic data was extracted directly from EMR, while further details were collected by investigators using a custom developed software tool to allow convenient and consistent data collection. Acute hand injuries account for 7.2% of all emergency department presentations in 2018. Overall, 65% of patients were male, with a mean age of 32 years. Lacerations were the most common type of injury (51.5%) and 19.5% of injuries were related to sports and exercise. Most cases were managed locally, with only 4.3% requiring direct transfer to higher level care. Hand injuries in this rural community are a significant contributor to emergency department presentations. Demographic and injury trends are broadly similar to urban settings; however, we recorded a larger proportion of sporting injuries, likely reflecting region-specific tourism and local activity factors. Further research is needed to see if this trend holds true across longer timescales and in other rural settings.

10) Demographics, clinical care and follow-up of Hepatitis B positive children and adolescents in Western Australia

Hannah Bartley

University of Notre Dame, Fremantle Campus

Aim: To describe the clinical care and follow-up of children and adolescents with Chronic Hepatitis B (CHB) infection presenting to Western Australia's (WA) Child and Adolescent Health Service (CAHS) between 2013-2020.

Method: A retrospective medical record review of all hepatitis B surface antigen (HBsAg) positive 0 to 17-year-old patients at Princess Margaret Hospital for Children (PMH) and Perth Children's Hospital (PCH) between 2013-2020 was conducted. Key focuses' were refugee status, country of birth, hepatitis B e-antigen/antibody status, follow-up, and transition to adult services.

Results: Seventy-four patients were identified to have CHB with mean age of 11 years 41 (55%) male. The majority were refugees resettled in WA (n=55, 74%). Country of birth was varied: Burma (n= 19, 26%), Sudan (n= 10, 14%), Australia (n= 8, 11%), Thailand (n= 7, 9%), Guinea (n= 4, 5%), other (n= 26). The majority were in the HBeAg-positive chronic infection phase requiring no intervention. Seventeen children had liver ultrasounds, one had a liver biopsy, and none received antiviral treatment. Two patients were co-infected with HIV. Follow-up was suboptimal with a high number of children having at least one non-clinic attendance (n= 28, 38%) and 25 children were lost to follow-up.

Conclusion(s): The majority of paediatric CHB exists within the refugee cohort. Follow-up and transition to adult services was poor. Long-term monitoring is critical to prevent life-long complications. Improved recall and transition processes to are necessary to combat language, socioeconomic and cultural barriers.

11) Financial toxicity in paediatric cancer care: are we failing our families?

Ella Cehun

School of Medicine, Deakin University, Victoria, Australia

Correspondence: ecehun@deakin.edu.au

Background: Financial toxicity is the negative patient-level impact of the costs associated with cancer care and is the result of direct out-of-pocket costs and indirect costs. Approximately 730 children aged 0-14 years are diagnosed with cancer each year in Australia. Their families are exposed to the risk of financial toxicity across the course of diagnosis, treatment, and beyond survivorship or bereavement. Financial toxicity has gained attention in the adult cancer literature, but there is less evidence for the effects on families of paediatric cancer patients, particularly in the setting of universal healthcare systems like Australia.

Methods: A scoping review was conducted to provide an overview of the current evidence for financial toxicity among Australian paediatric cancer patients and their families. A database search was conducted in Ovid MEDLINE, EMBASE and Cinahl from 2000 to June 2022, inclusive.

Findings: Of the 5 studies included, most of those quantifying the impact of financial toxicity in Australian families are 15-20 years old. These estimated mean out of pocket expenses of $20,000 and income loss ranging from $500 - $50,000 in the 12 months post diagnosis. Recent qualitative studies indicate travel costs still significantly contribute to parents' perceived experiences of financial toxicity. Financial toxicity is associated with poorer psychological health, with parents experiencing it more likely to report emotional stress and to have post-traumatic stress symptoms.

Conclusion: Financial toxicity is a key source of stress for families dealing with cancer, and current data is urgently needed to develop appropriate support mechanisms and policies.

12) Content trends in anti-vaccine TikTok videos encountered on the 'For You Page'

April Thompson

School of Medicine and Psychology, Australian National University

The role of social media during the COVID-19 pandemic has seen sustained critique, with many accusing social media platforms of promoting misinformation to fuel engagement. Current research into anti-vaccine content on TikTok has only sampled the most viewed videos on popular 'COVID-19' hashtags and suggests that purposeful misinformation does not comprise a significant proportion of the total content. However, the content shown to users is influenced by the algorithm and what it understands about the user's interests. Rather than understanding what content is present overall on the platform, this study aims to investigate the content shown to users opposed to COVID vaccines on the TikTok 'For You Page'. Our methodology mimicked how users are routinely exposed to content; coding a user interest in 'politics' or 'health' and observing what vaccine content the algorithm presented. We found that most accounts which had successfully coded politics as an 'interest' were exposed to anti-vaccine content, however 'health'-interested accounts were not. Although the accounts were not intended to be interested in health, political accounts saw an increased prevalence of health content on the For You Page beyond COVID-vaccine content. The major themes in anti-vaccine videos were safety and adverse events following immunisation, and the majority of adverse events mentioned are catastrophic and/or not recognised side effects of the vaccines available in Australia. Only 11% of the anti-vaccine videos sampled used a hashtag that was sampled by previous research, highlighting the volume of anti-vaccine content that is missed by hashtag-based sampling methodologies. Our results indicate that political content on TikTok has a role in spreading both health and vaccine misinformation, and that anti-vaccine content found via the 'For You Page' often sheds doubt over the safety of the COVID-19 vaccine.

13) Assessing the diagnostic performance of IOTA simple ultrasound rules in the diagnosis of adnexal pathology at an Australian public healthcare service

1.**Faulder, Luke**, 5th year medical student, Bond University, Health Sciences and Medicine
2.Deonarine, Patricia, Radiologist, Gold Coast University Hospital
3.Math, Vanitha, Obstetrician/Gynaecologist, Gold Coast University Hospital
4. Maheshwari, Neelam, Microbiologist, Bond University, Health Sciences and Medicine

Background: The IOTA (International Ovarian Tumour Analysis) group was established in 2000 in recognition of the considerable variation in the diagnostic accuracy of adnexal ultrasound test procedures across different ultrasound centres. The aim was to establish clinically important descriptors to improve and simplify ultrasound diagnosis. Accurate diagnosis of adnexal pathology is critical to ensuring appropriate patient management.(1)

Objective: To determine the diagnostic performance of IOTA simple rules in differentiating benign vs malignant adnexal pathology.

Methods: A retrospective study conducted on women who underwent adnexal surgery at Gold Coast Hospital and Health Service (GCHHS) over 12-months (1st Jan 2021 to 31st Dec 2021). Patients who underwent an operation had their pre-operative ultrasounds retrospectively reported by a specialist Radiologist with an interest in Gynaecology, using IOTA simple rules and classified them into benign, malignant, or inconclusive pathology.

Results: There were 84 patients included in the final analysis. IOTA simple rules classified 57 patients as having benign lesions (68%), 20 as malignant (24%) and 7 were inconclusive (8%). Diagnostic accuracy of IOTA simple rules is assessed by calculating sensitivity and specificity. Inconclusive results are reported in two distinct methods. The first re-classifies inconclusive IOTA results as malignant (n=84) resulting in sensitivity and specificity of 93.8% and 82.4% respectively. The second excludes inconclusive IOTA results (n=77) resulting in sensitivity and specificity of 93.3% and 90.3% respectively.

Conclusion: IOTA simple rules demonstrate high sensitivity and specificity for both methods outlined and therefore high diagnostic accuracy in the diagnosis of benign and malignant adnexal masses.

References

1. Timmerman D, Valentin L, Bourne TH, Collins WP, Verrelst H, Vergote I. Terms, definitions and measurements to describe the sonographic features of adnexal tumors: a consensus opinion from the International Ovarian Tumor Analysis (IOTA) group. Ultrasound Obstet Gynecol. 2000;16(5):500-505. doi: 10.1046/j.1469-0705.2000.00287.x

14) Associations between Hallucinogen Persisting Perception Disorder and non-visual perceptual disturbances: An observational study

Anneliese McConnell

School of Medicine, Western Sydney University

Hallucinogen Persistent Perception Disorder (HPPD) is the disturbing experience of re-living the effects of hallucinogens long after ceasing the drug. These adverse reactions are increasingly relevant with growing therapeutic use of hallucinogens. Symptoms are mostly visual, in the form of nonpsychotic, visual hallucinations, but can also occur in the other senses. There are two types of HPPD: brief 'flashbacks' of intermittent symptoms, or chronic sensory disturbances that can last from months to a lifetime. There are currently no proven risk factors or mechanisms for HPPD. Links have been drawn in literature between HPPD and other perceptive comorbidities outside of the visual system, such as tinnitus or migraine with aura. It has been hypothesised that there may be overlapping pathophysiology between HPPD and other perceptual disturbances, such that such disturbances may predispose someone to developing HPPD. Proving this connection could provide clues about the mechanism of HPPD which could be explored further. Our research, led by Professor Paul Sowman from Macquarie University, thus aimed to provide this evidence for the connection between HPPD and other perceptual disorders.

Our case control study of 138 people with HPPD, and 116 without showed a significant association between HPPD and photosensitivity (OR=10.65), phonosensitivity (OR=8.00) and number of perceptual disturbances in the HPPD group (OR=1.59), when compared with controls. Clear trends of dual prevalence between HPPD and tinnitus, migraine with aura, vertigo, paraesthesia, and synaesthesia were also observed. Participants with both HPPD and perceptual disturbances were also more likely to experience other perceptual disturbances after the onset of their HPPD. Our findings suggest that a common vulnerability or pathophysiological mechanism exists between these disorders. Our results may provide direction for future investigations of HPPD pathophysiology and management options.

15) A closer look at the eye doctor in your pocket

Victoria Tang[1], Sonia Huang [2], Weng Onn Chan [2]

[1] College of Medicine and Public Health, Flinders University
[2] Discipline of Ophthalmology and Visual Sciences, University of Adelaide

If you have ever felt a slight headache or a funny pain in your toe and made a mad scramble for instant medical advice from 'Dr Google', it turns out you're not alone.

Intelligent virtual assistants (IVAs) such as Siri, Google Assistant and Alexa are becoming more accessible and widespread in their use, especially in health information seeking. In our area of interest, sight threatening eye conditions such as retinal detachment often present with easily recognisable 'red flag' symptoms, which are highly treatable if detected early. However, the validity of using IVAs in providing eye health advice under these important circumstances has not been closely assessed.

We performed a small, cross-sectional pilot study (n=15) to evaluate the most common intelligent virtual assistants in response to real-life, verbatim queries from those who had experienced sight-threatening conditions. Participants who had experienced retinal detachments, tears or posterior vitreous detachment were asked how they would phrase their queries if asking an IVA for advice about their initial symptoms. These queries were provided to each IVA, with responses graded on how well they could recognise conditions and importantly, how safe and appropriate the information was. The responses produced by IVAs ranged from helpful and evidenced-based, to dangerous and unreliable.

Our research aims to determine exactly how far off are we from being able to prevent blindness and vision loss with a simple conversation with our smartphone - to explore the consequences, potential benefits and harms of IVA use by laypeople in their current capacity and into the future.

16) The effectiveness of smoking cessation interventions in rural and remove populations: systematic review and meta-analysis

Lucille Vance,[a]

Brittany Glanville,[a] Kaushik Ramkumar,[a]Jessica Chambers,[a] Flora Tzelepis[a,b,c]

[a]School of Medicine and Public Health, University of Newcastle, University Drive, Callaghan, New South Wales 2308 Australia
[b]Hunter New England Population Health, Hunter New England Local Health District, Locked Mail Bag 10, Wallsend, New South Wales 2287 Australia
[c]Hunter Medical Research Institute, Locked bag 1000, New Lambton Heights, New South Wales 2305 Australia

Background: Rural and remote residents are more likely to smoke tobacco than those in major cities. However, they may experience unique barriers to accessing smoking cessation treatments, including distance and limited resources. Understanding the effectiveness of smoking cessation interventions in this population is important due to higher smoking-related disease burden and death compared to those in major cities.

Methods: Databases were searched for randomised controlled trials (RCTs), cluster RCTs, randomised trials, or cluster randomised trials investigating behavioural interventions and pharmacotherapies for smoking cessation in rural and remote populations compared with a control or another smoking cessation treatment; and published in English. Given there is no internationally-standardised rurality index, definitions of 'rural' and 'remote' used by authors of studies were applied to reflect their country. Exclusion criteria were studies of non-combustible smoking cessation; and studies with urban participants in the sample.Two reviewers independently screened records and extracted data, then rated methodological quality.

Results: Sixteen studies were included. Meta-analysis revealed a statistically significant treatment effect of individual face-to-face counselling on smoking cessation (RR 2.35, 95% CI 1.16-4.76, I^2=0%) in rural and remote populations. There was no statistically significant treatment effect for nicotine replacement therapy (RR 2.97, 95% CI 0.84-10.53, I^2=47%), telephone-counselling (RR 1.69, 95% CI 0.56-5.06, I^2=62%), and community-based multiple-interventions (RR:1.57, 95% CI 0.89-2.78, I^2=85%). Certainty of evidence was rated very low for each meta-analysis.

Conclusion: In rural and remote settings, individual face-to-face counselling for smoking cessation appears promising. However, the limited number of studies warrants further research.

17) The cisterna chyli: a systematic review of definition, prevalence, and anatomy

Sara Moazzam

Lomani A O'Hagan, Alys R Clark, Max Itkin, Anthony R J Phillips, John A Windsor, S Ali Mirjalili

Institution: University of Auckland

Abstract:

Background: The cisterna chyli is a lymphatic structure found at the caudal end of the thoracic duct which receives lymph draining from the abdominal and pelvic viscera and lower extremities. In addition to being a landmark in retroperitoneal surgery it is an emerging access point to the thoracic duct for interventional radiologists. The anatomy and variations of the cisterna chyli are inconsistently reported in the literature. The aim of this study was to systematically review the prevalence and anatomy of the cisterna chyli in the literature.

Methods: A systematic review was conducted, and 49 published human studies met the inclusion criteria. Studies included both healthy volunteers and patients and were not restricted by language or date.

Results: The reported prevalence of the cisterna chyli is highly variable, ranging from 1.7-98% depending on study method and criteria used. Its anatomy is variable in terms of location (vertebral level of T10 to L3), size (ranging 2-32mm in maximum diameter and 13-80mm in maximum length), morphology, and tributaries. The size of the cisterna chyli increases in some disease states, though its utility as a marker of disease is uncertain.

Conclusions: The prevalence and anatomical features of the cisterna chyli are highly variable in the literature, and it appears to increase in size in some disease states. The cisterna chyli is an increasingly important structure for antegrade cannulation of the thoracic duct by interventional radiologists, and a detailed understanding of its morphology, location and variability will facilitate more accurate intervention.

18) A Cost Analysis of Telehealth-Integrated Antenatal Care

YiJie Neo[1]

Emily Callander[2], Kirsten Palmer[1,3]

Institutions:
1. Department of Obstetrics & Gynaecology, Monash University
2. Monash Centre for Health Research and Implementation, Monash University
3. Monash Women's and Newborn Program, Monash Health

Introduction: Monash Health implemented a new telehealth-integrated antenatal care schedule in March 2020, in response to the COVID-19 pandemic. Given ever-increasing healthcare costs, new interventions must be evaluated to ensure value for money.

Methods: We conducted a retrospective comparative cost analysis from the health service and patient perspective. Women with a singleton pregnancy who received antenatal care and gave birth at Monash Health from 1 January 2018-22 March 2020 (pre-telehealth) and 20 April 2020-31 December 2021 (post-telehealth) were included. We generated propensity score matched pre- and post-telehealth cohorts, balancing baseline characteristics and comorbidities. We assigned costs for all inpatient, outpatient and emergency department episodes of care at Monash Health and calculated the average cost per birth in each cohort. Travel costs were estimated using the average travel distance and time.

Results: Matched pre- and post-telehealth cohorts (both n=13534) were generated from the pre-telehealth (n=18628) and post-telehealth (n=14137) populations. We found an AU$122 per birth cost increase, for a total cost of AU$12069 per birth post-telehealth. This was mainly driven by an AU$188 per birth increase in outpatient costs, associated with an extra half an appointment per birth, but offset by an AU$99 per birth decrease in patient travel costs. The post-telehealth population had increased rates of gestational diabetes (28.29% vs 23.17%), caesarean section (31.78% vs 28.29%) and neuraxial analgesia (38.69% vs 32.76%) compared to the pre-telehealth population (p-values all <0.0001). There were no significant differences in stillbirth, severe maternal morbidity or death.

Conclusion: Our findings show that telehealth-integrated antenatal care enabled the health service to provide safe, ongoing care for more complex pregnancies during the pandemic for only a minimal cost increase. The results highlight the need for more research into obstetric telehealth, including more comprehensive valuations of benefits and costs to patients and other stakeholders.

19) Acute concomitant injury and intoxication in complainants of recent sexual assault: a review

Rosemary Luong[1]

Jo Ann Parkin[2,3], Nicola Cunningham[2,3,4]

1. Melbourne Medical School, The University of Melbourne
2. Department of Forensic Services, Victorian Institute of Forensic Medicine
3. Department of Forensic Medicine, Monash University
4. Department of Emergency Medicine, St Vincent's Hospital Melbourne

Background: Sexual assault remains a highly prevalent crime worldwide and has the potential to cause a number of short and longer-term health sequelae. Complainants of recent sexual assault may undergo forensic and/or medical examinations for medical treatment, evidence collection, or both. However, the frequency and severity of acute health concerns requiring medical intervention in these patients at the time of examination is not well understood and has implications for their clinical care and safety.

Objectives: To examine the frequency and severity of acute concomitant health concerns at the time of forensic examination following an allegation of recent sexual assault in post-pubertal individuals, through a review of existing literature. Health concerns included ano-genital and extra-genital injury, and acute substance intoxication.

Methods: Four databases (PubMed, Ovid Medline, CINAHL, Embase) were systematically searched with key terms regarding sexual assault, forensic examination, injury, and intoxication. Articles were assessed for relevance based on inclusion and exclusion criteria.

Results: 53 full-text publications met the inclusion criteria. Frequency of ano-genital and extra-genital injury was highly variable across studies, and severity was inconsistently assessed and rarely reported. Medical treatment or transfer to acute care settings was more commonly required for extra-genital injuries. Non-fatal strangulation (NFS) was found to represent an increasingly frequent feature of sexual assault cases. NFS complainants often exhibited signs and symptoms of potentially lethal complications requiring urgent review in acute care settings. Substance use around the time of sexual assault was commonly reported by patients and detected in toxicological screens, with potentially significant implications on patient and staff safety at the time of examination.

Conclusion: Injury, NFS and substance use in sexual assault may be more frequent and severe than previously understood. Further investigation into the assessment and management of these acute health needs is imperative to elucidate their clinical significance and inform evidence-based care.

20) Mapping the quality of prenatal care and demographic differences on child mortality in 26 low to middle income counties

Kelly Lin

Griffith Medicine

Background: Closing the gap between child mortality in low- and middle-income countries (LMICs) and high-income countries is a priority set by the WHO in sustainable development goals (SDGs). We aimed to examine poor nutrition and prenatal and postnatal care that could increase the risk of child mortality in LMICs.

Method: The Demographic and Health Survey (DHS) was used to examine data from 26 countries to compare prenatal, postnatal, nutritional, and demographic factors across LMICs. Outcome of child death was classified into death before 1 month of age, between 1 month to 11 months, between one to two years, between three to five, and overall death before five years. Chi-square analyses identified differences in prenatal care, postnatal care, nutrition, and demographic factors between children who died and those who survived. Logistic regression identified factors that increased child mortality risk.

Results: The majority of deaths occurred before the ages of one month and one year. Considerably poorer quality of prenatal care, postnatal care, and nutrition were found in low-income and low-middle income countries in the contemporary 2020s. High child mortality and poor quality of prenatal and postnatal care coincide with low income. Children in LMICs were exposed to less vitamin A-rich foods than children in higher-middle income countries. The use of intestinal parasite drugs and the absence of postpartum maternal vitamin A supplementation significantly increased child mortality risk. Significant socio-demographic risk factors were associated with an increased mortality rate in children, including lack of education, maternal marital status, family wealth index, living rurally, and financial problems hindering access to healthcare.

Conclusions: Poor nutrition remains a vital factor across all LMICs, with numerous children being exposed to foods low in iron and vitamin A. Significantly, most deaths occur in neonates and infants, indicating an urgent need to address risk factors associated with early child death.