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D.S. ROSENGARTEN
SURGICAL TRAINEE RESEARCH PRIZE 2023

Saturday 2nd December 2023

ABSTRACT BOOKLET

Chair

Associate Professor James Lee

D.S. ROSENGARTEN
SURGICAL TRAINEE RESEARCH PRIZE 2023

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Prize Presentation and Closing

MR DAVID SAM ROSENGARTEN

The D.S. Rosengarten Surgical Trainee Research is named in honour of David Rosengarten. David learnt his surgery at the Alfred Hospital before undertaking research and Post-Fellowship training in Vascular Surgery at the Royal Postgraduate Medical School, Hammersmith. He returned to the Alfred and held appointments in the Department of Surgery and the Vascular Unit. David was appointed Head of the Vascular Surgery Unit at the Alfred in 1987, the position he held until his sudden death in 1994. David was recognised for his encouragement of research, for an enduring interest in surgical audit and his involvement in registrar training. This prize is his enduring memorial.

Presenter 1 – Charlene Munasinghe

TITLE: Endoscopic predictors and outcomes of conversion to one anastomosis gastric bypass for reflux following sleeve gastrectomy

AUTHORS: Dr Charlene Munasinghe, Dr Yasmin Johari, Ms Anagi Wickremasinghe, Ms Kalai Shaw, Professor Wendy Brown, Mr Paul Burton

Affiliation: Alfred Health, Melbourne, Australia

Background and Aims

Conversion from sleeve gastrectomy (SG) to one anastomosis bypass (OAGB) for reflux remains controversial. It is unclear whether endoscopic variables identified post SG independently predict the requirement of conversion to bypass and whether OAGB mitigates reflux-associated endoscopic sequelae.

We aimed to determine whether endoscopic variables could predict conversion to OAGB; and what the impact of conversion was on these endoscopic changes.

Methods:

Data from a prospective clinical trial ACTRN12616001089426 was analysed in two phases.

Phase 1: comparing the endoscopic changes in patients who had undergone conversion from SG to OAGB, compared to patients who had kept their SG for >4 years.

Phase 2: comparing the pre-bypass and post-bypass endoscopy in patients who had undergone conversion to OAGB.

Results

Phase 1: 75 patients underwent conversion, with 113 controls. Indications for conversion was reflux (19%), insufficient weight loss (69%), or both (12%).

There were no statistically significant differences identified between the two groups for any endoscopic changes, or for any endoscopic abnormality overall.

Phase 2: 70 patients had a pre-OAGB endoscopy, 35 patients had their post-OAGB endoscopy. There was a further 23.3% excess weight post conversion. There was 70% that had improvement in reflux symptoms and 30% were unchanged. In those patients that had oesophagitis pre OAGB, 80% of these patients showed endoscopic regression or improvement post OAGB. There was a reduction in axial separation of the z-line and diaphragm (p=0.044). There was an improvement in clear fluid stasis (p=0.01), and a trend towards progression of bile stasis. 3 patients that had short segment non-dysplastic Barrett's post sleeve, one regressed, two remained unchanged, and one further patient developed de novo Barret's.

Conclusion:

Clinical variables were more predictive of conversion than endoscopic variables in predicting conversion. OAGB post sleeve gastrectomy was effective at inducing further weight loss, and there was an improvement in symptomatic reflux and oesophagitis.

Presenter 2 – Aaron Tran

TITLE: Pharmacist intervention improves guideline adherent medication prescribing in vasculopaths

AUTHORS: Aaron Tran, Alexandra Lotric, Lauren Hunt, Thodur Vasudevan

Background and aims:

International guidelines recommend antiplatelet agents and high dose statin therapy in all patients with atherosclerotic arterial disease. Optimisation of these mediations significantly reduces all-cause mortality and cardiovascular events. Despite this, prescribing remains suboptimum; less than thirty percent of patients are prescribed an appropriately dosed statin. In 2023, a clinical pharmacist was integrated into the Alfred Health vascular outpatient clinic to conduct medication reviews for eligible patients. We aim to assess the impact of this specialty pharmacy service on statin and antiplatelet prescribing.

Methods:

A mixed prospective-retrospective cohort study was performed comparing statin and antiplatelet documentation and prescribing with and without pharmacist review. The pharmacist review group included patients reviewed June to October 2023. The without review group included patients who would have fulfilled criteria for pharmacist review between July to December 2022. Data was collected utilising REDCap software, and statistical analysis performed using RStudio.

Results:

One hundred and fifty-one patients requiring both statin and aspirin therapy were included in the study: 59 in the with pharmacist arm and 92 in the without pharmacist arm. Demographics between cohorts were comparable. Multivariate logistical regression analysis demonstrated an adjusted odds ratio of 8.86 (95% CI: $3.72 - 21.10$, $x^2(1) = 30.2, p < 0.0001$) for documented and appropriate statin dosing with pharmacist as compared to

without pharmacist. Multivariate logistical regression analysis demonstrated no significant relationship between pharmacist review and antiplatelet prescribing (OR 1.70, 95% CI 0.71 – 4.08, $x^2(1) = 1.47, p = 0.225$).

Conclusions:

Patients seen by a pharmacist in vascular outpatient clinic were over eight times more likely to have a documented and therapeutic statin dose. A pharmacist in vascular outpatients is a markedly effective intervention in a demonstrably underperforming area of vascular surgery.

Presenter 3 – Abhishekh Srinivas

TITLE: Variables predicting mortality amongst patients with blunt thoracic aortic injuries

AUTHORS: Abhishekh Srinivas [1,2], Joseph Kilby [2], Chrisdan Gan [2], Ashton Arthur [2], Cassandra Hidajat [2], Thodur Vasudevan [1,2];

Affiliations: 1 Department of Surgery, Central Clinical School, Alfred Health; 2 Department of Vascular Surgery, Alfred Health.

Purpose:

Blunt thoracic aortic injury (BTAI) remains a devastating consequence of traumatic injuries, being the second leading cause of mortality after head injuries amongst polytrauma patients. However, the current Society for Vascular Surgery (SVS) classification scheme for BTAI is descriptive but does not guide therapy or predict mortality. The objective of this project is to identify risk factors based on available preoperative data which best predict mortality outcomes amongst these patients.

Methodology:

Deriving data from the Australasian Vascular Audit, an observational study was conducted using a prospectively maintained institutional database to identify patients with BTAI as the indication for operative repair. Following this, pre-operative patient characteristics, SVS injury grade, timing of repair, and technical operative aspects including left subclavian artery (LSCA) involvement and coverage were evaluated for all patients who received operative intervention for BTAI between November 2018 and November 2022.

Results:

We identified 17 TEVAR cases performed for blunt trauma. The majority of patients were male (76.5%) with median age 38 (IQR 23-51). The overall in-hospital mortality rate was 6%. Independent predictors of mortality included age >55 (OR 17.4; p-value 0.16), Glasgow Coma

Score (GCS) at scene of injury ≤8 (OR 8.33, p-value 0.21) and Injury Severity Score (ISS) upon hospital arrival >70 (OR 31.0, p-value 0.06).

Conclusion:

TEVAR for BTAI is associated with a 6% mortality rate, with factors most strongly associated with mortality including age and ISS upon hospital arrival. Neither LSCA involvement nor SVS injury grade were predictors of in-hospital mortality in this study.

Presenter 4 – Yit Leang

<u>TITLE:</u> Proximal Gastric Anatomy Variant Post Sleeve Gastrectomy: A Physiological Approach to Symptoms

<u>AUTHORS:</u> Leang YJ, Wickremasinghe A, Johari Y, Laurie C, Playfair J, Shaw K, Hebbard G, Beech P, Yap K, Yue H, Nadebaum D, Loh D, Brown W, Burton P

<u>Affiliations</u>: Department of Surgery, Monash University; Department of Gastroenterology, Royal Melbourne Hospital; Department of Nuclear Medicine, Alfred Health; Oesophago-gastric and bariatric unit, Alfred Health.

<u>Background and aims:</u>

Proximal gastric anatomical variations following sleeve gastrectomy can be associated with severe adverse symptoms or none; suggesting substantial variability in the functional significance of these variations. Current investigations lack validations and definite diagnostic criteria to facilitate objective diagnosis. We hypothesised that these variations will be significant if it resulted in physiological abnormalities identified on readily available investigations: high resolution manometry (HRM) and nuclear scintigraphy (NS) with some adaptations.

<u>Methods:</u>

We undertook a prospective trial (ACTRN12616001089426) evaluating all patients with anatomical variations noted on surveillance endoscopy. All subjects were categorised based on the presence of symptoms and underwent endoscopy, liquid contrast swallow, HRM, 24-hour pH analysis (pH) and protocolised NS utilising tailored diagnostic criteria developed by a Delphi process. The findings were validated against asymptomatic controls with normal sleeve anatomy.

Results:

A total of 40 patients (22 symptomatic vs 18 asymptomatic) were included and validated against 66 asymptomatic controls. Endoscopy and liquid contrast swallow findings were similar in all groups. HRM in symptomatic patients showed an elevated peak oesophageal (9.7 ± 5.4mmHg vs 5.1 ± 1.5mmHg, p=0.04) and proximal intragastric isobaric pressure (32.1 ± 19.2mmHg vs 20.9 ± 4.7mmHg, p=0.03). pH analysis showed higher total reflux events (124.9 ± 87.6 vs 55.1 ± 55.6, p<0.001). When validated against the control group, these data correlated with NS; showing elevated reflux events in the symptomatic group 95.4 ± 42.4 vs asymptomatic: 86 ± 48.8 vs control 4.8 ± 2.7 (p-value<0.05), prolonged gastric emptying half-time (37.1 ± 19.5 vs 29.4 ± 11.7 vs 18.8 ± 3 minutes, p=0.001) and higher percentage of retained meal in the proximal stomach 10.5 ± 8.5% vs 4.3 ± 3% vs 3.3 ± 4.6%, p=0.008.

Conclusion:

Symptomatic patients with proximal gastric anatomical variations can be stratified into 2 main groups: bolus obstruction characterised by elevated isobaric oesophageal and proximal gastric pressures; and stasis characterised by radionucleotide retention in the proximal stomach with repeated macro reflux events. These configurations were readily distinguished on HRM and NS using tailored diagnostic criteria.

Presenter 5 – Stephanie Manning

TITLE: Thyroid cancer patients' self-reported voice changes after thyroidectomy is not predicted by intraoperative nerve monitoring.

AUTHORS: Dr Stephanie Manning, Natasha Newman, Dr Tianrui Ren, Associate Professor James C Lee, Professor Jonathan Serpell

Background and aims:

Subjective voice change after thyroidectomy is common and affects patients' quality of life. We aimed to describe self-reported voice changes using Patient Reported Outcome Measures (PROMS) data in The Australia New Zealand Thyroid Cancer Registry (ANZTCR) patients who have undergone thyroid cancer surgery, and to identify any relationship between PROMS and the use of intraoperative nerve monitoring (NIM).

Methods:

Patients from the ANZTCR with PROMS using the EORTC QLQ- THY34 survey were included for analysis. Relevant data was extracted from the database. Voice scores (VS) were calculated from PROMS data and analysed.

Results:

860 patients in the database had completed PROMS data. 65% of patients had preoperative vocal cord check (VCC), of which 97% were normal. NIM was utilised for 80% of cases. The temporary nerve palsy rate was 3.1%, and permanent palsy rate was 0.1%. The majority of patients submitted PROMS at the 6-12-month period postoperatively (n = 325 at 6m, n = 356 at 12m). There was no statistical difference in the mean VS when NIM were used or not (p= 0.2). There was no statistical difference in the mean VS if there was a VCC palsy or not (p = 0.06). The overall trend in voice scores improved until the 3-year post surgery time period.

Conclusions:

Whilst NIM use is ever increasing and there is strong evidence to suggest it decreases the rate and severity of rate, this is not reflected in PROMS data. This may be because voice changes are complex and subtle whilst the objective measures of nerve function are crude.

Presenter 6 – Tianrui Ren

TITLE: Prophylactic central lymph node dissections for low-risk thyroid cancers – a longitudinal cohort study

AUTHORS: Tianrui Ren, Seojung Min, Prof Jonathan Serpell, A/Prof James C Lee

Background and aims:

For small papillary thyroid cancers (PTCs) with no lateral nodal involvement, American Thyroid Association (ATA) guidelines recommend performing CLND if it influences further management. Our study explored the trend of CLND for low-grade thyroid cancers and its effect on subsequent therapy compared to patients not receiving CLND.

Methods:

Adults with low grade thyroid cancer (T1, T2 [<4cm]) were identified from the Australian & New Zealand Thyroid Cancer Registry (ANZTCR) between 2017-2023. Patients were excluded if they had clinical nodal involvement or a tumour size greater than 4cm. The rate of radioactive iodine therapy, completion thyroidectomy and surgical complications were compared between patients with and without CLND.

Results:

Of 949 patients with low-grade thyroid cancer (81% Female; median age 53 years; 92% PTC), 465 (48%) received a total thyroidectomy, 363 (38%) received a hemithyroidectomy alone and 108 (11%) received a completion thyroidectomy. Prophylactic CLND was performed for 391 patients (41%) and was associated with a lower rate of subsequent radioactive iodine therapy (incidence rate ratio [IRR] 0.95; 95% CI 0.93-0.97). The rate of subsequent completion thyroidectomies was similar between patients with and without CLND (p=0.98). CLND was not associated with higher rates recurrent laryngeal nerve injury (p=0.44), seroma formation (p=0.41) and return to theatre (p=0.47).

Conclusions:

Preliminary results suggest that performing CLND for low-grade thyroid cancers may have the capacity to reduce subsequent therapy with radioactive iodine. Furthermore, in Australia, prophylactic CLNDs did not produce higher rates of surgical complications, compared to patients who had a hemithyroidectomy or total thyroidectomy alone.

Presenter 7 – Kathy Liu

TITLE: Patient benefits of parathyroid adenoma localisation with 4DCT after non-concordant ultrasound and sestamibi imaging

AUTHORS: Kathy Liu, Jinghong Zhang, Jonathan Serpell, Simon Grodski, James C Lee

Introduction:

Parathyroid adenoma is the most common surgically curable cause of primary hyperparathyroidism (pHPT). Traditional preoperative localisation of parathyroid adenoma with ultrasound (US) or sestamibi (Mibi) imaging are inconclusive in up to 40%. This study aimed to investigate the accuracy of preoperative localisation and postoperative outcomes of four-dimensional computer tomography (4DCT) in patients with discordant US and Mibi.

Methods:

Patients with discordant US and Mibi findings, who had undergone surgery for pHPT, were retrospectively recruited from the Monash University Endocrine Surgery Database into the '4DCT' or the 'non-4DCT' groups. Demographic, surgical and biochemical data was extracted from the database, with additional data manually extracted from imaging reports and electronic medical records. We compared their disease aetiology, biochemistry, preoperative localisation accuracy, duration of surgery, surgical technique, histopathology, and postoperative outcomes.

Results:

From 2012 to 2023, 370 patients with pHPT and discordant initial imaging had parathyroidectomy. Despite similar baseline biochemistry, the '4DCT' group (n=99) included a higher proportion of re-operative patients (8.1% vs 2.2%, p=0.021) compared to the 'non-4DCT' group (n=271). The positive predictive value of 4DCT for localisation was 89.4%. Although patients from the '4DCT' group had a longer duration of surgery (106min vs 85min, p=0.017), they were more likely to have smaller parathyroid adenomas (median 0.39g vs 0.5g, p=0.04). Postoperatively, the rate of disease persistence or recurrent was higher in the ‘non-4DCT’ group (11.6% vs 4.1%, p=0.032).

<u>Conclusion:</u>

4DCT can benefit patients who require further surgery for persistent or recurrent primary hyperparathyroidism and is associated with improved postoperative outcomes, especially when parathyroid adenomas are small. 4DCT should be considered for patients needing reoperation, or when they present with discordant US and Mibi findings.

Presenter 8 – Nicholas Savage

TITLE: Petrol burns – working towards prevention

AUTHORS: Nicholas Savage, Zakary Doherty, Yvonne Singer, Hana Menezes, Paul Baker, Heather Cleland and Stephen J Goldie

Background and Aims:

Petrol burns are preventable injuries that cause significant harm. A previous study of the Victorian Burns Service showed that young males are affected disproportionately. We extended this in an international population to identify targets for prevention.

Methods:

This was a retrospective observational cohort study using the Burns Registry of Australia and New Zealand. Ethics approval was obtained from the Alfred Health Human Research Ethics Committee (ref 583/20). All patients admitted to a burn centre with a petrol burn between January 1, 2010 and December 31, 2019 (inclusive) were included. Patients were analysed as adults (>16 years) or children (<16 years).

Results:

There were 2833 adults and 228 children included. Petrol burns resulted in more severe injuries in terms of TBSA, inhalational injury and mortality than non-petrol burns.

In adults, campfires and vehicles were the most common cause of injury, predominantly during leisure. Women experienced more significant burns in terms of total body surface area, inhalational injury and mortality, particularly in the setting of assault. The mean cost of in-hospital treatment for adults was $190,733 AUD.

Amongst children, older males in regional areas were most affected. Accidental injuries associated with either campfires or lighters at the home or another's home were most common.

Conclusions:

Petrol burns are worthy targets of prevention because they cause significant morbidity, mortality and cost to both adults and children. We are pursuing several avenues using the results of this study. These include legislation changes for petrol container design, partnering with Fire Rescue Victoria to provide evidence-based education for their adolescent awareness program and working with Bunnings to provide educational material at point of sale of petrol containers.

Presenter 9 – Chrisdan Gan

TITLE: A Novel and Reliable Anterior Surface Marking for the L4/L5 Disc Level

AUTHORS: C Gan, G Malham, M Claydon

Background:

Anterior lumbar surgery continues to grow in popularity. There are no reliable anatomical landmarks to guide the incision site for the anterior access surgery.

Aim:

To assess the utility of the inter-crest line in predicting the location of the L4/5 disc level surface projection compared to the current gold standard of marking with intra-operative fluoroscopy.

Methods:

We conducted a prospective cohort study including patients having primary anterior lumbar disc surgery from November 2022 to November 2023. Indications for surgery were severe degenerative disc disease, radiculopathy, and Grade 1–2 degenerative or isthmic spondylolisthesis. Exclusion criteria for surgery were disc disease across 3 or more levels, Grade 3–4 spondylolisthesis, significant iliac artery or aortic pathology, morbid obesity (BMI>35), previous complex/extensive retroperitoneal surgery, and abdominal/pelvic radiotherapy. Exclusion criteria for analysis for this study was transitional lumbosacral anatomy. The anterior inter-crest line is the line connecting the palpable iliac crests at their zenith in the mid-axillary line. The skin level of the L4/5 disc was determined using lateral fluoroscopy and marked in the midline. The difference from the inter-crest line mark in the midline and the fluoroscopically determined L4/5 skin mark was measured.

Results:

A total of 51 patients were assessed for inclusion with 1 patient excluded from analysis due to transitional anatomy. The mean age was 48.8 ± 12.9 years, range: 19-77 years/old. 58.8% (n=30) of patients were male. The mean difference between the fluoroscopically determined L4/5 level and the intercrest line was 0.3 ± 1.29cm.

Conclusion:

The anterior inter-crest line is an accurate and reliable surface marking of the L4/5 disc level which does not rely on fluoroscopy. Using this surface landmark would reduce radiation exposure and operative time.

Presenter 10 – Teddy Lim

TITLE: Outcomes following pancreaticoduodenectomy for octogenarians: a systematic review and meta-analysis.

AUTHORS: Kai-Zheong Lim and Helen Pham*, Yazmin Johari, Ee Jun Ban, Frederick Huynh, Kaye Bowers, Valery Usatoff, Charles Pilgrim, Marty Smith. (*Joint First Authors.)

Institution: Department of Hepatopancreatobiliary Surgery, Alfred Health

Introduction:

An increasing number of elderly patients are being diagnosed with pancreatic cancer worldwide with an increasing need to consider major pancreatic surgery in this population. This study aims to provide an updated systematic review and meta-analysis of the recent literature to evaluate the outcomes following pancreaticoduodenectomy in octogenarians.

Methods:

A systematic review and meta-analysis was performed by identifying eligible studies via a search of Medline, PubMed and Cochrane databases. Studies comparing outcomes of patients aged over 80 years to younger patients undergoing PD were included.

Results:

A total of 25 studies were included for review which included a total of 21863 patients with 19492 (89.2%) patients aged under 80 years old and 2323 (10.6%) octogenarians. Octogenarians was associated with higher mortality rate (OR 2.37 (95% CI 1.91-2.94, P<0.00001)), higher rate of all-cause morbidity (OR 1.59 (95%CI 1.29-1.97), p<0.0001) and higher re-operation rates (OR 1.41 (95%CI 1.13-1.75), p=0.002). Octogenarians has a two-fold risk of cardiac complications (OR2.13(95%CI 1.67-2.73), p<0.0001) and respiratory complications (OR2.21 (95%CI 1.46-3.36), p=0.0002). There was no difference in postoperative pancreatic fistula (OR 1.07 (95%CI 0.68-1.70), p=0.77), post pancreatectomy haemorrhage (OR1.57, (95%CI 0.95-2.60), p=0.08), or delayed gastric emptying (OR 1.08 (95%

CI 0.87-1.35), p=0.49). In a subgroup analysis, younger patients were more likely to return to adjuvant therapy compared to octogenarians (OR 0.21 (95%CI 0.12-0.37), p<0.00001).

Conclusions:

Compared to younger patients, octogenarians are associated with higher mortality rate, postoperative complications and reduced likelihood to undergo adjuvant therapy for pancreatic cancer. Careful preoperative assessment and selection of elderly patients for consideration of major pancreatic surgery is essential to ensure patients are provided optimal care.

Presenter 11 – Ayushica Saran

<u>TITLE:</u> Association of patient-reported glycaemic control and management of foot care

<u>AUTHORS:</u> Dr Ayushica Saran, Dr Dylan Morris, Dr Thomas Lovelock, Ms Anastasia Dean, Mr Thodur Vasudevan.

Affiliation<u>: Department of Vascular Surgery, Alfred Health.</u>

<u>Background & aims:</u>

Diabetic foot disease (DFD) is a common complication of diabetes, with a 19-34% lifetime risk of developing an ulcer, and a high risk of re-ulceration. Patient education is recognized as vital in prevention and management.

<u>Methodology:</u>

Between 2020 and 2022, patients with DFD managed by Alfred Health were surveyed on their perception of their diabetic control. Responses were recorded on a pictorial linear scale. Macro and micro-vascular complications of diabetes were retrospectively recorded from hospital electronic medical records. Haemoglobin A1c (HbA1c) test was recorded as a biochemical marker of diabetic control. Participants were grouped according to the latest HbA1c test: HbA1c <6.5%, HbA1c 6.5-7.5%, HbA1c >7.5%. The Kruskal-Wallis test was used for ordinal data and chi-squared for categorical data.

<u>Results:</u>

Fifty-one participants completed the survey, of whom the mean age was 71 years (range 46 to 98). Most were male (male = 84%, female = 16%). There were eleven patients in group 1 (HbA1c < 6.5%), sixteen patients in group 2 (HbA1c 6.5 – 7.5%), and twenty-four patients in group 3 (HbA1c > 7.5%). There was a significant correlation between HbA1c and patient perception of diabetic control. ($p = 0.02$). There was no correlation between HbA1c result and reported frequency of blood sugar level testing ($p = 0.191$) or foot inspection ($p = 0.960$). There was no significant difference in number of hospital admissions ($p = 0.542$) and highest level of amputation ($p = 0.108$) between the three groups. 92% ($n = 47$) of participants considered good diabetic control “very important” in caring for their feet. No participants reported that diabetic control was “not important” in foot health.

Conclusion:

Patients recognise the importance of good diabetic control in the prevention of DFD and their perception of their diabetic control agrees with their HbA1c.