Oral Presentations - On-line Meeting Collaboration in Surgery

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Royal Australasian College of Surgeons

Committed to Indigenous health
RACS acknowledges the Traditional Owners of country throughout Australia and recognises their continuing connection to land, waters and community.
We pay our respects to them and their cultures and to Elders both past and present.

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IS LAPAROSCOPIC TOTAL EXTRA-PERITONEAL INGUINAL HERNIA REPAIR (LTEPIHR) A SAFE OPERATION

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Biography:
Janindu is a SET 4 general surgical trainee, who has a keen interest in clinical research in the fields of hernia, upper gastrointestinal and bariatric surgery. He has previously received the Noel Newton Medal and the Jim Pryor Begonia Prize for his clinical research in these fields.

Purpose Despite worldwide popularity of LTEPIHR, no previous study has evaluated surgical outcomes of LTEPIHR performed by a registrar. This study aims to analyse operative data and short-term outcomes in which the registrar was the primary operator.

Method Prospective cohort study of patients who underwent LTEPIHR over twelve months (2019-2020) in two public Victorian hospitals were included. 100 consecutive procedures performed by one registrar (Surgical Education and Training 3/4) under supervision of eight surgeons were analysed. Primary operator rate (independently performing >75% of procedure), operative data, short-term outcomes were evaluated and compared to literature.

Results 73 patients(70 male, 3 female) underwent 100 procedures(46 unilateral, 27 bilateral) with median age of 55[interquartile range 46,64]. Primary operator rate was 97%(97/100) with median operating time of 59[53,70] minutes for unilateral and 79[70,89] minutes for bilateral procedures. Rate of conversion to open was 1%(1/100) with no intraoperative complications. Median length of stay was 1[1,1] day and median postoperative length of follow-up was 3.5[2,4] weeks. Postoperative complications included 6%(6/100) of procedures had spermatic cord haematoma, 4%(4/100) had seroma, and 1%(1/100) had return to theatre for evacuation of haematoma. Thirty-day mortality, readmission, and recurrence of hernia was 0%, 2.7%(2/73), 0%, respectively. 10.9%(8/73) of patients were lost to follow-up.

Conclusion LTEPIHR can be safely performed by a registrar with minimum three years of training, with short-term outcomes comparable to current literature. Registrars are encouraged to publish their experiences to validate these findings. Independent operating helps to develop fine laparoscopic skills and improve anatomical understanding of the groin.

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MACHINE LEARNING FOR THE PREDICTION OF MAJOR MOLECULAR MARKERS IN GLIOMA ON MAGNETIC RESONANCE IMAGING: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Biography:
Advances in computational tools have raised an exciting potential to improve outcomes for neurosurgical patients. This research looks at the use of machine learning to predict molecular information in glioma on imaging to improve patients and surgeons' decision making in the era of personalised medicine.

Background/ Aim: Molecular characterisation of glioma has implications for prognosis, surgical planning and prediction of treatment response. Current molecular classification using histopathology is limited by intratumoral heterogeneity and variability in detection methods. Advances in computational techniques have led to interest in mining quantitative features from imaging to noninvasively detect genetic mutations. The objective of this study was to evaluate the diagnostic accuracy of machine learning (ML) models in molecular subtyping gliomas on magnetic resonance imaging (MRI).

Methodology: A systematic search of MEDLINE, EMBASE, Scopus and Web of Science was performed following PRISMA guidelines to identify studies that applied machine learning algorithms to predict common mutations in glioma based on MRI up to April 1, 2020. Methodological quality was assessed using the Quality Assessment for Diagnostic Accuracy Studies-2. Meta-analysis was performed using a bivariate model and heterogeneity was explored using meta-regression.

Results: Forty-one original articles were included. The pooled sensitivity and specificity for the prediction of isocitrate dehydrogenase (IDH) mutation in training dataset were 0.88 (95%CI 0.82- 0.91) and 0.88 (95% CI 0.80- 0.92) respectively, and 0.83-0.84 in validation set. Study setting and data augmentation were associated with heterogeneity in specificity. ML prediction of O6-methylguanine-DNA methyltransferase (MGMT) promoter methylation showed moderate accuracy, improved with use of conventional MRI sequences.

Conclusion: ML application to MRI features demonstrated promising results for predicting IDH mutation and MGMT methylation in glioma. Ongoing collaborative research across neurosurgery, neuroradiology, pathology and computer science is crucial to identify optimal models for clinical deployment in molecular assessment of glioma.

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TIBIO-TALAR-CALCANEAL NAIL FIXATION FOR UNSTABLE ANKLE FRACTURES: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Eastern Health

Biography:
I am a final year medical student at Monash University with a keen interest in orthopaedic surgery. The variety as well as nature of surgeries attract me. Advancements such as computer assisted arthroplasties and magnesium alloy implants fascinate me and I hope to be part of this increasingly important specialty.

Purpose/Aim: Unstable ankle fractures are traditionally treated with open reduction and internal fixation. An alternative surgical option is primary tibio-talar-calcaenal (TTC) fusion. Our primary aim was to determine the complication rates of TTC nailing for primary treatment of ankle fractures. Our secondary aim was to determine functional outcomes.

Methods: A multi-database literature search for English language publications was performed up to 14 December 2019 according to PRISMA guidelines. Studies that reported complications and outcomes involving TTC nailing for the primary treatment of ankle fractures were included.

Results: Ten studies with 252 ankle fractures were included. Surgical site infection (SSI) occurred in 11.2% (95% CI 6.3% - 19%) of patients, implant failure occurred in 8.1% (95% CI 5% - 12.8%) of patients, unplanned return to theatre occurred in 10.1% (95% CI 6.1% - 16.2%) of patients, and the incidence of amputation was 4.1% (95% CI 1.6% - 9.8%). The rate of venous thrombosis was 3.5% (95% CI 1.0% - 11.5%). Overall all-cause mortality at the end of follow-up (3-406 weeks) was 26.6% (95% CI 19.7% - 34.9%). Four studies reported pre-injury and post-operative Olerud-Molander Ankle Score, demonstrating an average reduction of 7.9 points (5-11.8). Six studies reported 82.2% (95% CI 74.5% - 89.8%) of patients returning to the same pre-operative mobility aid after TTC nailing.

Conclusion: TTC nailing in the primary treatment of unstable ankle fracture is associated with significant complications which must be considered carefully on an individualised basis. It may play a role in fractures which are not amenable to non-operative treatment.

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SLEEP-REGULATED NEUROINFLAMMATION: A NOVEL FRAMEWORK OF POSTOPERATIVE DELIRIUM PATHOPHYSIOLOGY

Mr JAMES STEEVES
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Biography:
James is a final year medical student at Deakin University with interests in surgery, anaesthetics, and critical care. His research interests include perioperative care and he has previously published on the molecular and physiological mechanisms of general anaesthetics.

PURPOSE/AIM: A common and significant complication of surgery is postoperative delirium (POD), characterised by disordered thinking, altered consciousness, and impaired cognition in the postoperative period. Despite the understanding that neuroinflammation is central in the pathogenesis of POD, prevention and treatment of POD remains elusive. Sleep impairment is an independent risk factor for POD development and improving sleep reduces POD incidence. Although sleep is known to regulate neuroinflammation in healthy individuals, sleep-regulated neuroinflammation in the context of POD has not been explored. Therefore, this narrative review aims to provide a conceptual framework about how sleep-regulated neuroinflammation contributes to the pathophysiology of POD.

METHODOLOGY: Scopus, MEDLINE, and Web of Science were searched for the following keywords: postoperative delirium, neuroinflammation, surgery, sleep. Variations in these key terms were also used and reference lists were manually reviewed.

RESULTS: This review found that neuroinflammatory mediators (e.g., IL-1, IL-6, and TNF-α) are independently elevated in both POD and sleep impairment. Furthermore, dysfunction in microglia and the glymphatic system occurs in both impaired sleep and increased neuroinflammation. Finally, specific sleep stages regulate neuroinflammation levels, and these stages are disrupted in the postoperative environment.

CONCLUSION/DISCUSSION: This novel framework of sleep-regulated neuroinflammation in POD provides a synthesis of key pathophysiological processes involved in POD. Sleep impairment in the postoperative period may increase POD risk through increasing neuroinflammation, which is a potential therapeutic target through sleep-based interventions. Areas for future research are highlighted, such as in concurrent assessment of sleep, neuroinflammation, and POD development.

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IS PREOPERATIVE HBA1C A PREDICTIVE BIOMARKER OF POSTOPERATIVE MORTALITY AND MORBIDITY IN PATIENTS FOLLOWING CORONARY ARTERY BYPASS GRAFTING?

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Biography:
Casey is a current final year MD student at The University of Melbourne. As an aspiring cardiothoracic surgeon with a passion in research and teaching, she has undertaken research with the Department of Cardiothoracics at St Vincent's Hospital, Melbourne, where she is also currently undertaking her clinical placements.

Background: Haemoglobin A1c (HbA1c) is a blood-based biomarker that represents impaired glucose tolerance. Patients undergoing coronary artery bypass grafting (CABG) commonly have an elevated HbA1c, regardless of a prior diagnosis of diabetes mellitus. However, few studies have investigated HbA1c as a predictor of postoperative outcomes in a cohort of both diabetic and non-diabetic patients. This study sought to investigate the utility of preoperative HbA1c as a predictive biomarker of 30-day mortality and other major complications in all patients undergoing elective CABG.

Methods: All patients identified from the ANZSCTS database (2010-2019) undergoing isolated, elective on-pump CABG at St Vincent's Hospital, Melbourne with documented HbA1c levels were included (n = 1,393). Patients were stratified into two groups by HbA1c levels (<6.5 or >= 6.5) and chi-squared test used to compare incidence of postoperative outcomes in our primary analysis. Secondary analysis was performed using HbA1c as a continuous linear predictor, and correlation with outcomes assessed through multivariable logistic regression analysis.

Results: Increasing HbA1c level was independently associated with increased risk of prolonged ventilation (OR 1.14 per one-unit increase, $p < 0.043$) and sternal wound infection (OR1.73, $p = 0.005$). Furthermore, elevations in HbA1c level were negatively correlated with incidence of atrial fibrillation (OR 0.894, $p < 0.017$). There was no statistically significant association between an elevated HbA1c and 30-day mortality ($p = 0.773$).

Conclusion: HbA1c may be a quick, inexpensive biomarker to predict those patients at increased risk of ICU readmission, sternal wound infection and atrial fibrillation following elective CABG, independent of their diabetic status.

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IMPACT OF CINPWT ON VASCULAR WOUND INFECTION AND PATIENT OUTCOMES

Dr IAN BARRY, *Prof Toby Richards*
Fiona Stanley Hospital

Biography:
Dr.Barry has been employed as the Vascular Research registrar at Fiona Stanley Hospital since 2018. He recently completed his MSc in Surgical Science via the University of Edinburgh.

Purpose: Surgical site infections (SSIs) are common in vascular surgery. SSIs are associated with increased patient morbidity, longer hospital stay, readmissions, need for re-intervention, and worse patient outcomes. The aim of this study was to assess the impact of closed-incision negative pressure wound therapy (CiNPWT) upon rate of SSI in vascular surgery.

Methods: In a population of patients undergoing vascular surgery involving lower limb exposure that included the groin, we assessed the incidence of SSI in a retrospective audit compared to a prospective audit following a change in practice intervention with CiNPWT. The retrospective audit was performed over a 12-month period where non-CiNPWT (absorbent adhesive) dressings were used while the prospective audit enrolled consecutive patients over 6-months with 90-day follow-up completed for both groups. The study sample consisted of a single-centre cohort with cases identified using operating room scheduling software.

Results: A total of 110 groin incisions were performed: 76 (65 patients) within the retrospective audit and 34 (29 patients) within the CiNPWT cohort. The primary endpoint of SSI decreased from 21% (retrospective audit) to 11.7% with CiNPWT (p=0.250). Initial LOS was similar between both groups but total admission including re-admission was significantly longer in those in the retrospective cohort (p=0.034). Need to return to theatre due to SSI only occurred in the retrospective audit (9 patients, p=0.035).

Conclusion: CiNPWT appears to reduce the rate of SSI in comparison to absorbent/adhesive dressings. Further investigation is warranted as regards to the impact upon SSI related re-admission, re-intervention and length of stay.

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EVALUATING THE ACCURACY OF CT-ANGIOGRAMS OF TYPE-A AORTIC DISSECTIONS THROUGH CORRELATION WITH POST-OPERATIVE SURGICAL FINDINGS

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Monash Health

Biography:
Abhishekh Srinivas is a current final-year medical student at Monash University, intermitting in 2020 to pursue a Bachelor of Medical Science (Honours) at Monash Health, under the cardiothoracic and vascular surgery departments. His project looks at the feasibility of a wholly endovascular treatment solution for ascending aortic dissections.

Aim & Purpose Currently, the quickest imaging modality of confirming Type-A aortic dissection (AD) diagnosis is computerised tomography (CT) angiography of the aorta, which in addition to evaluating involvement of the major branch arteries of the aorta, provides data on the presence of pericardial or pleural fluid, as well as extent of the dissection itself. With the advent of a wholly endovascular therapeutic modality for ascending aortic dissections on the horizon, the employment of an accurate imaging technique is more important than ever, to visualize the patient's aortic anatomy to a high standard. The objective of this retrospective cohort study is to compare surgical findings of patients with Type-A aortic dissections presenting to an Australian tertiary medical centre against their CT-Angiograms done pre-operatively, in order to evaluate the accuracy of the latter.

Methodology An observational study was conducted using a prospectively-maintained institutional database of all patients who underwent pre-operative multidetector CT-angiograms for suspected Type-A AD, and subsequently received operative treatment. All procedures were performed at Monash Health, the south-eastern Victorian centre for suspected aortic syndrome management. Post-operative reports were compared with pre-operative CT-angiograms, also performed within Monash Health, which were reviewed independently by two separate interventional radiologists. Sensitivity, specificity, and accuracy of angiograms, along with 95% confidence intervals, were calculated using surgical confirmation as the reference standard.

Results Fifty cases were identified between January 2002 and January 2019. In detecting ADs of the ascending aorta, the accuracy of CT-angiograms was 100%. The sensitivity, specificity and accuracy, respectively, were 62.5%, 100% and 82% for determining presence of pericardial effusion; 92%, 93% and 92% for determining site of entry tear; and 100%, 57% and 72% for determining major aortic arch branch vessel involvement. The specificity and accuracy of determining presence of pleural fluid was 96% and 94% respectively.

Conclusion The high sensitivity and specificity of this CT-angiogram, particularly in determining site of entry tear make it an appropriate pre-operative technique to assess aortic anatomy to a high standard. Additionally, the high accuracy of CT-angiograms in determining presence of pericardial or pleural effusions have positive implications on perioperative planning. However, the relatively low accuracy of CT-angiograms in determining major branch vessel involvement highlights that further large-scale studies must be conducted to assess the reproducibility of these values.

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SURGICAL DECISION-MAKING IN UNCOMPLICATED TYPE B AORTIC DISSECTION: A SURVEY OF AUSTRALIAN/NEW ZEALAND & EUROPEAN SURGEONS

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Biography:
Bijit is a vascular surgery registrar at Fiona Stanley Hospital in Perth. This international study was undertaken while doing a Master of Surgery at the University of Western Australia.

Purpose: The study aims to understand expert opinions, and the factors influencing surgical decision-making, in the controversial area of uncomplicated Type B aortic dissections (TBAD).

Methods: In 2018, surgeons from Australia/New Zealand (ANZ) and Europe (EUR) participated in an online survey which comprised questions about preference for pre-emptive TEVAR followed by five case scenarios. Case 1 was designed to favour TEVAR in a hypertensive patient with partial false lumen thrombosis and large diameters. Case 2 had no risk factors mandating TEVAR, according to current evidence. Cases 3, 4 and 5 were designed to test one risk factor respectively, large entry tear on the inner aortic curvature, partial false lumen thrombosis, and large diameters alone.

Results: There were 75 responses, 42 from EUR and 33 from ANZ. About half of surgeons (49.3%) endorse pre-emptive TEVAR. In Case 1 and 5 which included large diameters, 58.3% and 52.8% of surgeons respectively chose TEVAR, the highest rates obtained in the survey. Surgeons who recommend pre-emptive TEVAR were more likely to choose TEVAR in both Case 1 (83.3% vs 33.3%, $p < 0.0001$, 95% CI 27.6% to 65.8%) and Case 5 (69.4% vs 38.2%, $p = 0.0084$, 95% CI 8.2% to 50.0%).

Conclusions: In this survey about uncomplicated TBAD, about half of surgeons recommend pre-emptive TEVAR in selected cases. The surgeon's predisposition towards intervention, and large diameters appear to be the most influential factors in decision-making. These findings underline the uncertainty in today's practice and emphasise the need for better predictive tools.

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PREOPERATIVE URINARY FUNCTION DOES NOT PREDICT POSTOPERATIVE ACUTE URINARY RETENTION IN MALES AFTER RECTAL RESECTION

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Royal Prince Alfred Hospital, Sydney

Biography:
Dr Zhu is a colorectal and general surgeon. She completed General Surgical training through St Vincent's Melbourne and was awarded Fellowship in 2015. She subsequently completed a Masters of Surgery via research & undertook post-fellowship training via CSSANZ at The Alfred Hospital Melbourne & Concord Hospital in Sydney.

Aim Acute urinary retention (AUR) is a well-known complication after rectal surgery. It can be associated with additional morbidity.

Causes of postoperative AUR are often multi-factorial – involving patient, pathology and treatment related factors. A proportion of males undergoing TME have pre-existing urinary dysfunction. This may predispose to AUR. This study prospectively assesses the influence of preoperative urinary function on postoperative AUR in males undergoing TME.

Methods A prospective multicenter cohort study was conducted. All adult males undergoing rectal resection between June 2016 and January 2018 were recruited. Combined pelvic resections, inability to void per urethra and emergency surgery were excluded. Preoperative urinary function was assessed with uroflowmetry, prostate ultrasound and International Prostate Symptom Score (IPSS). Incidence of postoperative AUR, urinary tract infection (UTI) and length of hospital stay (LOS) were measured.

Results Seventy-seven patients (mean age 61) were recruited. The overall incidence of AUR was 21%. Neither preoperative urinary function, IPSS, nor past urologic history was predictive for postoperative AUR. AUR was not associated with UTI and did not affect LOS. Patients with UTI had a higher intravesical protrusion of prostate.

Conclusions Preoperative urinary dysfunction in males is not predictive of postoperative AUR after TME. It should not preclude early TOV after TME. AUR did not predispose to UTI, nor did it prolong LOS.

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THE IMPACT OF RURAL SURGICAL MENTORING PROGRAMS ON STUDENTS' ATTITUDES TOWARDS SURGICAL CULTURE AND RURAL TRAINING

JENNY PHAM
University of Melbourne

Biography:
I am a fourth-year medical student belonging to the Rural Clinical School and am involved in the Surgical Students' Society of Melbourne.

Purpose Negative notions towards surgical culture and rural training exist amongst medical students. Social isolation and the perceived lack of opportunity to network contribute to the challenge of retaining students in rural areas. The aim of this study is to assess the impact of a mentoring program on students' attitudes towards surgical culture and rural training.

Methods Eight relationships were formed between second-year medical students and surgical consultants across Ballarat and Shepparton. Students completed a survey at the commencement and end of the program. The surveys were designed to assess the experience of surgery in medical school; attitudes towards surgery; perception of surgical career pathways; aims for the mentoring program and the achievement of these aims.

Results At the end of the program, students had a good understanding of surgical career pathways and lifestyle. They conveyed confidence in the support from surgical colleagues and consultants but remained concerned about bullying and sexual harassment. Students felt less pressured to return to tertiary hospitals for internship, with half wishing to train in rural areas.

Conclusion Through forming vertical networks in rural medical communities, the mentoring program created a positive shift in the attitudes towards surgical culture and rural training. Collaboration between senior and junior members of the surgical community has the potential to build on positive hospital environments, alleviate social isolation in rural settings and increase the rural medical workforce. Hence, mentoring programs should be further assessed, improved and implemented.

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COLLABORATION AND TEAMWORK: IMPROVEMENT IN A RACS CORE COMPETENCY DEMONSTRATED BY TRENDS IN THE UTILISATION OF MULTIDISCIPLINARY TEAM MEETINGS OVER TIME

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Austin Health

Biography:
Bridget is currently an unaccredited registrar at Austin Health.

Purpose: To examine trends over time in the use of multidisciplinary team meetings as a component of collaborative patient care in Australia.

Methods: Medicare Benefits Schedule (MBS) data of all item numbers pertaining to specialist level involvement in multidisciplinary meetings was collected. Total number of claims and rate of claims per capita were analysed by time period at both a national and state level for the decade January 2009 to December 2019. Those item numbers specifically related to a non surgical specialty such as general practitioner or psychiatric specialists were excluded.

Results: Nine item numbers relevant to specialist level involvement in a multidisciplinary meeting were identified. Use of all item numbers increased both on numerical count and per capita measurement over the study period from January 2009 to December 2019. Such trends were also observed at a state level with the exception of the Northern Territory where numbers initially declined in the first half of the decade before increasing again in the second half. The greatest rate of increase per capita was seen in NSW from 2017 to 2018.

Conclusion: The increasing utilisation of MBS codes for multidisciplinary team meetings on both a state and national level over the last decade may evidence a cultural shift in practice of medicine with an increase in collaboration and teamwork, one of RACS nine core competencies.

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HIGH RESOLUTION IMPEDANCE MANOMETRY IN CHILDREN WITH OESOPHAGEAL ATRESIA

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The Royal Children's Hospital, Melbourne.

Biography:
Dr Sharman Tan Tanny is a Paediatric Surgery Research Registrar, currently undertaking PhD studies with The University of Melbourne, Murdoch Children's Research Institute, and The Royal Children's Hospital. She completed her medical degree at The University of Melbourne, and Masters in Surgical Sciences with The University of Edinburgh.

Purpose: Oesophageal atresia (OA) is a significant congenital anomaly, affecting 1 in 2600 newborns. Despite successful surgery, up to 85% of survivors have dysmotility into adulthood, leading to poor food bolus transport, choking, and even death. Currently, there is no reliable way to predict which patients will develop significant dysmotility. Using high resolution impedance manometry (HRIM), this study aimed to identify motility patterns in OA patients.

Methodology: Utilising a prospective longitudinal cohort study design, this study focused upon patients < 18 years. Utilising HRIM, motility patterns in OA patients were studied. Repeat assessments were performed in selected patients.

Results: 66 patients (M:F = 40:26, median age 14.8 months [3.8 months – 17.4 years]) completed 115 HRIM studies. The majority (56/66, 84.8%) had Gross Type C OA (the most common OA type). 29/66 (43.9%) underwent one study, 26/66 (39.4%) two studies, 10/66 (15.2%) three studies, and 1/66 (1.5%) four studies. Three common motility patterns were demonstrated: (1) aperistalsis (23/66, 34.8%); (2) distal oesophageal contraction (22/66, 33.3%); (3) pan-oesophageal pressurisation (6/66, 9.1%). A minority demonstrated combination patterns, including aperistalsis with weak distal contraction (7/66, 10.6%). Normal contraction was seen in 3/66 (4.5%). At repeat assessment, 17/25 (68.0%) of those with two analysable studies maintained their initial motility patterns, while 6/9 (66.7%) of those with three analysable studies maintained their initial motility patterns.

Conclusion: In the largest study of HRIM in children with OA, distinct and reproducible motility patterns have been objectively identified. This allows for patient risk-stratification, and closer follow-up of high-risk patients.

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METABOLIC EFFECTS OF A PREOPERATIVE CARBOHYDRATE DRINK IN CHILDREN UNDERGOING DAY-SURGERY: A RANDOMISED DOUBLE-BLIND, PLACEBO-CONTROLLED TRIAL.

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Monash University Monash Children's Hospital

Biography:
Ashleigh Laird is a final year medical student at Monash University. She coordinated the trial and her abilities to organise and motivate the team were instrumental to complete the trial within one year. Her motivation and persistence made all the difference in making this achievement possible.

Purpose/Aim Perioperatively there is a risk of euglycemic ketoacidosis as a result of a prolonged fasting period. Children are particularly susceptible due to the much smaller glycogen stores and higher metabolic rate. Preoperative carbohydrate (CHO) loading may improve the perioperative metabolic state thus reducing the risk of ketosis in children. The aim of this study was to determine if the administration of a preoperative CHO loading would lead to an improved metabolic state perioperatively.

Methodology This was a double-blind, placebo-controlled, randomised controlled trial (RCT) involving 120 children aged four to sixteen years undergoing day procedures (trial ethics approval RES-18-0000-570A, registration number ACTRN12618001527257). Patients were randomized to receive either a CHO drink or placebo. At the induction of anaesthetic, a venous blood gas (VBG), blood glucose level (BGL) and blood ketone level (BKL) was measured.

Results One hundred and twenty patients were recruited and 119 analysed (60 CHO group; 59 placebo). Gender, age, weight and procedure type were similar between the groups. BGL was significantly higher in the CHO group at 5.4 mmol/L compared to 4.9 mmol/L in the placebo group (p=0.01). BKL was significantly lower in the CHO group at 0.2 mmol/L, compared to 0.3 mmol/L in the placebo group (p=0.003). pH was not significantly different between the groups; CHO 7.37 versus Placebo 7.36 (p=0.96).

Conclusion The administration of a preoperative CHO drink may improve a child's metabolic state prior to day surgery under general anaesthetic by reducing the risk of perioperative ketosis.

This work was a collaboration between the Department of Paediatric Surgery, Department of Dietetics and Department of Anaesthesia. Contact details: Maurizio Pacilli maurizio.pacilli@monash.edu

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EVALUATING THE USE OF A LOW-FIDELITY INGUINAL CANAL MODEL

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Biography:
Mr Hindmarch is a final year medical student at the university of Notre Dame. He has a passion for surgery and medical education.

Purpose of study: The inguinal canal is of paramount clinical significance due to the common occurrence of direct and indirect inguinal hernias. However, the inguinal canal is often an area of great difficulty for medical students to understand. The aim of this study was to evaluate the use of a low-cost, low-fidelity inguinal model as a teaching and learning aid.

Methods: A low-fidelity inguinal canal model was introduced as a teaching aid in an anatomy tutorial on the inguinal region. Students were randomised into intervention (n=66) and control (n=40) groups. Following the tutorial, all students completed a multiple-choice question quiz on the inguinal canal. The intervention group of students also participated in an evaluation questionnaire to rate their experience.

Results: Students taught with the inguinal canal model achieved higher results (mean: 88.31% vs 81.7%, p:0.087). Positive aspects of the model described by students included its simplicity, thus, improving their three-dimensional visualisation of the inguinal canal. Students requested more hands on time with the model during the tutorial.

Conclusion: The present study supports current literature in that low-fidelity anatomy models are a useful adjunct to aid students' learning of complex anatomical concepts and hopes to inspire some of them to develop similar low-fidelity anatomy models in future.

Footnotes
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