

**D.S. ROSENGARTEN
SURGICAL TRAINEE RESEARCH PRIZE 2016**

SATURDAY 3RD DECEMBER, 2016

PRESENTED BY MRS CANDICE ROSENGARTEN

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ABSTRACT BOOKLET



THE D.S. ROSENGARTEN SURGICAL TRAINEE RESEARCH PRIZE



Mr 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.



TheAlfred

D. S. ROSENGARTEN SURGICAL TRAINEE RESEARCH PRIZE 2016

A SYMPOSIUM WILL BE HELD TO DETERMINE THIS PRIZE

ON SATURDAY 3RD DECEMBER 2016 IN THE
AMREP SEMINAR ROOM

Ground Floor,
Alfred Hospital
Commercial Road, MELBOURNE VIC 3004

You are cordially invited to attend and support this most important event

8.00 am	Breakfast	
8.25 am	Introduction and Welcome by Chairman	<i>Mr. Stewart Skinner</i>
8.30 am	The effectiveness of a Virtual Reality temporal bone surgery simulation in training cochlear implant surgery	Bridget Copson
8:45 am	Stopping a bleeding heart: the impact of protamine:heparin ratios on post-operative haemostasis and transfusion over 5 years	Stephen Kunz
9.00 am	Subconjunctival dexamethasone for the prevention of cystoid macular oedema in routine cataract surgery: a randomised, controlled, trial.	Enis Kocak
9.15 am	Renal Transplantation Outcomes: A 5 year Retrospective Review	Anthony Dat
9.30 am	Effects of progressive weight loss on liver function tests in obese patients with non-alcoholic fatty liver disease	Geraldine Ooi
09:45am	Current practice of prostate biopsy in Australia and New Zealand : An updated survey	Arveen Kalapara
10:00 am	MORNING TEA (5mins)	

10.05 am	Evaluation of the Pupillometer compared to conventional methods of measuring pupil reactivity	Matthew Lee
10.20 am	Outcomes post Type B Aortic Dissection Management at a Major Australian Tertiary Vascular Centre	Hani Saeed
10:35 am	Complications of routine feeding jejunostomy during major upper gastrointestinal surgery	Yazmin Johari
10:50 am	Epidemiology of Uveitis in Metropolitan Melbourne	Colby Hart
11:05 am	Introduction of Patient Completed Tertiary Evaluations – Improving Trauma Care through Self Reporting	Katherine Suter
11:20 am	The impact of two different parathyroid hormone assays on the outcomes of parathyroidectomy for primary hyperparathyroidism	Shantanu Joglekar
	Adjudicators Meeting	
	Presentation of Prize	<i>Mrs C. Rosengarten</i>

The effectiveness of a Virtual Reality temporal bone surgery simulation in training cochlear implant surgery

Bridget Copson¹ (MBBS(Hons))

Sudanthi Wijewickrema (BEng(Hons), PhD)¹

Yun Zhou (BSc, MSc, PhD)¹

Patorn Piroomchai (MD, MSc, FRCOT, FICS)^{1,2}

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Introduction:

Advances in cochlear implant electrode design have contributed towards improved hearing outcomes. In order to insert the electrode safely, precise preparation of the facial recess and round window niche is required, demanding excellent understanding of the local anatomy and exceptional surgical skills. The effectiveness of Virtual Reality (VR) simulation training for mastoidectomy – the preliminary stage of cochlear implant surgery - has been well established.

Objectives:

This study investigates the effectiveness of a VR simulation training module for advanced stages of cochlear implant surgery.

Methods:

We compared the performance of 12 otolaryngology registrars conducting simulated cochlear implant surgery before and after receiving training on a virtual reality temporal bone surgery simulator. The University of Melbourne temporal bone simulator was used and performances were assessed by a blinded otolaryngology consultant.

Results:

Wilcoxon signed ranked test shows that there was a significant improvement with a large effect size in the total performance scores between the pre-test (PT) and both the first and second post-tests (PT1, PT2) (PT-PT1 $p = 0.007$, $r = 0.78$, PT-PT2 $p = 0.005$, $r = 0.82$).

Conclusion:

The results of the study indicated that training in virtual reality surgery simulation was effective in improving the performance of surgical trainees in cochlear implant surgery.

Primary Author: Bridget Copson, Unaccredited Surgical Registrar, Alfred Health, Master of Surgery Candidate

Stopping a bleeding heart: the impact of protamine:heparin ratios on post-operative haemostasis and transfusion over 5 years

Dr. Stephen Kunz, Ms. Kelly Mirowska-Allen, Mr. Damian Ianno & Mr. Siven Seevanayagam

Introduction:

While heparinised anticoagulation is a critical for cardiopulmonary bypass, accurate dosing of protamine is difficult. There is significant dosing variability, and no consensus regarding optimal ratios for reversal.

Aims:

To examine the association between protamine:heparin ratios and markers of bleeding.

Methods:

All cases of on-pump CABGs and single valve repair/replacements from 1/1/2011 to 31/12/2015 at the Austin were reviewed. Intra-operative heparin and protamine dosing were stratified to three groups (low: ≤ 0.6 mg/100IU of heparin, moderate:0.6-1.0, and high: ≥ 1.0), and compared with the primary outcome of PRBC transfusion. Secondary outcomes were non-PRBC transfusion, the post-operative haemoglobin drop, and intercostal catheter (ICC) output at 4 hours post-op.

Results:

Of the 803 patients identified, 343 received a blood transfusion, with 1054 units used.

Using multivariate analysis, the low dose group were 49.1% less likely to receive a PRBC transfusion (OR 0.519; 95% CI 0.321-0.838 $p=0.007$) while the high dose group were 3.32-fold more likely to be transfused (OR 3.320; 95% CI 2.337-4.718 $p<0.001$).

This same dose-dependant association was demonstrated within the secondary outcome measures.

Conclusion:

Higher doses of intra-operative protamine relative to heparin had a powerful association with the likelihood of bleeding. Restrictive protamine dosing may provide a hitherto under-recognised protective mechanism against significant post-operative haemorrhage.

Subconjunctival dexamethasone for the prevention of cystoid macular oedema in routine cataract surgery: a randomised, controlled trial

Enis D Kocak¹, Anthony J Hall^{1,2}, David van der Straaten¹

¹Department of Ophthalmology, The Alfred; ²Department of Surgery, Monash University

Cystoid macular oedema (CMO) is a common complication causing visual loss following cataract surgery. Subconjunctival dexamethasone is used by in patients at high risk of developing CMO, however its role in patients with no risk factors for CMO development has not been evaluated.

Aims

To evaluate whether injection of intra-operative subconjunctival dexamethasone prevents the development of CMO following routine uncomplicated phacoemulsification cataract surgery.

Design

Prospective, randomised, controlled, investigator-masked, single centre clinical trial

Methods

Eyes of patients scheduled to undergo cataract surgery with no known risk factors for development of CMO were randomised to receive either the current standard of care (control group; n = 89) or the current standard of care plus a single subconjunctival depot injection of 1 mg dexamethasone at the conclusion of cataract surgery (dexamethasone group; n = 115). Eyes were excluded from the study if lens capsular disruption occurred at surgery. The primary outcome was the mean change in central macular thickness (CMT), evaluated using optical coherence tomography at 1 week. Secondary outcomes were the incidence of clinical CMO, mean change in best-corrected visual acuity (BCVA), intraocular inflammation, and intraocular pressure.

Results

Mean change in CMT was similar between the two groups (3.3 μm in the control group compared to 4.8 μm in the dexamethasone group; $P = 0.704$). Clinical CMO was present in 2 eyes (2.2%) in the control group and 1 eye (0.9%) in the dexamethasone group ($P = 0.582$). BCVA at 1 week was 0.11 ± 0.17 logMAR in the control group and 0.09 ± 0.12 logMAR in the dexamethasone group ($P = 0.234$). There were no statistically significant differences between the groups in the level of post-operative intraocular inflammation ($P = 0.279$), change in intraocular pressure ($P = 0.842$) or frequency of adverse events ($P = 0.526$).

Conclusion

Subconjunctival dexamethasone was not efficacious in preventing CMO or reducing intraocular inflammation following routine cataract surgery. It was not associated with an increase in post-operative complications or adverse effects.

Renal Transplantation Outcomes: A 5 Year Retrospective Review

Anthony Dat¹, Hani Saeed¹, Nosh Sooriyakumaran¹, Christine Ellis², Eldho Paul³, Solomon Menahem², Geoffrey Cox¹, Charles Milne¹

¹Department of Vascular Surgery, Alfred Hospital, Melbourne

²Department of Renal Medicine, Alfred Hospital, Melbourne

³Department of Epidemiology and Preventive Medicine, School of Public Health, Monash University

Introduction and Aims

The timing of surgery has been noted to influence renal transplantation outcomes with several studies demonstrating worse outcomes associated with night time surgery.¹ Contributing factors to explain such outcomes include provider fatigue and lack of available resources. This study's aim was to determine whether renal transplant outcomes are influenced by surgical timing, donor organ features and ischaemic time.

Method

A retrospective chart review of all cadaveric renal transplants at the Alfred Hospital was conducted between 2010 and 2015. The primary outcomes were short and long term complications and overall graft survival. Surgical factors analysed included patient demographics, donor kidney characteristics, cold ischaemic time (CIT), duration and timing of surgery. Data was analysed on SPSS Version 22.

Results

There were 101 cadaveric renal transplants between 2010 and 2015. The median CIT was 12 hours. 65% of patients were operated on afterhours (defined as 1800 to 0700). Afterhours operating was associated with a higher risk of long term complications such as ureteric strictures, lymphocoele and rejection (OR 4.092, 95%CI 1.283 to 13.045, p-value 0.02). There was no statistically significant association between CIT and complication rate.

Conclusion

Afterhours operating is associated with long term surgical complications. Delaying transplantation until daytime hours should be considered.

References

¹Fechner G, Pezold C, Hauser S, Gerhardt T and Muller S. Kidney's Nightshift, Kidney's Nightmare? Comparison of Daylight and Nighttime Kidney Transplantation: Impact on Complications and Graft Survival. *Transplantation Proceedings*. 2008. 40, 1341–1344.

Effects of progressive weight loss on liver function tests in obese patients with nonalcoholic fatty liver disease

Geraldine Ooi, Paul Burton, Arul Earnest, Lisa Doyle, William Kemp, Stuart Roberts, Paul O'Brien, Wendy Brown

INTRODUCTION: Non-alcoholic fatty liver disease (NAFLD) affects over 80% of obese patients. Weight loss is strongly advocated as a central treatment for NAFLD, and has been shown to induce histological improvement.

AIMS: We aimed to define the patterns of improvement in NAFLD after gastric banding, and determine target weight goals for NAFLD resolution.

METHODS: A prospective study of 84 obese patients with NAFLD undergoing laparoscopic adjustable gastric banding was conducted. Intraoperative liver biopsies were taken. Monthly follow-up was performed. We monitored improvements in NAFLD by monthly alanine aminotransferase (ALT) levels over one year.

RESULTS: There was rapid improvement in ALT. A statistically significant decrease was seen at two months (35 vs 27 IU/L, $p < 0.001$), corresponding to a percentage total body weight loss (TBWL) of 6.4% (4.2–8.2). In multivariate analysis, ALT normalisation was significantly related to TBWL of 10-15% (OR 2.49, $p = 0.005$), triglyceride levels (OR 0.59, $p = 0.021$) and baseline histological score (OR 0.28, $p < 0.001$). Improvements in ALT occurred prior to maximal weight loss and metabolic improvement.

CONCLUSION: Improvements in NAFLD occurred rapidly after bariatric surgery and were closely related to weight loss. Approximately 10-15% reduction in body weight is an appropriate target to achieve substantial improvement in ALT levels.

Word count: 199

Current practice of prostate biopsy in Australia and New Zealand: An updated survey

Arveen Kalapara¹, Paul Davis¹, Eldho Paul², Jeremy Grummet¹

¹Department of Urology, Alfred Health

²Department of Epidemiology and Preventative Medicine, Monash University

Background and Aims:

The diagnostic work-up of prostate cancer has experienced a rapid shift worldwide in recent years. This study aims to provide a current appraisal of the practice of prostate biopsy in Australia and New Zealand in the emerging era of transperineal template biopsy (TPB) and multiparametric MRI (mpMRI).

Methods:

A 36-question online survey was distributed to 545 members of the Urological Society of Australia & New Zealand (USANZ). This was an update of a similar questionnaire distributed to USANZ members in 2012, addressing patterns of practice in 4 domains: TRUS biopsy; TPB; mpMRI and peri-operative antibiotic and analgesia use. Survey results were collated and statistical analysis was performed using descriptive statistics and chi-squared test.

Results:

155 participants completed the survey, with a response rate of 21.1%. 81.9% of respondents were consultant urologists. 92.3% perform TRUS biopsy and 91.3% sample between 10-16 cores. 66.9% perform TPB, increased from 38.4% in 2012 ($p<0.001$). 59.4% perform mpMRI prior to initial biopsy, increased from 19.6% ($p<0.001$). 90.1% perform MRI prior to repeat biopsy after an initial negative biopsy. 55.7% use parenteral antibiotics prior to TRUS biopsy, compared to 69.4% previously ($p=0.013$). 27.7% routinely use carbapenem prophylaxis in settings of overseas travel or quinolone exposure, compared to 27.9% in 2012 ($p=0.965$).

Conclusions:

Our survey demonstrates a shift in practice of biopsy for the diagnosis of prostate cancer among urologists in Australia & New Zealand, when compared with results of our initial study in 2012. More urologists are performing TPB now, with a corresponding increase in pre-biopsy mpMRI despite no current guidelines recommending this practice yet. There has been a reduction in the use of parenteral antibiotics overall, however, rates of carbapenem use have remained stable, suggesting ongoing concerns regarding the risk of sepsis due to antibiotic resistance.

Characters (inc. spaces, exc. headings): 1924/1950

Title: Evaluation of the Pupillometer compared to conventional methods of measuring pupil reactivity

Authors: Matthew Hao Lee, Biswadev Mitra, Jiun Kae Pui, Mark Fitzgerald

Background and Aim

Traumatic brain injury (TBI) is a significant public health issue. Assessing pupil reactivity is a crucial aspect of its management and the pupillometer has been shown to be a more objective tool compared to the standard penlight. Its use, however, is not widespread. To investigate the paucity in uptake, we examined the frequency of use of pupillometers (NeuroOptics®NPi-100™) amongst Intensive Care Unit (ICU) doctors and nurses, evaluated its user-friendliness and explored barriers to its use.

Methods

Online surveys were distributed five months after the pupillometer's introduction via email to ICU doctors and nurses working in the Alfred Hospital (Melbourne, Australia), a quaternary referral centre providing state services for trauma.

Results

A total of 79 responses were recorded, predominantly 94.9% (n=75) from nursing staff. A total of 50 (63.3%) responders were using the pupillometers, with a mean frequency-of-use rating of 4.67 out of 10 and a mean user-friendliness rating of 6.28 out of 10. There was no association between frequency of pupillometer use and user-friendliness of the device ($p=0.36$). The main identified barriers to its use included a lack of education with regards to its use, a perceived lack of clinical significance, a lack of standardisation of how to document findings as well as how to interpret results, and difficulties with access to disposable patient shields (Smartguards).

Conclusions

There was good adoption of the technology in the early phases of ICU implementation with user-friendliness rated favourably. In this paper we identify barriers to use and discuss possible solutions to increase clinical utility.

Outcomes post Type B Aortic Dissection Management at a Major Australian Tertiary Vascular Centre

Dr Hani Saeed (Surgical Resident, Alfred Hospital)

Mr Geoffrey Cox (Head of Vascular, Alfred Hospital)

Mr Matthew Claydon (Consultant Vascular Surgeon, Alfred Hospital)

Mr Charles Milne (Consultant Vascular Surgeon, Alfred Hospital)

Background

Conventional treatment for uncomplicated type B aortic dissection is with best medical management, focusing on tight blood pressure control. Our study looks at outcomes for these patients at a major Australian tertiary vascular centre.

Methods

Data was collected and preliminary analysed performed for patients with type B aortic dissection presenting to the Alfred Hospital, Melbourne, between 2003 and 2016. Patients are characterised as having uncomplicated or complicated dissections. Best medical management is defined as strict blood pressure control (systolic BP 100-120mmHg) and monitoring. Intervention was reserved for those who presented with, or progressed to develop complications (organ malperfusion, aneurysmal dilatation and/or rupture). Primary outcome measure is all-cause mortality (aorta-related death). Secondary outcome variables include progression to intervention (open or endovascular repair).

Results

49 patients were identified, of which 15 patients required intervention for complicated dissection. 34 patients were treated with BMT for uncomplicated dissection. 8 patients in the BMT arm progressed to require intervention for complications occurring at greater than 2 weeks. Mean follow-up was 2 years with 4 aorta-related deaths (2 in each arm).

Conclusion

These results are in line with current international data. At present, BMT remains a validated method for management of uncomplicated type B dissections. There is emerging literature looking at the role of early intervention. We await with interest the results of large randomised trials with long-term follow-up.

Title: Complications of routine feeding jejunostomy during major upper gastrointestinal surgery

Johari Halim Shah Y, Ban EJ, Reilly S, Loh D, Nottle P

Abstract

Introduction

Patients undergoing major upper gastrointestinal surgery are at high risk of malnutrition, which may be prevented by routine insertion of jejunostomy at the time of surgery. However, data regarding jejunostomy complications are limited

Aim

To determine the prevalence of jejunostomy complication in patients with routine feeding jejunostomy inserted during major upper gastrointestinal surgery.

Method

Retrospective review of medical records in a single institution, of patient with routine feeding jejunostomy inserted in conjunction with major upper gastrointestinal surgery, from July 2007 to July 2016.

Result

99 consecutive patients underwent routine feeding jejunostomy during major upper gastrointestinal surgery for benign and malignant conditions (42.4% vs. 57.6%). Median length of supplemental jejunostomy feeding was 21 days. 39.4% of patients continued supplemental jejunostomy feeding post discharge. Median length of jejunostomy in situ was 58 days. 23.3% of patients developed at least 1 complication requiring active management. Most were resolved by radiological intervention (48.3%). On multivariate analysis, continuation of jejunostomy feeding post discharge was associated with jejunostomy complication (OR 5.09, 95% CI 1.30 – 19.95, $p = 0.019$).

Conclusion

Significant complications relating to jejunostomy tube were not common and mostly resolved by radiological intervention.

Epidemiology of Uveitis in Metropolitan Melbourne.

Hart C, Zhu E, L Lim.

Purpose: The aim of our research project is to determine the incidence and prevalence of uveitis in a large, well-defined population of metropolitan Melbourne through a retrospective, cross-sectional study.

Methods: Data regarding all patients who presented to the Royal Victorian Eye and Ear emergency department with a diagnostic code related to uveitis, and all patients who attended a specialist ocular immunology clinic, from December 2014 through to December 2015 were collected. Medical records were reviewed by two health professionals to confirm the date of diagnosis, sub-type of uveitis and underlying aetiology. Incidence and prevalence rates were calculated by using a dynamic population model.

Results: The population of metropolitan Melbourne used for the study was 3 438 224. During the study period, 685 new cases of uveitis were diagnosed and 528 cases of pre-existing uveitis requiring ongoing treatment were identified. These data yielded an incidence of 19.92/100 000 person years and a period prevalence of 35.28/100 000 persons. The incidence and prevalence of disease were lowest in young adult age groups and highest in patients aged 65 years or older ($P < 0.001$). There was no statistically significant difference in incidence or prevalence of uveitis between males and females ($P > 0.05$).

Conclusion: In this first uveitis epidemiology study in an Australian population, the incidence and prevalence values were approximately 2-times lower than those rates reported in recent U.S. studies.

DS Rosengarten Surgical Trainee Research Prize 2016

INTRODUCTION OF PATIENT COMPLETED TERTIARY EVALUATIONS - Improving Trauma Care through Self Reporting

Dr Katherine SUTER, Mr James Lee, Dr Katherine Martin, Prof Mark Fitzgerald

Alfred Health, Victoria, Australia

PURPOSE: To provide excellent care, trauma centres must institute a structured approach to how patients are examined, resuscitated, and further re-evaluated to ensure that all injuries are adequately addressed. The aim of this study is to introduce the 'Patient Completed Tertiary Evaluation' whereby patients demonstrate if they are able to accurately self-report their injuries and detect those missed by medical staff.

METHODS: A total of 42 multi-trauma inpatients were prospectively recruited from the Alfred Trauma Unit from June to December 2015. All patients were requested to complete their own tertiary survey by indicating all known injuries, labeling them on a body diagram, and compiling a list of 'new injuries' not previously documented. All self-recorded injuries were then compared to the injuries listed by medical staff after the initial 24 hours.

RESULTS: Twelve new injuries were identified by patients, which had not been documented by medical staff (29%). No patient has more than one missed injury. Patients' awareness of their injuries was found to be moderate, with patients identifying 68% of total injuries documented by trauma staff. However, six patients (14%) were unable to list any injuries that brought them to hospital.

CONCLUSION: In conclusion, patients are capable of recognising new injuries not identified by medical staff. Furthermore, the gaps in awareness of patient's injuries opens up a platform for further research into communications and education for improving patients' understanding and empowerment about their condition.

THE IMPACT OF TWO DIFFERENT PARATHYROID HORMONE ASSAYS ON THE OUTCOMES OF PARATHYROIDECTOMY FOR PRIMARY HYPERPARATHYROIDISM

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² Endocrine Surgery Unit, Monash University

³ Department of Pathology, The Alfred

The Alfred measures parathyroid hormone (PTH) levels using 2nd generation assays. An increased rate of primary hyperparathyroidism (pHPT) diagnosis was observed when the Abbott assay replaced the Roche assay.

AIM: To compare the performance of both assays in patients receiving surgery for pHPT.

METHODS: Patients undergoing parathyroidectomy for pHPT at The Alfred were recruited into two groups: patients treated under the Abbott assay or the Roche assay.

Comparisons were made of PTH level measurements, diagnostic accuracy and cure prognostication. A biochemical pHPT diagnosis was classified 'false positive' (FP) when associated with negative surgical neck exploration. Peri-operative PTH reduction was used to predict surgical cure (eucalcaemia beyond 2 months).

RESULTS: 79 patients were treated under Abbott and 65 under Roche. Mean pre-operative PTH was higher with the Abbott assay ($p < 0.05$). FP rates were similar (3%, $p = 0.99$). Operative PTH reduction $> 50\%$ was seen in over 90% in both groups, conferring equivalent 95% prediction for cure. Cure rate was 95% in both groups.

CONCLUSION: We confirmed that the Abbott assay measures higher PTH levels in pHPT. Equivalent cure rates and low FP rates reassured us that there was no resultant differential diagnostic accuracy. Both assays equally accurately predicted cure post parathyroidectomy.