Welcome to London

Annual Meeting and Cardiothoracic Forum 2019

The official newspaper of the SCTS Annual Meeting and Cardiothoracic Forum 2019

Welcome to the 2019 SCTS Annual Meeting and Cardiothoracic Forum in London. This year’s programme covers the many different aspects of cardio-thoracic surgery, emphasising areas that are important in your daily clinical work. As ever, we are hoping to create an interactive meeting with the exchange of knowledge and ideas, facilitating discussions and debates between delegates. With a wide range of educational formats presenting the latest and the best information on new technologies and techniques in cardio-thoracic surgery, the presentations will be of interest to surgeons, anaesthetists, nurses, surgical care practitioners, physiotherapists, child governance leads, database managers and allied health professionals.

This year’s meeting will include presentations of the highest quality from surgical and masterclass presentations to the latest clinical updates and technical innovations. As ever, the meeting will also witness some outstanding debates presented by some of the foremost experts in their field. Away from the scientific programme, all delegates are reminded that this year’s SCTS Annual Dinner will be held on Monday 11 March at the UnderGlobe. Some spaces are still available, please ask at the registration desk for further details.

The organisers would like to extend their thanks to industry for their continued support of the meeting, and all the presenters who have taken the time to contribute to this year’s SCTS Conference News newspaper. It is a great pleasure to welcome you to London and the organisers are honoured and delighted with your presence at this meeting. We hope the information presented will be of great interest. London is one of the world’s great cities and we hope you enjoy the meeting and all this wonderful city has to offer... and remember to make in note in your diaries for next year’s meeting that will be held in Cardiff, 22-24 March 2020!

Opioids in Cardiothoracic Surgery

Quantifying aortic morphological variability in bicuspid aortic valve patients with and without coarctation

Cardiopulmonary exercise testing augments watchful waiting in asymptomatic severe primary mitral regurgitation

Jonathan Afoke, Prakash Punjabi
Hammermith Hospital, London

The seminal work of Enriquez-Sarano published over 20 years ago established the guidelines for surgery for primary mitral regurgitation. In spite of these guidelines, many patients undergo surgery late in their pathology due to late diagnosis, non-compliance with guidelines and insensitivity of current imaging, resulting in increased mortality and morbidity. There has been much debate between early surgery versus watchful waiting, with the thrust of modern academia turning towards the benefits of mitral valve repair and minimally invasive surgery.

Hammermith Hospital is fortunate to host one of the new specialist pulmonary hypertension centres in the UK. There is a long standing collaboration due to the RIPCOM 1 study (ClinicalTrials.gov identifier NCT01553737) funded by the Rosetrees Trust and The Friends of Hammersmith Hospital, which seeks to establish cardiopulmonary exercise testing (CPX) as a new indication for surgery for primary mitral regurgitation. CPX is an objective method of assessing cardiorespiratory function. Usually a subject (Figure 1) undergoes a set exercise protocol to maximum limits whilst measuring the basic parameters of heart rate, ventilation, blood pressure, oxygen consumption (VCO2) and carbon dioxide production (VCO2). From these fundamental values, one can calculate parameters such as peak VCO2, anaerobic threshold (AT) and O2 pulse which have been shown to be of interest in your daily clinical work. As ever, we are hoping to create an interactive meeting with the exchange of knowledge and ideas, facilitating discussions and debates between delegates.

The impact of respiratory illness on the morbidity and mortality in non-small cell lung cancer: A single-centre retrospective analysis

Akshay Patel Cardiothoracic SpR, Institute of Immunology and Education West Midlands, Thoracic Surgery, University of Birmingham, UK

Lung cancer is the most prevalent malignancy worldwide1 and the commonest cause of cancer-related death within the UK2; despite advances in cancer medicine, age-adjusted 1- and 5-year survival remain poor at 32.1% and 9.5% respectively. An ageing population and resulting increased cancer rate, in parallel with advances in diagnostic and anti-cancer therapeutic strategies, are driving growing costs in the field of cancer medicine3. A breakdown of these expenditures reveal the high cost of inpatient care, highlighting the importance of reducing unplanned hospital admissions (UHAs) allied with preventative strategies in the outpatient setting4. A single-centre retrospective study, characterising the impact of respiratory infection in NSCLC by analysing the variable in sample size and may be difficult to extrapolate from given the changes in the epidemiology and treatment of lung cancer. We carried out an observational study, characterising the impact of respiratory infection in NSCLC by analysing the...
Cardiopulmonary exercise testing augments watchful waiting in asymptomatic severe primary mitral regurgitation

Continued from page 1

proportion of UHAs from a single UK centre within this patient cohort. Our study cohort included all patients with known NSCLC who had a UHA at our centre; we retrospectively ascertained clinical and demographic data at admission and during their inpatient stay. The type of admission was categorized according to those who were admitted with a respiratory infection (RI) and all other admissions (AOA). Over the 26 month study period, the UHA rate for patients with NSCLC was 75.2%; there were 455 separate patient UHAs from a total cohort of 605 patients. Of these, 164 UHAs were a direct result of respiratory infection (36.0%). In-hospital mortality (p<0.001) and length of hospital stay (p=0.031) were significantly higher in the respiratory group. Factors related to in-hospital mortality were further explored by Multivariate analysis: patient age, PPSV23 status, admission, docetaxel administration on admission, tumour stages IIb, IIb, IVa and IVb and smoking status were all significant independent predictors of in-hospital mortality. Odds ratios of 0.160 (95% CI 0.077 – 0.366; p<0.0001) for positive PPSV23 status and 0.932 (95% CI 0.651 – 1.374, p<0.001) for RI status indicate that for patients admitted to hospital with a respiratory infection without previous PPSV23 in the last five years, the odds of death were almost 60-fold higher. Pulmonary infection has been highlighted as an important and significant cause of death in lung cancer. Advanced stage lung cancer in particular is difficult to treat and given the high-prevalence of Stage III disease or higher in the respiratory cohort (73.1%, n=117), the control of infection may be an important clinical step in improving the prognosis of lung cancer. Vigilance for infection, optimising vaccination, early diagnosis with adequate assessment and efforts to identify a culprit organism should be a priority in both the inpatient and outpatient setting in order to improve outcome in NSCLC and reduce the incidence of hospital admission; such interventions require prospective clinical trials.

Figure 1. Richard Ross, Chairman of the Rosetrees Trust undertaking a cardiopulmonary exercise test.

Figure 2. Comparative CPEX on a subject showing a peak VO2 of 94% predicted in 2017 compared to 82% predicted in 2018.

Research – CT Forum (Nurse and AHP) – Quality and Safety Windsor Monday 11 March 14:10

The Clinical Practice Leadership in Research (CPLR) programme: Increasing nursing research in cardiac care at St Bartholomew’s Hospital

Professor Julie Sanders Director Clinical Research, Quality and Innovation, St Bartholomew’s Hospital, Clinical Professor Cardiovascular Nursing, William Harvey Research Institute, QMUL. SCTS Nursing and AHP Academic and Research Lead. FNST and Council of Deans for Health Scholar 2018 Council on Cardiovascular Nursing and Allied Health Professionals Treasurer 2018.

It is known that research active Trusts have improved patient outcomes but also that nursing research activity is substantially less than other healthcare disciplines. However, there is great potential for impact on healthcare delivery and patient outcome if nursing research is optimised. Generally, research hasn’t always been recognised or valued in nursing clinical practice but clinical/or ward managers are key to engaging nurses in research. They have the necessary influence in the clinical area to operationalise research, create supportive and sustainable research environments; identify gaps for research and build an evidence-based culture. Thus, we developed the Clinical Practice Leadership in Research (CPLR) programme specifically to develop, inspire and engage Band 7 clinical/ward managers in research, in order to empower them to provide supportive research environments and opportunities for their nursing staff. The CPLR programme, a 12-month programme funded by the Burditt

Group planning the research engagement dashboard

Can an in house CALS course increase survival rates in the post-operative Cardiac surgical patient?

Neri Godfrey Advanced Clinical Practice Project Lead, Royal Sussex County Hospital, Brighton & Sussex University Hospitals NHS Trust, Brighton, UK

Objective

Following the introduction of an in house one day CALS course at our centre in 2015, we aimed to compare outcomes to assess the effectiveness of our teaching to the Multiprofessional team and impact on survival rates for patients.

Methods

We collected retrospective data over the three year period that we have been running in house CALS. This was then compared to the three year period 2012 to 2015 prior to the introduction of the course. This data was collected from our theatre and Cardiac ICU records as well as our clinical information system. During the period 2012-2017 a total of 145 patients were reopened. 130 of those made it back to theatre, 15 patients were re-opened outside of the theatre environment. The course provides direction re role allocation, utilises prompt cards and has developed a recognised escalation process for calling in the surgical and theatre teams.

Results

The results from both timeframes were collected and compared. The results indicated that pre the CALS course 37% of patients survived a re-opening. In contrast the survival rate increased to 71% following the introduction of the course. Once the CALS course had been adopted throughout the unit we demonstrated that 100% of patients were re-opened within five minutes and consistently followed the European CALS Protocol. Anecdotally staff also reported a positive impact on MDT working.

Conclusion

We demonstrate that adopting an in house CALS course, that runs three times a year have benefited our patients and centre significantly. Not only have patient outcomes improved but we would suggest that early recognition of the deteriorating patient results in effective MDT working. Moreover, we have demonstrated the effect of regular sessions and the benefits of running a formal course for staff and patients alike.
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Edward Lifesciences devices placed on the European market meeting the essential requirements referred to in Article 1 of the Medical Device Directive 93/42/EEC bear the CE marking of conformity.
The Cardiothoracic Interdisciplinary Research Network (CIRN)

Mr Luke J. Rogers (ASSL), Mr Ricky Vaja (ASSL), Professor Julie Sanders (SCTS Nursing & AHP Academic & Research Lead)

Professor Gavin Murphy (SSG) on behalf of CERN

We are delighted to report that there has been considerable development and engagement in the Cardiothoracic Interdisciplinary Research Network (CIRN), since it was successfully launched at this meeting last year. The ‘Terms of Reference’ has been agreed (included within the SCTS conference pack), corporate authorship has been adopted and support for the Associate Principle Investigator Scheme1 has been gained from the Royal Wolverhampton NHS Trust, Blackpool Teaching Hospitals NHS FT, Thoracic – Outcomes

Vinci Naruka

in Great Britain & Ireland. Dec 2018.


Table 1. SCTS Annual Conference 2019

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SCTS Conference 2019

Location

Tuesday 12 March

09:00

CRN Breakout (National Audit Day)

Keats

13:40

Research Trainees Initiative

Westminster

16:20

Role of Research Networking to Maintain Collaboration Before, During & After Resuscitation

Movies

09:00

Tuesday 12 March

Nursing & AHP CTS Forum

Windor

For more information, or to become involved in the CIRN, please contact: Ricky Vaja (ricky.vaja@gmail.com) or Luke Rogers (lrogers@bgs.org.uk). Cardiothoracic surgeons (BTS), non-NHTs, fellows, Trust grades, Foundation Doctors, Core Trainees & students

Julie Sanders (julie.sanders@bartshealth.nhs.uk): Nurses and Allied Health Professionals.

For more information, or to become involved in the CIRN, please contact: Ricky Vaja (ricky.vaja@gmail.com) or Luke Rogers (lrogers@bgs.org.uk). Cardiothoracic surgeons (BTS), non-NHTs, fellows, Trust grades, Foundation Doctors, Core Trainees & students

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Julie Sanders (julie.sanders@bartshealth.nhs.uk): Nurses and Allied Health Professionals.
Increasing our understanding of post-operative prolonged air leaks

Prolonged air leaks (PALs) are the most prevalent postoperative complication with a reported incidence of 18–26% and is the most important determinant of length of hospital stay. Two recently published papers have provided valuable insights into our understanding of prolonged air leaks and the variables that could influence their occurrence. The first paper, a novel ex vivo human lung model, was published by Eckert et al. (Transactions on Biomedical Engineering. 2018; 66: 1131-2). The second paper, “A Novel Human Ex Vivo Lung Model to Study the Role of Stapler Design as a Determinant of Prolonged Air Leaks” (Eckert at al. Transactions on Biomedical Engineering. 2018; 66: 10), described how researchers successfully harvested porcine lungs from live pigs and placed them in a CT machine, which allowed them to monitor and track leaks from specific locations, something that was previously difficult to assess because of the control variables in such models.

What were the specific challenges of designing and developing ex vivo lung models that represented clinical scenarios?

In this first set of experiments, we were trying to determine how different types of breathing might influence existing leaks. Towards this, we wanted to get as complete a system as possible, which included different types of breathing and measured the different leaking chambers. The ability to use diseased human lungs presents a step-function increase in the complexity of the model which we predict will advance our work even further.

In the study you decide to monitor air leaks, physiological ventilation parameters. Are there any parameters you were unable to or declined not to measure?

Intraoperative monitoring is the usual way to track leaks. But this does involve creating an air leak chamber within a CT machine, which was not feasible. To get as complete a description of our model, we measured alveolar pressures which would have been insurmountable technologically. Measuring perfusion pressure during the experiment was foundational to our next efforts.

What were the key outcomes of this study?

A critical outcome of the work was describing the model and showing validation of important aspects of the model. Essentially, it was crucial to build a strong hypothesis before moving forward. The most interesting finding was the role of pressure modulation on leak progression. The use of negative pressure ventilation (intraoperative) to negative pressure postoperative ventilation substantially increased the magnitude of leak from the parenchymal defects. Because of the way the ex vivo model was designed, the increased magnitude of leak was more accurately measured, providing new insights into the science behind air leaks.

What were the limitations of the study ex vivo lung model?

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Traumatic ruptured descending thoracic aorta: Open or endovascular repair? A systematic review and meta-analysis

Amer Harky1, David Blewett2, Stritch Ambakabra, Neil Roberts1, Aung Oo1
1. Department of Cardiothoracic Surgery, Liverpool Heart and Chest Hospital, Liverpool, UK; 2. Department of Cardiothoracic Surgery, Barts Heart Centre, St Barts’s Hospital’s, London, UK

T

raumatic rupture of thoracic aorta is a highly lethal condition, normally as a result of massive deceleration at the aortic isthmus. It is estimated that in 80% of such patients die at the scene of the accident, often from associated injuries to the head, abdomen, pelvis or extremities. In-hospital mortality rates reported to be 32% while one third of those hospital mortality rates reported to be 32% while one third of those

Table 1. Summary of the postoperative findings.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Open repair</th>
<th>Endovascular repair</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paraplegie (%)</td>
<td>24.4 (5.8)</td>
<td>21.4 (5.2)</td>
<td>0.13</td>
</tr>
<tr>
<td>Stroke (%)</td>
<td>4.3 (0.8)</td>
<td>3.8 (0.7)</td>
<td>0.45</td>
</tr>
<tr>
<td>Intensive care stay (days)</td>
<td>15.6±6.8</td>
<td>13.1±7.9</td>
<td>0.35</td>
</tr>
<tr>
<td>Total hospital stay (days)</td>
<td>39±10.2</td>
<td>25±11.0</td>
<td>0.02</td>
</tr>
<tr>
<td>Death rates (%)</td>
<td>32.1 (6.3)</td>
<td>29.7 (7.9)</td>
<td>0.47</td>
</tr>
<tr>
<td>Cardiac Complications (%)</td>
<td>27.1 (7.2)</td>
<td>21.0 (5.0)</td>
<td>0.27</td>
</tr>
<tr>
<td>Renal failure (%)</td>
<td>16.4 (4.1)</td>
<td>20.0 (5.0)</td>
<td>0.40</td>
</tr>
<tr>
<td>Posterior intervention (%)</td>
<td>6.2 (0.8)</td>
<td>6.0 (0.6)</td>
<td>0.71</td>
</tr>
<tr>
<td>Operative mortality rates (%)</td>
<td>10.2 (2.1)</td>
<td>35.7 (7.6)</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td>1-Year mortality rates (%)</td>
<td>22.1 (7.7)</td>
<td>12.5 (8.7)</td>
<td>0.05</td>
</tr>
<tr>
<td>5-Year mortality rates (%)</td>
<td>29.5 (7.4)</td>
<td>21.7 (17.1)</td>
<td>0.33</td>
</tr>
<tr>
<td>Cardiac intervention (days)</td>
<td>8.3 (0.7)</td>
<td>8.3 (0.7)</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Amer Harky and Aung Oo

C

oronary artery disease is one of the leading causes of death globally. In selected cases, coronary intervention is required for symptomatic relief and/or prognosis. Intervention can be performed either percutaneously or surgically. In cases of surgical revascularisation, the co-existence of carotid artery disease adds an incremental risk of perioperative stroke proportional to its severity. The prevalence of severe carotid artery stenosis (>80%) among patients undergoing coronary artery bypass has been estimated to be between 6 and 14%. Several approaches have been proposed to reduce the risk of stroke in patients with concomitant carotid stenosis. Carotid stenting and endovascular aortic stent grafting (EVAR) can be performed in selected cases.

The benefits of CEA in managing both asymptomatic and symptomatic patients versus optimal medical management are well established. CEA is introduced as an alternative to CEA in patients who were considered not suitable for CEA, in a similar fashion to how TAVI was introduced for patients not suitable for aortic valve surgery. Randomised controlled trials have shown that both CEA and CAS have similar long-term outcomes with respect to strokes, myocardial infarction or death, although CAS appears to have an increased risk of stroke in recently symptomatic patients. Patients referred for CABG who have concomitant carotid artery disease represent a high-risk population.

In conclusion, within the limitations of the study, our analysis shows a potential benefit of staged over simultaneous CEA with CAS in preventing post-operative stroke at the expense of an increased risk of AMI. There is no demonstrable difference in perioperative mortality between the two treatment strategies.
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PleuraFlow ACT reduces RBS reinterventions and postoperative A-Fib (POAF)\(^1\)

<table>
<thead>
<tr>
<th>RETROSPECTIVE DATA 2011-2013</th>
<th>PROSPECTIVE SAME SITE DATA 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>256 With conventional chest tubes</td>
<td>256 With PleuraFlow ACT</td>
</tr>
<tr>
<td>20% RBS reinterventions (33 total)</td>
<td>11% RBS reinterventions (29 total)</td>
</tr>
<tr>
<td>30% POAF (74 total)</td>
<td>20% POAF (32 total)</td>
</tr>
</tbody>
</table>


See the PleuraFlow® ACT® System on the Pierson Surgical Stand (#4) at the 83rd SCTS Annual Meeting and Cardiothoracic Forum 2019

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A four-year retrospective study on nurse-led early extubation practice in post-cardiac surgery patients

T he viability of early extubation within six hours after cardiac surgery has been demonstrated as a benchmark of postoperative quality of care (Saia et al., 2014; Richen et al., 2018). Longer mechanical ventilation time increases complications such as ventilation-associated pneumonia and delirium (Burkhardt et al., 2010; Brown, 2014; Hu et al., 2016). Hence, November 2015 an audit was undertaken in Keith Shaw ICU (KCSIU) of St. James's Hospital (Dublin) to look at current nurse-led extubation practices for cardiac surgery patients. Results revealed delayed times in commencement of weaning despite criteria being met and that certain criteria were unnecessary to delay extubation. The majority of our extubation times were between 6-10 hours. Opportunities for earlier extubation in these patients were identified and areas for improvement noted. These findings were discussed within the multi-disciplinary team (MDT) and a plan was implemented to improve extubation times.

A Quality Improvement initiative was developed in consultation with the MDT with the following aims: (a) to commence weaning as soon as criteria for weaning were met, (b) to reduce ventilation time, (c) to monitor practices and adherence to current SIH protocol. Four areas of focus were identified; those include strengthening MDT engagement, reviewing of the weaning criteria, educating staff, and identifying/supporting change agents within the cardiothoracic ICU.

After consultation and review of international best practices, the nurse-led extubation policy and criteria were updated. The new findings included: stable HR 60-115 bpm, SBP >90 mmHg, minimal incropor support 0.5 mkg/m², no compromising arrhythmias, respiratory rate <35, pressure support <5 mkg/m², oxygen saturation 95% on FiO₂ >60%, chest drain loss <100 ml/hr, central temperature >36.0°C, and ABG consistent with pre-op baseline. A measurement was developed to monitor progress. Inclusion and exclusion criteria (Ender et al., 2008) were used to identify cases to be included in the study. The inclusion criteria are: patients of 80 years of age or younger, creation of greater than 150 mmHg, ejection fraction less than 35%, and a re-do surgery.

After implementing the changes in 2016, the following improvements were noted: from a baseline of 3.9 hours mean time (baseline in 2015), the weaning time improved significantly to 2.6 hours (2016). Similarly, the total ventilation mean time, which was initially 8.8 hours (2015) has decreased to just 5.2 hours (2016), indicating effective practice of early extubation. While it is noted that both the mean weaning time and ventilation time have increased in 2017 and 2018, which can be attributed to more patients being admitted to ICU, there is, however, an increasing trend where more patients were extubated less than six hours post cardiac surgery – from just 27% in 2015 to a significant 63% in 2018. The change initiative which was commenced in 2016 has improved nurse-led extubation practices. However, to have a meaningful outcome, this change initiative should be continuous, requiring constant monitoring, and iterative learning with small changes being made along the way.

References

When you need an antifibrinolytic with multiple haemostatic properties

• Blood loss, transfusion and re-sternotomy remain a challenge in high-risk patients undergoing CABG.3-5
• Compared to TXA, aprotinin has wider ranging effects on the coagulation pathway,1,2 and may be considered over TXA in suitable patients at high risk of bleeding
• Aprotinin EU licence reinstated in 2013, as recommended after regulatory review
• Recommended by EACTS/ECTA guidelines for the reduction of bleeding risk, transfusions and re-operation for bleeding

Aprotinin is indicated for prophylactic use to reduce blood loss and blood transfusion in adult patients at high risk of major blood loss undergoing isolated cardiopulmonary bypass graft surgery. Aprotinin should only be used after careful consideration of the benefits and risks, and alternative treatments.

References:

Aprotinin 10,000 kIU/ml Injection BP

Aprotinin is indicated for prophylactic use to reduce blood loss and blood transfusion in adult patients at high risk of major blood loss undergoing isolated cardiopulmonary bypass graft surgery. Aprotinin should only be used after careful consideration of the benefits and risks, and alternative treatments.

Aprotinin is indicated for prophylactic use to reduce blood loss and blood transfusion in adult patients at high risk of major blood loss undergoing isolated cardiopulmonary bypass graft surgery. Aprotinin should only be used after careful consideration of the benefits and risks, and alternative treatments.
An evidence-based review on the effects of laminar air flow ventilation on surgical site infection in clean surgery

Mr Tracey Cox  Cardiobronchial surgical care practitioner, University Hospitals Coventry and Warwickshire NHS Trust

This evidence-based review (EBR) was undertaken as part of the MSc in wound healing and tissue repair. The need for identification of surgical site infection (SSI) prevention strategies in cardiac surgery prompted the subject topic. LAF was introduced into surgery with the design of the ‘Charnley Test’ which was shown to reduce SSI following total joint arthroplasties. A subsequent, large randomised controlled trial in 1982 by Lidwell et al demonstrated a significant reduction in SSI with LAF use, and this popularised the use of LAF in orthopaedic theatres. However, this study has been criticised for the non-systematic use of perioperative antibiotic prophylactics, and although no further RCT’s have been performed, more recent studies have supported the benefits of LAF ventilation in vascular surgery where implantation of prosthetic grafts are utilised. This beneficial effect could be translated into cardiac surgery where prosthetic grafts and valves are implanted.

It is therefore evident that further studies into the effects of LAF in different types of surgery are needed to enable any firm conclusions to be drawn. However, such studies would be almost impossible as they would need to account for all patient, surgical and environmental confounding factors which affect SSI. This EBR was therefore unable to provide clear recommendations for clinical practice as the existing evidence related to the benefits or harm of LAF in clean surgery was equivocal.

Video Presentation – SCTS: ‘Take on the experts live webinar stream’  Moore  Tuesday 12 March 14:10

Results of surgery of cardiac and pericardial hydatid disease in children

Sobhi Mhityi, Jaweddrine Ziedi, Faker Ghedira, Raouf Dengani  Cardiocentro cardiac surgery department, La Rabta Hospital, Tunis, Tunisia.

The aim of this study is to analyze the results in the short and long-term cardiac and pericardial hydatid disease surgery in children, in terms of mortality, morbidity and recurrence of hydatid.

Material-Methods

We report a retrospective study including 12 children (four boys and eight girls) among 43 patients operated for cardiac and pericardial hydatid disease between 1988 and 2017. The average age was 11 years. Circumstances of discovery were essentially when explorations for another hydatid localization (lung, liver).

Results

All children underwent general anaesthesia with invasive hemodynamic monitoring and intervention under full cardiopulmonary bypass. The pre-operative assessment of the lesions found hydatid cyst in the left ventricle in five cases, in the right ventricle in three cases, in the intraventricular septum in two (SR) and nine cohort studies. The majority of the studies examined orthopaedic surgery where LAF ventilation is common place, only one SR and three cohort studies examined its effect in other surgeries. Indications of researcher bias, selection bias and performance bias have been identified in a number of the studies reducing their validity. In addition, the evidence cannot be generalised because of a number of study limitations including a large amount of missing data and lack of attention to confounding factors such as, the administration of perioperative antibiotic prophylaxis.

The evidence presented suggests there is no benefit of using LAF in orthopaedic surgery. However, there could be some benefit in other types of surgery. As no studies included patients who had undergone cardiac surgery it is difficult to draw any conclusions in this field. However, benefits of LAF were shown in vascular surgery where implantation of prosthetic grafts were utilised. This beneficial effect could be translated into cardiac surgery where prosthetic grafts and valves are implanted.

Long-term outcomes are poor in intravenous drug users following infective endocarditis even after surgery

Sam Straw  Leeds Teaching Hospitals NHS Trust, UK

Managing patients with infective endocarditis (IE) is challenging for cardiologists and cardiac surgeons and in published series the surgical intervention rate averages around 50%. Previous studies of intravenous drug users (IVDU) with IE have been of variable quality. Many have contained a small sample size, have not included a control group, have not stated the surgical indication rate and the follow-up period has been variable. None have reported detailed survival data, particularly the cause of death after treatment. We performed a novel analysis by comparing survival in our cohort described on whether they were managed medically or required surgery to establish whether operating conferred long-term survival advantage. We also examined the survival of these patients with a comparison group of IVDU who had been admitted to hospital during the period with other infections and referred to the IE team for opinion.

We examined 105 episodes of IE in 92 IVDU patients over an 11-year period. The commonest pathogens were Staphylococcus (60%) and Streptococcus spp. (30%). Left-sided structures (44 mitral, 38 aortic) were affected more commonly that right (38 tricuspid, 2 pulmonary). The surgical intervention rate was 47%. Heart failure was the primary indication for surgery in 33 episodes and the secondary indication in four (total 76%). Aortic root abscess was the indication in one (1%), embolization was the primary indication in 14 and secondary indication in 15 episodes (total 28%) and fungal infection occurred in one (1%). Bioprosthetic valve replacements (18 aortic and 10 mitral) for left-sided IE were used more commonly than mechanical devices (six aortic and eight mitral). Surgery for right-sided IE was uncommon, with eight bioprosthetic tricuspid valve replacements and one abandoned attempt at pulmonary valve replacement. Valve repair was undertaken in five cases. Recurrent endocarditis occurred in 15 patients. One patient underwent repeat surgery and six patients were successfully managed with medical therapy. The remainder were too unwell to have further operation owing to either severe heart failure (thirteen), sepsis (four) or stroke (one).

Survival at 30 days was 92% and 30-day surgical survival was 96%. Survival at 1, 3, 5 and 10 years was 74%, 63%, 58% and 44% and significantly reduced compared to the comparison IVDU group (p=0.0002). Mortality was higher in patients who required surgery compared to those who did not (HR 1.8, 95%-1.3). There was no difference in mortality between those who received a bioprosthetic valve versus a mechanical valve (p=0.12). We examined the death certificates in 90% and found that the commonest cause of death was infection (66%) and this most frequently a further episode of IE (55%). A similar survival from IE was good, life-expectancy in subsequent years was poor. Although all patients operated on had Class 1 indications for surgery, it did not confer long-term survival advantage, owing to continued infection risk. A particular problem is encountered when continued drug use results in a further episode of IE. If our findings are replicated it might lead to a reassessment of the indications and timing of surgery for these patients. More needs to be done to reduce infection risk in IVDU after hospitalisation with IE and that perhaps is the key to improving their long-term survival.
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Bleeding is arguably one of the most preventable complications of percutaneous transcatheter aortic valve implantation (TAVI). Patients requiring redo-SAVR tend to be elderly and suffer from multiple comorbidities. With the growing body of literature demonstrating the equivalence and even superiority of TAVI compared to SAVR in high and intermediate risk patients, valve-in-valve (ViV-TAVI) has become an increasingly attractive treatment option for the management of bioprosthetic valve degeneration.

Over the 10-year period of our study 92 patients underwent reintervention for bioprosthetic valve degeneration. Of these 53.2% underwent ViV-TAVI from 2010 to 2016, a clear increase compared to 20.6% (p=0.11). The majority of ViV-Redo-SAVR group but this did not reach statistical significance. Survival was superior at 30 days (88.8% vs. 95.3% p=0.001) and 1 year (78.3% vs. 93.3% p=0.01). In an attempt to reduce the morbidity associated with re-intervention, we designed the Papworth haemostasis checklist with multidisciplinary collaboration. It contains two components: 1) a comprehensive series of surgical sites to be checked and 2) factors affecting coagulation status such as ACT, calcium and hypothermia. The checklist is performed at a "time-out" prior to sternal wire insertion.

The cost saving attributed to the reduced blood product consumption per patient is £45,73, amounting to a total saving of £102,165 in the first year. We have also observed a reduced ICU and hospital length of stay compared to patients treated without our checklist.

Although it can be argued that the Hawthorne effect is at play, and that the checklist is an issue, the results speak for themselves. The Papworth haemostasis checklist represents a simple intervention which is quick and easy to use but has had a substantial sustained impact on clinical outcomes. We would advocate implementation of a similar checklist in all cardiothoracic centres.

**Comparison of outcomes following valve-in-valve TAVI versus surgical redo aortic valve replacement**

**Adjuvant Cardiac  – Mini AVR and TAVI**

**Abbey Tuesday 12 March 11:30**

**Heart Failure and Transfer – Transplant**

**Rutherford Tuesday 12 March 09:20**

**Thoracic – Chest wall surgery**

**St James Monday 11 March 09:00**

Quadrangular fixation of pectus bars to prevent displacement in Nuss procedure

**Jin Yong Jeong**, Opal Youl  
1 Department of Thoracic and Cardiovascular Surgery; 2 Department of Plastic and Reconstructive Surgery,  
Pusan National University, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea

**Jin Yong Jeong**

pectus excavatum is one of the most common congenital deformities of the chest wall and accounts for over 90% of cases. Since 1998, the Nuss procedure has been used to correct pectus excavatum deformity as a minimally invasive surgical approach. Bar placement in the absence of a previous failure of pectus excavatum repair after the Nuss procedure with 1.8% - 6.6% of displacement. Two pectus bars are sometimes inserted to correct pectus excavatum with long depression of anteriost chest wall. We have used quadrangular fixation of the double pectus bars to prevent bar displacement and to prevent complication between the result of the quadrangular fixation procedure and of the classic double bar fixation procedures.

Eighty-six patients underwent under wire bar insertion in Nuss procedure from September 2011 to January 2016. Before July 2014, both lateral fixation were made separately on each bar with fixators (Claw fixator, Primemed, Seoul, Korea) in 44patients (separate fixation, group A). After July 2014, upper and lower bar were biplanarly fixed by connecting each bar with the one-third tubular plates (One third plate, OT Medical Co., Seoul, Korea) to form quadrangular shape in 42 patients (quadrangular fixation, group B). The one-third tubular plate is strong and easily available. Bar displacement index (BDI) was defined as the distance change of the bar position / initial distance of the bar position. In other words, BDI = (D0 - D1) / (D0 x 100), where D0 was the distance of the bar position after surgery, D1 was the distance of the bar position / initial distance of the bar position (BDI) was defined as the distance change of the bar position / initial distance of the bar position. The mean bar displacement index (BDI) in group A was 0.11% ± 0.00 (n=44), and in group B was 0.38% ± 0.00 (n=42). The mean bar displacement index (BDI) was 0.2% ± 0.01 (n=86). The dislocation of bars were not observed in the follow-up period between 9 months and 3 years. We collected patient demographics, Haller index (HI), BDI, and re-operative rate and compared between groups. The mean patient age was 17.2 years (range, 3–40 years) in group A, 17.8 years (range, 4–10 years) in group B. There was no significant difference between the preoperative and postoperative Haller index of two groups (p>0.05). In group A, three patients underwent corrective surgery to correct the bar displacement (6.8% of reoperation rate) whereas there was no corrective surgery in group B. BDIs of the two groups were significantly different (group A, 13.1±15.66; group B, 8.3±28.86; p<0.01). With these results, quadrangular fixation, which was performed with the upper and lower pectus bars biplanarly fixed by connecting each bars with the plates, showed that the bar displacement was prevented more effectively than the separate fixation method and the re- operation rate could be minimized.
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Ben Shanahan and Kieran Redmond, Mater Misericordiae University Hospital, Dublin, Ireland

Long cancer remains the leading cause of cancer death in both sexes in Ireland, accounting for 19% of cancer deaths in women and 23% in men. There have been encouraging results from large scale UK (SUURS), European (NELSON) and US (NATL) studies proving a benefit to screening at-risk populations. We anticipate that the burden of pulmonary nodule diagnoses will continue to increase, both due to the advent of screening programmes, and the increase in incidental pulmonary nodule diagnoses in patients undergoing CT scans for other reasons.

The thoracic surgeon is increasingly being called upon to biopsy those lesions which are either too small, or too inaccessible for the interventional radiologist. Traditional surgical biopsy relies on visualisation, and in many cases palpation of the lesion prior to resection. With the trend toward ever more minimally invasive thoracic surgery, we anticipate a trend away from palpation via a large port site or mini-thoracotomy in order to facilitate biopsy.

To that end we believe that image guided VATS (IVATS) in the hybrid theatre is the procedure of choice for lesions that would otherwise be prone to sampling errors, either due to their small size or their deep location.

Our technique utilises a fashioned intra-operatively placed radio-opaque surface lung marker (sLM) to guide localisation and resection. A baseline CT is performed and the sLM is then placed via two 5 mm ports. The target lesion location is then confirmed using intra-operative C arm CT, facilitating minimally invasive resection of the lesion. As the procedure is all performed in one room, and the patient remains in the same position from the insertion of the sLM to the resection, the chances of sLM displacement are minimal.

Our series consists of six cases. In all cases there was no lesion located on initial thoracoscopic resection. In all patients a tissue diagnosis was obtained which guided further management, obviating the need for continued surveillance or open surgery. There were no postoperative complications.

We believe our technique offers a truly minimally invasive option for the diagnosis of the small or inaccessible pulmonary nodule.

Should patients be denied thoracoabdominal/ descending thoracic aortic surgery on the basis of pulmonary function test alone?

Dr. Kuduvalli, Mr. Wells, Dr. Nawaytou, Mrs. Birla, Mr. Shaw, Dr. Field, Dr. Misericordiae University Hospital, Dublin, Ireland

Risk stratification of patients undergoing thoracoabdominal aortic surgery is paramount. Factors including the long-term survival include age older than 65 years, acute renal failure, diabetes, cerebrovascular accident, chronic obstructive pulmonary disease, peripheral vascular disease, and descending thoracoabdominal aorta (TAAA) surgery. The burden of postoperative respiratory complications remains high and is known to significantly influence the risk of postoperative mortality. This series also pointed out the presence of COPD and FEV1 less than 1.45 L significantly increased the risk of respiratory failure and consequently death. Other series however found that pre-existing renal insufficiency and excessive aneurysm are important predictors of respiratory complications. We thus sought to determine whether or not pulmonary function tests should determine operability.

In order to assess the effect of preoperative pulmonary function testing (PFT) on respiratory outcomes following TAAA surgery, we collected the data on all 231 elective patients undergoing elective TAAA surgery between 1998 and 2017 in our institution. These patients were further divided into two groups: group 1: FEV1 below 70% predicted (n=71) and group 2: FEV1 equal to or over 70% predicted (n=156). 24 patients did not have full records of the preoperative PFT. Between group 1 and 2, there was no significant difference in the postoperative need for ventilation over 48 hours (p=0.17), tracheostomy (p=0.78), chest infection (p=0.61), and mortality (p=0.98). More patients in group 1 needed full cardiopulmonary bypass but this difference was not statistically significant.

Preoperative% predicted FEV1 was not a strong predictor of postoperative adverse outcomes in patients undergoing TAAA surgery in the cohort of the patients operated. Whilst single lung ventilation may not be sufficiently maintained in certain select group of patients with suboptimal PFT, perhaps the use of full cardiopulmonary bypass may be considered to allow operability. Thorough preoperative evaluation of cardiopulmonary status, functional status, frailty, anaesthetic preassessment and multidisciplinary team discussion is important for identification of these patients.

References:


4. When Engineering helps Surgery: Smart Canula for MICS

One of the most crucial issues in Minimally Invasive Cardiac Surgery (MICS) is the venous drainage. An optimal drainage is required for full control of the MICS procedure, an empty heart allows surgeons to work in better conditions improving the quality. A good flow provides reliable blood oxygenation and avoiding low flow situations is essential for best result.

The most critical point in Extra-Corporeal Circulation (ECC) is the venous drainage. Usually to improve drainage, vacuum or kinetic assistance is applied, but in depression is too high the atrium wall or the vessel wall can collapse around the canula, the blood coming from lower part of the body, the kidneys, and the visceral organs, must pass along the canula which is virtually wall-less and acts as a temporary caval stent.

Canula which is virtually wall-less and acts as a temporary caval stent becomes the canula. Results is wider lumen, shorter path which means lower pressure drop.

Figure 2: Venous blood to be drained at the cannula tip must travel between the vessel wall and the cannula body prior to being drained. Better drainage results from two factors, lumen optimization and flow path reduction. Blood drains directly into the Smart Canula along its full length. There is no more need to go up to the atrium and go down inside the canula. The space between the canula and the wall is no longer a channel but the vessel itself.

As the procedure is all performed in one room, the patient remains in the same position from the insertion of the sLM to the resection, the chances of sLM displacement are minimal.

Our series consists of six cases. In all cases there was no lesion located on initial thoracoscopic resection. In all patients a tissue diagnosis was obtained which guided further management, obviating the need for continued surveillance or open surgery. There were no postoperative complications.

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References:

**Evaluation of surgery in the treatment of recurrent thymoma**

Andrew Blin1, Camilla Cavali2, Leanne Noring1,2

1 Thoracic Surgery Department, Guy’s Hospital, London UK; 2 University of Milan, Milan, Italy; 3 Thoracic Surgery Department, Barts Hospital, London, UK; 4 Department of Surgery and Cancer, Imperial College London, London, UK.

Recurrent thymoma is defined as the relapse of disease after prior complete pathological resection. Although this is uncommon, rates of up to 10–15% have been reported. This article summarizes our 10-year experience of complete resection for thymoma, demonstrating disease recurrence in 5% with a median follow-up of seven years (range 1–25). In accordance with previous reports, higher grade type B and C thymomas were significant risk factors for recurrence. Up to 80% of recurrent tumours occurred in the thoracic cavity with no evidence of distant metastases, suggesting that these tumours may be amenable to more aggressive local control. Re-do surgery is usually associated with increased operative risk often associated with the decreased physiological reserve with each subsequent procedure, however in our experience we believe it should be considered where possible. In our series we demonstrate a significant improvement in survival in those patients undergoing surgical resection with 5- and 10-year survival rates of 82% and 68% versus 43% and 25% in patients treated non-surgically. Notably however, surgery should not be undertaken lightly and may require a combined surgical approach with radical resection to achieve complete tumour clearance. As such, we believe it is pertinent to consider such an approach only in those patients with good performance status, good cardiac function and good physiological reserve with each of these tumours may be amenable to more aggressive local control. Re-do surgery is usually associated with increased operative risk often associated with the decreased physiological reserve with each subsequent procedure, however in our experience we believe it should be considered where possible. In our series we demonstrate a significant improvement in survival in those patients undergoing surgical resection with 5- and 10-year survival rates of 82% and 68% versus 43% and 25% in patients treated non-surgically. Notably however, surgery should not be undertaken lightly and may require a combined surgical approach with radical resection to achieve complete tumour clearance. As such, we believe it is pertinent to consider such an approach only in those patients with good performance status, good cardiac function and good physiological reserve.

**References**


Cavali C, Blin A, Awad W, Noring L. Thoracic Surgery Department, Guy’s Hospital, London UK; 2 University of Milan, Milan, Italy; 3 Thoracic Surgery Department, Barts Hospital, London, UK; 4 Department of Surgery and Cancer, Imperial College London, London, UK.

**Technical challenges when surgically treating mtrial annular calcification with trans-catheter valves**

Reuben Jegemohan, Department of Cardiac Surgery, Royal Victoria Hospital, Belfast

Mitral annular calcification (MAC) is increasingly encountered in the ageing population with coexisting mitral valve disease. Conventional mitral valve replacement has been the standard practise but poses the potential risk of anterograde disruption and para-valvular leaks. A novel approach in the last few years has been to implant a trans-catheter valve in the mitral valve position in the presence of severe MAC. Data from the Trans-catheter Valve Mitral Valve Implantation (TMVI) in MAC Global registry and more recently, the MITRAL Study (Mitral Implantation of Trans-catheter Valves) have reiterated that the “techniques still require further refinement”.

The aim of our study was to identify technical challenges when performing a TMVI in MAC during open-heart surgery. Over the last 2 years five patients underwent a TMVI in MAC with or without concomitant procedures. All patients had an Edwards Sapien 3 (Edwards Lifesciences) balloon expandable valve implanted on cardopulmonary bypass. Following evaluation of these cases, we identified three technical considerations that must be addressed when performing a TMVI in MAC procedure. The first was para-valvular leaks and migration of the prosthesis. This can occur in all cases and can be prevented by 1) careful correlation of the cardiac gated CT/CTOSS using with the intra-operative balloon sizing and 2) stitching the atrial wall tissue onto the skirt of trans-catheter valve prosthesis (Figure 1).

**Figure 1: An Edwards Sapien 3 trans-catheter valve sewn in place utilising surrounding atrial wall tissue.**

The second technical consideration was the possibility of an annular-prosthesimismatch. This should be identified pre-operatively for early failure were analysed. In addition, a comparison of the performance of Trifecta with Permamant Magna Ease (PME) bioprostheses was performed. During the study period, a total of 3313 aortic valve prostheses were implanted. Of these, 2807 were bioprosthetic valves (mean age 74 ± 6.5 years, 82% men, mean follow-up 4.9 ± 4.2 years) out of which 837 were Trifecta valves.

Seventeen (2.0%) of patients with Trifecta bioprostheses suffered premature failure requiring re-intervention. Mean time to re-intervention was 4.1 ± 1.8 years. Mean prosthesis size was 21.9 ± 7.7 mm. At the time of failure, 11/15 (73%) of the failed valves had moderate or severe prosthetic regurgitation and the average peak gradient was 65 ± 28 mmHg. One of the failed valves had severe patient-prosthesis mismatch on the pre-discharge echocardiogram. The valves were implanted by 13 different surgeons, and there was no predominance of one particular surgeon.

**Conclusion**

The Trifecta valve had a low – but higher than other models – incidence of structural valve failure (2.0%) over a follow-up period of five years. Multicentre studies registed are required to determine if these data are observed in other institutions.

**Figure 2: Comparison between Perimount Magna Ease and Trifecta groups**

**Table:**

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<th>Re-operation for structural failure</th>
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**Figure 1:** Summary of the implanted aortic bioprostheses with the total incidence of valve re-intervention, re-operation for endocarditis and re-intervention for structural failure.

- **Figure 2:** Comparison between Perimount Magna Ease and Trifecta groups.
Emergency care research: alternative informed consent models for STEMI patients

Joanna Oliveira, Clinical Research Nurse (Cardiology), Royal Papworth Hospital, Foundation Trust, Cambridge, UK

Although informed consent is a fundamental ethical principle in research, especially in settings like emergency care. Confronting the ethical dilemma of competing care needs in a stressful environment along with a limited therapeutic period, the requirement to receive written valid informed consent for an emergency control trial (RCT) at the time of enrolment is very challenging in these settings1. However, acutely ill patients are the ones with the greatest need to access innovative treatments and this can only be achieved through clinical research. A lengthy informed consent process can expose patients presenting with an ST-elevation myocardial infarction (STEMI) to a higher risk of harm. In this population, each additional hour it takes to initiate treatment from the onset of symptoms means losing 1.6 lives per 1,000 patients treated2. For this reason, some authors argue that the requirement of receiving written valid informed consent at the time of enrolment could be a barrier as it could delay the start of treatment1. Yet, if the requirement to receive written informed consent is removed from emergency care research, these populations can become even more vulnerable3. Therefore, special regulations for emergency care research have been developed and developed in the European Union and the United Kingdom. These are the cornerstones of a balance between respecting the patients’ will and the need to progress the medical care available to all of us. Current, some RCTs conducted in acute situations may use alternative informed consent models if approved by an independent Ethics Committee (IEC). Therefore, the RCT may use verbal informed consent at the time of enrolment followed by written retrospective and prospective valid informed consent at a later time, or they may use defined consent (e.g. no verbal or written consent at the time of enrolment) followed by written informed consent at a later time3. Independent of the type of alternative consent model used, written valid informed consent must be sought from the patient or legal representative as soon as possible.

Nonetheless, as simplistic and straightforward these special regulations may seem, the work and discussions conducted in the field of clinical research and the IEC prior to a RCT protocol are lengthy and burdensome4. The research team must prove without a determination of the therapeutic medical condition is urgent, that there is no possibility, within the therapeutic time frame, to obtain written informed consent from patient. Furthermore, if the patient’s medical condition, have potential to produce direct benefit for the patient whilst imposing minimal risk and burden when compared to the standard treatment. Although the alternative informed consent models currently available are extremely valuable to respect the patients’ will while advancing research in emergency care, further research to explore the optimum consent model for emergency care research from both the patients’ and researchers’ perspective is required.

References
Coronary surgery in India and the promote patency trial

Kunal Sarber - Khulna, India
Co-Principal Investigator Promote Patency Trial.
Past-President Indian Association of Thoracic and Cardiosurgical Society (IATS)

Background

Traumatic aortic injury (TAI) is now widely accepted as the standard of care for the treatment of Traumatic aortic injury (TAI) if there are no contraindications. The data show that off pump rates were in excess of 75%. With the National Registry being initiated since 2013, the ground reality appears quite different. The data show that off pump rates of around 60%. The global concern about the outcomes and graft patency has had its effect, coupled with training issues.

In order to gauge the quality of revascularization that was being achieved in our surgical environment and also to add some much-needed angiographic data to the ongoing off pump surgery database, we commenced on this project. It is perhaps for the first time that six Indian centers have collaborated under monitored randomization and data collection systems to produce a RCT. Each participating surgeon had performed more than 2,000 Off Pump surgeries previously.

“Promote Patency” looks at three-month angiographic patency in randomized cohort of 300 patients with more than 80% angiography compliance rate. Initial patency analyzed according to conduit and territory grafted were comparable in the two groups. Initial analysis of mortality and MACE at one year will also be presented.

Initial results have previously been presented at AATS 2016 and we are awaiting publication soon.

With satisfactory experience levels Off pump CABG can deliver patency rates comparable to On Pump. In the not too distant future, we expect to contribute not just to numbers but also to scientific evidence.

Comparison of TEVAR versus open repair of blunt traumatic descending aortic injury in polytraumatic patients involved in motor vehicle accidents

Dr Yasser Elghoneimy and Mr Imthiaz Manoly
King Fahd Hospital of the University, Dammam, Kingdom of Saudi Arabia

Objectives

To compare the early outcomes of endovascular treatment of blunt traumatic descending aortic injury with open repair in polytraumatized patients involved in motor vehicle accidents (MVA). We report our experience in our province after integration of endovascular repair using thoracic devices.

Methods

Between February 2008 and August 2017, 71 patients with TAI due to MVA with multiple trauma, presented to our institution.

After initial stabilization, all patients with descending aortic injuries were considered for thoracic endovascular aortic repair (TEVAR) using a thoracic device, if there was a need to lower the risk of perioperative complications. We participated in a national randomized trial.

Results

The mean ages were 28 years in the OR and 33 years in the TEVAR with majority of them males in both the groups. The injury severity score (ISS) were 41 (OR) and 33 in the TEVAR group.

None in the TEVAR group had more complex and higher ISS. Mortality correlated with the ISS score and a provision to long-term follow-up was definitely needed to manage such patients. A protocol or guideline is definitely needed to manage such patients and a provision to long-term follow-up is warranted.

Conclusion

In our experience, the results of TEVAR did not differ from Open repair and had better early outcomes. The complexity of injury and technical challenges were more in the Open group. TEVAR group had lower renal failure, decreased need of blood transfusion and lesser rate of wound infection. There is a significant gap in the long-term follow-up of this cohort. A protocol or guideline is definitely needed to manage such patients and a provision to long-term follow-up is warranted.

Table 1. Demographic comparison between Open repair and TEVAR cohort

Table 2. Operative and Post-Operative Comparison Between Randomized Cohorts*
Precision in Thoracic Surgery
Opioids in Cardiothoracic Surgery

We, therefore, performed a retrospective study of data collected from 2008-2018 (Cardiac Surgery) and from 2013-2018 (Thoracic Surgery) at our institution. In total, 4481 patients had complete discharge data for evaluation in cardiac surgery and 2260 patients in thoracic surgery. In Thoracic surgery, we found that between January 2013 and May 2018 in thoracic surgery, 52.9% (1186260) of patients were discharged on some form of morphine-based pain-relief following surgery. This consisted of 35.9% (8112260) long-acting opioids such as Oxycodone Modified Release and 31.3% (7082260) short-acting opioids such as Oxycontin; many patients were discharged on a combination of both. We also found that the patients discharged with opioids rose significantly from 36.6% (1223344) to 60.4% (246507) (p<0.0001) from 2013 to 2017 respectively.

We also found that the significant predictors for discharge on opioids in thoracic surgical patients were a lower age at surgery (OR 1.01, p<0.001), female gender (OR 1.274, p<0.04), a higher BMI (OR 1.06, p<0.019), a sub-lobar lung resection compared to a full lobectomy (OR 1.49, p<0.011) and a thoracotomy compared to key-hole surgery (OR 1.148, p<0.02).

In Cardiac surgery, we found 19.6% (9184841) of patients were discharged on an opioid. This consisted of 16.4% (7948441) long-acting formulations and 8.6% (4174481) short-acting formulations with many taking a combination of both. We found there was a rise in patients discharged on opioids from 3.2% (17/528) to 40.6% (143/352) (p<0.0001) between 2009 and 2017. The mean logES did not change significantly in this line between 2009 and 2017 (6.12± 8.9 vs. 6.9±8.6, p=0.15).

In cardiac surgery (all of whom had a median sternotomy), the significant predictors were a lower age at surgery (OR 1.04, p<0.0001) and a higher BMI (OR 1.03, p<0.0001). Additional predictors were Chronic Obstructive Pulmonary Disease (OR 1.259, p<0.025), longer X-clamp (OR 1.011, p<0.0001), bypass times (OR 1.04, p<0.031) and CABG surgery (OR 1.51, p<0.0001).

Patients who developed renal, neurological complications and gastrointestinal complications after cardiac surgery were less likely to be discharged on opioids (p<0.001).

Our prescribing of opioids in cardiothoracic surgery has become more liberal over the last few years despite the risk profile of our group not changing dramatically in line with this. Larger studies are needed and perhaps a nationwide and international audit, of opioid prescribing is warranted across different surgical specialties to find if this trend is occurring elsewhere and why this may be.

Adult Cardiac – BHVS Session
Tuesday 12 March 09:00

Aortic valve replacement: Does prosthesis size matter?

Mohamed Osman, Waleed Elminshy, Mohamad Farag, Aksam Saad, Martin Berman, Royal Papworth Hospital, Cambridge, UK

Aortic valve replacement (AVR) is one of the most common operations performed in cardiac surgery nowadays. Using small valves > 21 mm is not uncommon. During the performance of AVR with both mechanical and bioprosthetic valves, implantation of small prostheses has been an issue of continued debate.

Several studies have evaluated the effect of patient-prosthesis mismatch and post-operative valve gradient on patients’ outcome. However, it is still unclear if implanting small prostheses > 21 mm may collectively contribute to worse outcome. In Royal Papworth Hospital, we studied the effect of valve size on the outcome in aortic valve replacement surgery retrospectively.

We collected the data from 168 patients who underwent primary isolated AVR operations in the last 10 years. Patients were stratified by prosthesis size into small AVR (≤21 mm) and standard AVR (>23 mm, n=841) groups. The effect of prosthesis size on outcome was evaluated by univariate and multivariable regression analyses. The total in-hospital mortality was 8.8% (1.2% in small AVR group vs. 7.5% in standard AVR group, p=0.161).

Small prostheses were used more frequently in females and older patients and in patients presenting with right heart events at a median follow-up of four years compared with standard prostheses. In univariate regression analysis, small prosthesis predicted mortality (Figure 1), but not after adjustment for other risk factors. Independent predictors of mortality were advanced age, diabetes, raised serum creatinine and persistent atrial fibrillation before surgery.

Our study concluded that small aortic valve prostheses solely increases medium-term mortality after isolated AVR. Interestingly, persistent atrial fibrillation independently predicts mortality after isolated AVR.

Figure 1

Thoracic – Oncology Pathway
St James, Tuesday 12 March 11:40

Does the failure of minimal lymph node staging criteria leading to R0(0n) status consistently result in poorer survival after lung cancer?

Paolo De Souza, Fatima Marouze, Monica Barbosa, Sarah Booth, Havviette Klein, Aleksander Muni, Maria Nazile, Charlotte Von Crease,Dimithra Kyparissopoulos, Edward Traemund, George Lasado, Karen Redmond, Nikolaos Anastasiou, Jonathan Finch, Madhun Kumar Kuppasamy, Ninar Asvai, Emma Beddow, Nigel McCluggage, Vladimir Adkin, Shofina Begum, Simon Jordan, Angeles Montes-Fernández, Jan Lukas Robertus, Alexandra Rice, Andrew G Nicholas, Eric Lin
Royal Free Hospital and Harefield NHS Foundation Trust

In 2009 the IASLC TNM 7 staging manual proposed the “testing” of minimal criteria for lymph node staging to ascertain certainty status of complete (R0) resection after lung cancer surgery, which was three mediastinal (including subclavian) and three N1 stations /nodes. In 2016, the IASLC TNM 8 staging manual formally introduced the new category of R0 (nn) based on failure of compliance with the proposed extent of lymph node staging.

Edwards et al, on behalf of the IASLC staging committee reported that failure of compliance leading to R0 (nn) status was associated with poorer survival. However, this finding has never been validated outside the IASLC staging database. We audited over 2,500 patients and conducted a retrospective analysis of a prospectively collected database to independently evaluate the impact of R0 (nn) status at patients undergoing surgery for primary lung cancer at the Royal Brompton and Harefield NHS Trust. We discovered that R0 (nn) status (to the contrary) did not concur with the ASLC suggestion of poorer survival. The hazard ratio of survival was 0.95 (95% Cl 0.74 to 1.21, p=0.657) compared to a “certain” R0 status.

Our results question the clinical utility of R0 (nn) assignment in small-scale cohorts ideally from institutions with data that was not been used as part of the TMN 7 derivation cohort to determine the “certainty” of the hazard ratio of R0 (nn).
Rumors, truth and reality: Coronary endarterectomy in diffuse coronary artery disease

In recent years, there has been a significant increase in the prevalence of coronary artery disease (CAD) worldwide. This has led to a rise in the number of patients requiring coronary revascularization procedures, such as coronary artery bypass grafting (CABG) and coronary endarterectomy (CE). While CABG is the preferred method for revascularization, CE has gained popularity due to its lower risk of bleeding and the avoidance of systemic anticoagulation.

The principle indication for endarterectomy technique is the presence of diffuse coronary artery disease with an isolated lesion, that are not feasible to achieve distal bypass grafting. However, atherosclerotic plaques in LAD artery is hard and fragile in contrast to right coronary or circumflex artery, thereby increasing the incidence of plaque disruption. Moreover, branches of LAD artery like diagonal and septal artery arise in two different planes and have the chance of shunting-off the branches during extraction of the atheromatous plaque in either direction.

We reviewed the outcome of 1,473 endarterectomy on 1,189 patients with diffuse coronary artery disease (CAD) who had experienced CE with OPCABG. Endarterectomy was performed in multi-segmental diffuse CAD, and when a calcified or extremely thick plaque making anastomosis troublesome. Approximately 75.0% coronary endarterectomy were performed in the left coronary territory and most commonly left anterior descending (LAD) artery, where incomplete myocardial revascularization may results in an awful clinical outcome. Inadequate myocardial revascularizations do not influence the early death rate, but rather the occurrence of restenosis which influences the long-term cardiac dysfunction.

The fundamental concept of coronary endarterectomy in complex coronary artery disease is to extract the total atheromatous plaque, and achieve a good distal run off in diseased coronary arteries. The principle indication for endarterectomy technique is the presence of diffuse coronary artery disease with an isolated lesion, that are not feasible to achieve distal bypass grafting. However, atherosclerotic plaques in LAD artery is hard and fragile in contrast to right coronary or circumflex artery, thereby increasing the incidence of plaque disruption. Moreover, branches of LAD artery like diagonal and septal artery arise in two different planes and have the chance of shunting-off the branches during extraction of the atheromatous plaque in either direction.

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SCTS ANNUAL DINNER
Monday 11th March 2019

UnderGlobe,
21 New Globe Walk, London, SE1 9DT

Tickets £65

Tickets available to purchase at the SCTS Annual Dinner Desk

Ticket includes welcome drinks, 3 course meal & entertainment.

Dress Code: Black Tie & Cocktail Dress.

Please make sure you bring your ticket to the event to ensure admittance.

Please note that there is no organised transport to the dinner venue. Please make your own way there.

"If music be the food of love, play on"
## SCTS Education Courses 2019

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<th>Date</th>
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<tr>
<td>25-27 March</td>
<td><strong>ST8A</strong> – Cardiothoracic Surgery Pre-Consultant Course – European Surgical Institute, Hamburg</td>
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<td>20-21 May</td>
<td><strong>ST5B</strong> – Non-Operative Technical Skills for Surgeons (NOTSS) Course – Advanced Patient Simulation Centre, St George’s Hospital, London</td>
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<td>6-7 June</td>
<td><strong>ST3B</strong> – Operative Cardiothoracic Surgery Course – European Surgical Institute, Hamburg</td>
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<td>17-19 June</td>
<td><strong>ST4B</strong> – Core Thoracic Surgery Course – Ashorne Hill, Leamington Spa</td>
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<td>Surgical Skills Course – Manchester</td>
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<td>28-Sep</td>
<td><strong>ST7B</strong> - Clinical examination course for FRCS (C-Th) – Papworth Hospital, Cambridge</td>
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<td>14-16 Oct</td>
<td><strong>ST3A</strong> – Introduction to Specialty Training in Cardiothoracic Surgery Course – Ashorne Hill, Leamington Spa</td>
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<td>26-28 Nov</td>
<td><strong>ST4A</strong> – Core Cardiac Surgery Course – Ashorne Hill, Leamington Spa</td>
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<td>3-4 Dec</td>
<td><strong>ST8B</strong> – Professional Development Course – Ashorne Hill, Leamington Spa</td>
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Simple septal myectomy remains the gold standard for managing left ventricular outflow tract obstruction in patients with hypertrophic cardiomyopathy (HOCM).1–4 Analysis of the National Inpatient Sample has associated this procedure with high mortality and occurrence of complete heart block requiring permanent pacing.1,2 Surgical repair with mitral valve interventions in combination with septal myectomy or as isolated procedures, remains controversial. Different techniques have been suggested to address the septum and/or the subvalvular apparatus providing relief of the LVOT.

Methods

We report a case of a 32-year-old male with HOCM causing LVOT and mid-cavity obstruction, who was referred for surgery at our institution. The patient presented with a history of syncope. Preoperative echocardiography confirmed a hypertrophic anterior motion (SAM) related mitral regurgitation and a high resting gradient 72 mmHg, which increased regurgitation and a high resting anterior motion (SAM) related mitral regurgitation. An extended septal myectomy was performed at the right tricuspid valve from the left side through ports and small incisions on the right chest and in the right atrium, with an extended septal myectomy. The patient underwent surgical repair with mitral valve disease was degenerative in 86% of cases (27.5%) the operation consisted of an isolated TVI, whereas in 14 patients (51%) mild, in 11 (40%) and moderate in 15 (51%) patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the mitral valve. Hospital death occurred in one patient (0.06%). A total of nine (0.5%) patients underwent reoperation due to repair failure and 34 patients had replacement of the

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References


Does your psychological make-up affect your expected outcome from a heart operation? The HOPE Study

Christine Mills1, Kim Lee2, Sofia Villar2, Samer Nashef3

very year, around 40,000 patients undergo open heart surgery in the UK. Over the last 20 years heart surgery has become much safer. Risk factors can be divided into two groups: those that cannot be changed (age, gender, family history) and those that can be changed (smoking, obesity, psychological factors). Most research on cardiac surgery outcomes focuses on biological risk factors, but in striving to offer the best care possible, we may need to adopt a more holistic approach.

Some small studies have shown that patient outlook can influence recovery and that patients with a more positive disposition report better outcomes after surgery, emphasizing the importance of mental wellbeing in relation to physical conditions requiring surgery. Much of the previous research however has focused on a narrow range of operations and relied on patient-reported primary outcomes, which could indeed be influenced by the patient’s own outlook.

The HOPE study set out to determine whether a patient’s outlook before cardiac surgery can influence hard outcomes such as recovery and length of hospital stay in a single-centre prospective observational study. 279 elective cardiac surgery patients agreed to participate. Patient outlook was assessed preoperatively with two standardised questionnaires: Life Orientation Test (LOT) to measure outlook over a longer duration and the Positive and Negative Affect Schedule (PANAS) to measure current attitude. LOT was used to classify patients into optimistic (76), neutral (69) and pessimistic (74) outlook groups while PANAS’ ‘positive’ and PANAS’ ‘negative’ were used as potential predictor variables.

The primary outcome was length of hospital stay. Secondary outcomes included length of intensive care unit (ICU) stay, ward stay and risk-adjusted survival using a multivariate linear regression model. Pessimistic patients spent a day more in hospital compared with the ‘neutral’ group. For the secondary outcomes, PANAS positive was found to be a significant predictor of ICU stay: gaining one point on the PANAS positive reduced ICU length of stay for the patients in the neutral and pessimistic groups by 0.02 days (2 hr 15 mins).

Research has demonstrated that in a mental health setting it is possible to improve a patient’s outlook by using mental imagery based training. In this training patients are asked to repeatedly select positive information over negative information for 10 minutes a day over a two week period, this helps train the brain to automatically focus more on positive information. This method of increasing resilience is examined in the cardiac surgery population. This message is empowering for the patient as ‘improving mood’ before surgery is more within their control than clinical risk factors such as those used within EuroSCORE. Based on the results of this study, development of psychosocial intervention to boost optimism to target this patient population could have the potential to provide significant public health benefits as well as a cost saving to the NHS.

References

CT Forum (Nurse and AHP) – Research Windsor Monday 11 March 14:20

Beating heart repair for anomalous origin of right coronary artery from left coronary sinus

Yoshito Inoue, Shuhei Koton, Masaehito Ohno
Hospice, Hiroshima City, Japan

I am pleased to present a new surgical approach to anomalous origin of the right coronary artery (ARCA), which causes myocardial ischemia and sudden death. Much efforts have been made to treat this anomaly, including CABG, unroofing and translumination; however these treatments have drawbacks such as insufficient revascularization, complexity of the procedure or risk of post-operative aortic insufficiency. To eliminate the problems of existing treatments, we performed beating heart repair, which is a simple and safe procedure, involving minimal surgical steps, dissection of ARCA and anastomosis to correct ventricular function. The clinical impact of our approach has been demonstrated by its potential to characterize patient sub-groups unwarranting nuanced differences in arch morphology that would otherwise not be captured by gross dimensional or functional data.

Figure 1: Templates of the whole population and of the sub-groups.

Figure 2: Modes of the whole population that were significantly associated for differences between the sub-groups; template-red, mode extremes-yellow.
The effect of post-operative day zero physiotherapy mobilisation following lung resection in the adult population: A service evaluation

Zoe Maria Barrett-Brown, Team Leader, Physiotherapy for Thoracic Surgery, Royal Papworth Hospital NHS Foundation Trust, Cambridge.

Enhanced recovery programmes have been a vital component in thoracic surgery to minimise the effect surgery has on patients. Physiotherapy plays an important role to ensure patients return to a good level of fitness post-operatively and minimise the risk of post-operative pulmonary complications.

A service evaluation was conducted in an NHS hospital to explore the benefits of early physiotherapy mobilisation on post-operative day 0 (the day of their surgery) following lung resection surgery compared to the previous service of physiotherapy mobilisation on post-operative day one (the first day after their surgery). Outcome measures included incidences of post-operative pulmonary complications (using the Melbourne Group Scale), post-operative hospital length of stay and physiotherapy treatment length.

To be included in each study each patient must meet the inclusion criteria and deemed safe by the thoracic surgical team post-operatively to participate in early mobilisation. Patients in the early mobilisation group were seen approximately four hours after their surgery had finished. The early mobilisation group were mobilised with the aim to walk 80-100 metres as independently as possible. The patients in the non-early mobilisation group were mobilised with the nursing staff if indicated on the day of their operation and reviewed by a Physiotherapist on the first day after their surgery. All patients in were given the standardised post-operative Physiotherapy advice (breathing exercises, supported coughing, circulatory and upper limb exercises). The incidences of post-operative complications, post-operative hospital length of stay and number of Physiotherapy treatment sessions were recorded for each patient that participated. A total of 20 patients were included during this data collection period (April – June 2018) and were compared to 20 patients in the non-early mobilisation group. All 20 patients in the early mobilisation group were mobilised but not all the patients reached the target distance of 80-100 metres. Results showed that the post-operative pulmonary complications rates significantly reduced from 40% to 5% after early mobilisation the day of surgery and the hospital length of stay significantly reduced from 4.95 days to 3.4 days. However, there was no significant reduction in Physiotherapy treatment length.

Early Physiotherapy mobilisation the day of surgery can be an effective and encouraging treatment following lung resection. However, due to small numbers in this evaluation further data collection is required to higher the studies reliability and reduce its variability.

Can a nurse-led approach improve the recovery of patient’s after routine cardiac surgery?

Stephen Maurice, Royal Papworth Hospital, Cambridge, UK.

The Royal Papworth Hospital has a 33 bed Critical Care Unit (CCU) and it was routine for cardiac surgical patients to be admitted to anywhere within these 33 beds. However, this made it difficult to manage their post-operative recovery effectively.

To try and solve this problem, the lead CCU doctors and a team of nurses suggested having a set area of 6-8 beds within the CCU to be set aside for these patients. These patients’ post-operative care would then be managed by a team of nurses, led by a Cardiac Recovery Practitioner, a Band 6 nurse.

A specific training programme, taught by consultant surgeons and anaesthetists, was under taken by these practitioners to enhance and improve their in-depth knowledge.

Guidelines were also drawn up to manage the post-operative recovery of these patients. If the patients’ recovery fell outside these guidelines, then the practitioners would contact the duty surgical registrar for further advice.

The programme has now been running for the last six years and our findings show that pro-active treatment for these patients within the Cardiac Recovery Unit has led to quicker post-operative recovery and early discharge to the wards for this group of patients (Table 1).

It has also shown new ways of thinking when dealing with this group of patients as nurses must be constantly alert and adjust their strategies to the patients changing needs.

Quantification of collagen deposition in the ventricle of the Greenland Shark – the World’s oldest vertebrate

Ter-Kru Or-kur, Peter Barzilai, Peter Bush, John Steffensen, Holly Stawski, 1 Aneurin Hospital, 2 Indiana University South Bend, 3 University of Massachusetts, 4 Department of Biology, University of Copenhagen; 5 Faculty of life sciences, University of Manchester.

A n exciting discovery in the Arcti has the potential to change our perception of ageing, and age-related disease. The potential 500-year lifespan of the Greenland Shark (Somniosus microcephalus) is not only breathtaking, but questions many theories of ageing and previous understanding of physiology.

I was particularly interested in the fibrosis of the ventricle as this is the most common chamber affected by, and studied in other models of, ageing. I was fortunate enough to be the first researcher to study and describe its tissue. Although these need to be further assessed, my research provides an initial platform from which other fibrosis studies on the Greenland shark can build upon.

It is important to remember this is an initial assessment of this ageing model and therefore future studies will need to improve upon various aspects of my research in order to increase the reliability and validity of any results. Although some comparison can be made with human tissue, this should be done carefully as there has been no direct comparison between both tissues as of yet. Perhaps the Greenland shark can demonstrate that age is nothing but a number.

Adult Cardiac – Tricuspid Surgery

Abby Monday 11 March 13:30

Tricuspid ring annuloplasty for moderate tricuspid regurgitation at time of mitral valve surgery

Nehum Ahmed,1 Amr Allama, Ahmed Dokhan. 1 Menoufia University; 2 Menoufia University Hospital, Al-Minufya, Egypt.

Objectives

To evaluate tricuspid valve (TV) ring annuloplasty for moderate functional tricuspid regurgitation (FTR) in patients undergoing mitral valve surgery (MV)

Background

TV ring annuloplasty during MV surgery for severe FTR is recommended but for moderate FTR is controversial.

Methods

80 patients with moderate FTR whom were listed for MV surgery classified into: group A, tricuspid valve annuloplasty (TVa); group B, tricuspid valve annuloplasty and group B, tricuspid valve non repair (TVnR), 46 patients who underwent MV surgery and TV annuloplasty and group B, tricuspid valve non repair (TVnR), 46 patients who underwent MV surgery alone.

Results

One month follow-up. In group A, no mild and severe FTR was detected in (70.6%), (26.6%) and (2.9%) of patients respectively. While in group B, no, mild, moderate and severe FTR was detected in (26.1%), (58.7%), (13%) and (2.9%) of patients respectively (P = 0.001). Pulmonary artery pressure (PAP) in group A and group B was 27.2±6.1 mmHg and 31.7±6.8 mmHg respectively (P = 0.001). Six month follow-up, in group A, no, mild and severe FTR were detected in (64.7%), (32.4%) and (2.9%) of patients respectively, while in group B, no, mild, moderate and severe FTR was detected in (32.6%), (50%), (15.2%) and (2.2%) of patients respectively (P = 0.01). PAP in group A and group B was 27.6±1.1 and 32.2±7.1 mmHg respectively (P = 0.003). RAP and RV size were increased risk of persistency and recurrence by ORs 1.12 and 1.16, respectively (P <0.05).

Conclusions

Intervention for moderate FTR is recommended during MV surgery to avoid persistence or progression of the TR.

Pat Magee – SCTS Students Pat Magee abstract presentations

Moore Sunday 10 March 14:00

Quantification of collagen deposition in the ventricle of the Greenland Shark – the World’s oldest vertebrate

Ter-Kru Or-kur, final year medical student, Liverpool.

I will be taking us through my methods of collagen and elastin quantification in which I used picrosirus red and Millers elvanin respectively.

The results I obtained through such stringent methods produced findings never described in the ageing process and although these need to be further assessed, my research provides an initial platform from which other fibrosis studies on the Greenland shark can build upon. It is important to remember this is an initial assessment of this ageing model and therefore future studies will need to improve upon various aspects of my research in order to increase the reliability and validity of any results. Although some comparison can be made with human tissue, this should be done carefully as there has been no direct comparison between both tissues as of yet. Perhaps the Greenland shark can demonstrate that age is nothing but a number.

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Objectives

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Conclusions

Intervention for moderate FTR is recommended during MV surgery to avoid persistence or progression of the TR.
**Efficacy and Safety of non-vitamin K antagonist oral anticoagulants for patients with atrial fibrillation after cardiac surgery: A retrospective study**

Dr Rachel Currie, Dr Qin Chen, Mr Nasser Mahmood, Mr Anthony McCourt, Mr Reuben Jeganathan
Royal Victoria Hospital, Belfast, UK

There is minimal data from clinical trials regarding the use of NOACs following bioprosthetic valve replacement and valve repair. However, the 2017 ESC/EACTS guidelines for the management of valvular heart disease recommended that despite this, “NOACs can be used in patients who have atrial fibrillation (AF) associated with a bioprosthesis after the third postoperative month.” There is also minimal guidance for use of NOACs with concomitant anti-platelet therapy, in particular, in relation to high-risk patients such as those following coronary artery bypass grafting (CABG).

The primary study outcome was to evaluate safety and efficacy associated with use of NOACs in patients with AF following cardiac surgery by assessing rates of stroke, systemic embolism and major haemorrhage. Secondary outcomes included thromboembolic or bleeding complications that did not fall into the primary outcome group. NOACs were commenced as soon as clinically relevant post-op (most within one week). The study also examined the duration of inpatient hospital stay compared with patients prescribed warfarin and the effects of concomitant aspirin on outcomes.

Data was collected on a total of 76 patients; 75% male and 25% female, age ranging from 51 to 80 years (mean age 70), with varying oral function, and comparable proportions of both patients with new onset AF and pre-existing, 36 patients (47%) had NOAC as a monotherapy, 40 (53%) had NOAC with aspirin. The majority of procedures were aortic valve replacements (51%), followed by CABG alone (38%) with smaller numbers of MVR, MV and TV repairs and one excision of atrial myxoma.

None of the 76 patients experienced a stroke or systemic embolic event at the time of study. Three (3.9%) of individuals satisfied the criteria of major haemorrhage with a haemoglobin drop of >20 g/l and received two units of blood however one individual did not show evidence of active bleeding. This individual was prescribed aspirin, the other two were not. There was variation in NOACs involved and surgical procedure undertaken. Looking at secondary outcomes, three (3.9%) individuals had minor bleeding, all with different NOACs and surgical procedures. Two were co-prescribed aspirin and one was not. One patient on apixaban without aspirin sustained a femoral DVT however this patient also had metastatic cancer. The average reduction in the number of inpatient days for the NOACs compared to warfarin group was 1.5 days for CABG, 4.4 days for CABG + valve and 1.7 days for valve operation.

Previous pivotal trials showed the yearly incidence of stroke or systemic embolism with the use of NOACs to be 1.1%–1.7%.

To conclude, outcomes of our study show that the risk of complications for patients on NOACs commenced within the first three months of cardiac surgery is comparable to the large NOAC trials. Surprisingly the addition of aspirin did not increase the risk of complications. Patients prescribed a NOAC had a shorter postoperative inpatient stay than those prescribed warfarin. We suggest caution when prescribing NOACs and recommend that clear local guidelines are created for their use.
Effect of prosthesis type on survival in middle-aged patients undergoing aortic valve replacement: A systematic review and meta-analysis

Charlotte Holmes 571-cardiothoracic trainee at the Freeman Hospital, Newcastle

P
orsthesis choice in aortic valve replacement (AVR) depends on many different factors including the patient choice. Mechanical valves (MV) are chosen for younger patients because of their durability whilst biological valves (BV) are chosen for older patients to avoid anticoagulation. The guidelines for prosthesis choice in patients between 55 and 70 aren’t backed by published reviews.

Methods
Six electronic databases were searched. Studies comparing outcomes after AVR with MV and BV in patients aged 55-70 years were included. Studies not written in English, abstracts, case reports, reviews, non-human studies, and studies with incorrect age range or endpoints were excluded. The primary endpoint was survival. Secondary endpoints included structural valve degeneration (SVD), reoperation, bleeding, thromboembolism and endocarditis.

Results
Thirty-six studies were included. Nine found long-term survival comparable. Meta-analysis found no significant difference in overall survival. All studies investigating SVD found the rate to be significantly higher in BV. Six studies found reoperation rates comparable. Nine studies found no significant difference in stroke rate. Eight found a significantly higher bleeding rate in MV. Five of seven studies found no significant difference in infection rate. Meta-analysis of secondary endpoints found no difference in overall complication rate.

Conclusion
There is no difference in survival or overall complication rates between BV and MV. Bleeding is a significant complication of MV. Reoperation for SVD is a significant complication of BV. Valve-in-Valve Transcatheter implantation as an alternative to reoperation for SVD means the durability of BV may become more of an acceptable risk when trying to avoid anticoagulation related complications.

Thoracic – Pushing the boundaries St James Tuesday 12 March 13:50

The value of post ICU clinics in a cardiothoracic specialist hospital – are we missing vital concerns?

Lisa Davey Golden Jubilee National Hospital, Clydebank, UK

I
n 2016, the InS:PIRE programme (Intensive Care Syndrome, Promoting Independence and Return to Employment) was scaled up to include a variety of hospitals including the Golden Jubilee National Hospital. InS:PIRE had been established at the Glasgow Royal Infirmary in 2014 in a general Critical Care unit. As a specialist Cardiothoracic unit, it was hypothesised that it may not translate well within our client group and that we may not encounter similar issues as the fellow InS:PIRE teams. There was also concern of geographical spread and that patients may not return for programme dates as the participants could come from any part of Scotland. Expectations were that physical strength and wound care may be the major concerns.

Patients were selected from Ward Watcher initially dating back to a year post discharge. The search included patients who were ventilated over 72 hours. There were no restrictions placed on gender, age, geographical location or pre-existing health conditions. The participants and their carers would have access to medical and nursing staff, physiotherapy, dietetics, SAT, a clinical psychologist and a member of the third sector. Initially the Cohorts were invited back for 3-4 hours each week over a five-week programme, however we adapted this from Cohort 3 to be three weeks of attendance from 10-4 with lunch provided and phone contact in weeks 2 and 4. Each week the participants had time to speak to all of the professionals and more importantly each other.

The InS:PIRE team at the Golden Jubilee National Hospital

Aortic dissection – can medical students diagnose it?

Alex Teasdale1, Tamara Ni Hici2, Jeremy Chant3, Pong Kumer4 1 Swansea University; 2 Morriston Hospital, Swansea, UK

Aortic dissection, although relatively uncommon, is a major killer claiming the lives of 1,347 people in England and Wales in 2015 and possessing an overall mortality of 27%. Aortic dissection is currently regarded as a cataclysmic event in the emergency department, however, it was estimated that in 2010, only 1,242 of 3,906 recorded AD events in the UK were admitted to hospital³. The outcome of type A aortic dissection is dependent on early diagnosis and treatment. To increase the chance of early diagnosis it is vital that important risk factors and ‘red flags’ are elucidated and relevant investigations are undertaken. We produced a study aimed to understand how medical students, about to become junior doctors, assess chest pain and if they consider aortic dissection as a differential diagnostic.

We distributed a survey via SurveyMonkey, to students in their final two years of study across six medical schools (Cardiff, Exeter, Leeds, Manchester, Swansea and UEA) with a mix of graduate, undergraduate, problem-based learning and case-based learning courses. Participants worked through a basic, but true, scenario; ‘a 42-year-old lady presents to the ED with chest pain’. From this they were asked how they might clerk the patient by giving relevant questions, clinical findings and investigations. This would lead them to support the differential diagnoses they felt were most important to consider. The process was then repeated, but they were given a more detailed case with aortic dissection ‘red flags’ (such as ‘tearing’ chest pain, right-left blood pressure differential and a history of hypertension)³. We had 113 participants accepted into the study and found that students were able to ask relevant questions for aortic dissection, but that the risk factors and examination findings were poorly explored. Unsurprisingly myocardial infarction and pulmonary embolism were the most common differential. However, less than a third of students included aortic dissection as an initial differential diagnosis, significantly fewer than other conditions with a lower mortality such as gastro-oesophageal reflux disease, pneumonia and musculoskeletal pain. Although, nearly three quarters of students were able to identify the dissection when given red flags, this still served to highlight that a desire is frighteningly high mortality rates, aortic dissection doesn’t get the same level of recognition as other conditions. This could mean that patients with an aortic dissection are more likely to be underestimated, missed and put at high risk.

We believe the way aortic dissection is currently taught across medical schools does not place enough emphasis on the severity of the condition and that further education is required to ensure it is being considered as a differential and avoid a missed diagnosis. The study also suggests students are only considering the most likely diagnosis and are not looking to rule out conditions with a higher morbidity, however more research needs to be carried out to confirm this and to elucidate the best way of combating the problem.

References

Initial experience with segmentectomy for lung cancer using robotic-assisted thoracic surgery and intravenous indocyanine green fluorescence

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Impact of moderate impairment of left ventricular function on short- and long-term outcome after isolated mitral valve surgery for degenerative disease

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Early health outcomes and 10-years survival following isolated mitral valve surgery for infective endocarditis

Vito D Bruno
Translational Health Science, University of Bristol, Bristol Heart Institute, Bristol, UK

Thoracic – Pushing the boundaries
St James
Tuesday 12 March 13:50

Impact of moderate impairment of left ventricular function on short- and long-term outcome after isolated mitral valve surgery for degenerative disease

The current ESC/EACTS Guidelines for the management of valvular heart disease recommend mitral valve (MV) surgery for patient with asymptomatic primary MV regurgitation and left ventricular (LV) function less than 0.5. In the presence of a severely impaired LV, the recommendations for surgery are less robust and limited only to those who are refractory to medical treatment (Class IIa, Level of evidence C1). The indications for surgery are even less clearly defined for patients with a moderately impaired LV. Therefore MV surgery in reduced left ventricular ejection fraction (LVEF) is still a grey area even because previous research have shown an higher operative mortality and worst long-term survival rates.

With our study we aimed to investigate the impact of moderate impairment of the LVEF. Between 30 and 50% on the short- and long-term outcome after surgery for isolated degenerative mitral valve disease, to better clarify the impact of this surgery on this type of patients. From our internal cardiac surgery database, we selected the patients who underwent isolated mitral valve surgery for primary degenerative disease, and we divided them in two groups based on their LVEF: normal LVEF (group NLV, LVEF > 50%) vs moderate impairment of the LV (group MLV, LVEF between 30 and 50%). We evaluated in-hospital mortality, stroke, need for dialysis (NID), reoperation for bleeding (RIB), length of stay (LOS) and 10-year survival.

Our dataset included 475 patients (mean age 67.3±12.2 years, female gender 34.1%) with 392 patients (79.7%) in the NLV group and the remaining 83 patients in the MLV group. In-hospital mortality was 3.8% (2.3% and 10.8% for NLV vs MLV respectively; p = 0.01). Postoperative rates of stroke, RIB, and RIF were 1% vs 2.4%, 0.5% vs 1%, and 4.1% vs 6.6% at NLV vs MVL respectively. LCS was 10.7±10.3 days (10.3±10 vs 12.4±11.8 days, NLV vs MVL respectively; p = 0.09). 5 and 10-year survival rates were 85.1% vs 73.1% and 76.4% vs 47.3%, NLV vs MVL respectively (Figure) and were significantly in favour of NLV (p = 0.03).

Our study shows that even a moderate impairment of the LVEF has a negative impact on in-hospital outcomes and long-term survival rates after isolated MV surgery for degenerative disease. Further studies are needed to better identify the patients who would benefit the most from a prompt MV intervention: in the presence of reduced LVEF, but these results support an early referral for surgical treatment of severe degenerative mitral valve disease, before the deterioration of LVEF begins.

In our study, we found a significant outcome advantage of the NLV group compared to the MVL group for both survival rates and operative complications. This was due to the younger population receiving primary MV valve surgery (mean age 63.2±15 years) who underwent an isolated mitral valve procedure for infective endocarditis. 36 of those patients were treated with a MV repair (while the remaining 92 received a mitral valve replacement (31 with biological prostheses and 61 with mechanical prostheses)). The two groups were similar in terms of pre-operative and operative characteristics and had similar surgical times but had dissimilar in-hospital outcomes: in-hospital mortality was 0% in the repair group vs 3.3% in the replacement group. A higher incidence of re-sternotomy for bleeding was also found in the replacement group (2.8% vs 6.5%) and the post-operative length of stay was longer in the replacement group (10.8±7.8 days vs 15.3±1.9 days, p=0.07), while the rates of postoperative stroke and dialysis were similar. Over the long-term follow-up, there was a better survival rates in the repair group compared to the replacement group with a survival rates at 10 years of 81.5% for the MV repair group vs 59.6% for the MV replacement group (21.9% for biological and 16% for mechanical prostheses).

Our study, although limited by its retrospective nature and the small number of patients, confirms that MV repair can be safely performed in the setting of isolated mitral valve disease providing excellent short-term outcomes as well as very good long-term survival rates. When replacing the valve, biological prostheses have a worst long-term survival rate compared to mechanical ones, although this result might be related to the younger population receiving the latter. Although MV repair in an infected mitral valve can be technical demanding and might be difficult to be widely extrapolated, it should be taken into consideration as a valid and effective alternative to valve replacement in patient with infected IE.
Thoracic – Pushing the boundaries
St James Tuesday 12 March 14:00

Spontaneous breathing thoracic surgical procedures: early experience

Stamatia Pispisikou Department of Thoracic Surgery, Glenfield Hospital, Leicester, UK

Introduction and methods

Video Assisted Thoracoscopic Surgery (VATS) has been an important minimally invasive tool in the hands of experienced surgeons. On a natural progress, anaesthetic support has evolved and become equally less invasive. General anaesthesia with single-lung ventilation is considered mandatory for such procedures however associated with complications and challenges particularly in patients with compromised lung function. Thoracoscopic surgery without tracheal intubation is an emerging treatment modality for a wide variety of thoracic procedures. By surgically induced open pneumothorax, the operated lung collapses progressively while the dependent lung is responsible for oxygenation and ventilation. Spontaneously Breathing Thoracic Surgery (SBTS) offers an option in this cohort of patients.

We have introduced SBTS in our institution since March 2018. 26 patients (18 male and nine female) with a mean age of 41 years underwent thoracic procedures under spontaneous breathing between March and November last year. Procedures (utilised by two single-port and 24 double-port techniques) included 18 VATS bullaelectomies (5 pleuroectomy), while eight patients underwent different procedures (one TBV removal, three lung biopsies, one LVNS, one anterior chest wall abscess, one re-exploration for haemothorax and one mediastinal biopsy). We used l-gel for the majority of our patients and ITTV for two out of 26 only. ASA grades were 11 (11/26), II (8/26), III (4/26) and IV (2/26). Paraesophageal block was also applied in the majority of patients, using anatomical landmarks with single shot injections of 30 ml of Levobupivacaine 0.2% at two levels. Additional intraoperative analgesia was administered (32/26 patients received only Morphine 10 mg. 10/26 received Morphine 10 mg + Paracetamol 1 gr, 9/26 received Morphine 10 mg + Paracetamol 1 gr + NSAD 30 mg of Ketorlac, 32/26 patients received Morphine 10 mg + NSAD 30 mg of Ketorlac while one patient received Paracetamol 1 gr + NSAD 30 mg of Ketorlac).

Results and conclusions

Only one patient needed a re-operation for air leak, four patients developed minor complications and only one out of 26 experienced more than average for the group postoperative pain. The average hospital stay was 4.846 days while the average recovery time was 79.92 minutes. The average time between the end of the surgical procedure and the transfer to ICU/Anaesthesia – Renal and myocardial protection
Wesley Tuesday 12 March 11:40

Experimental study on myocardial protection and aquaporin 7

Masahiro Fujii Nippon Medical School Chiba Hokusou Hospital, Chiba, Japan

Background

Aquaporins (AQPs) are membrane water channels (or aquaglyceroporins), which move water and glycerol across the lipid bilayer and play a vital role in maintenance of water homeostasis. Thirteen aquaporin isoforms have been identified in mammals. In the heart there are two isoforms. One is AQP 1, an aquaporin that selectively transfer water, the other is AQP 9, aquaglyceroporin that transfers glycerol and water. Recently it has been demonstrated that AQP 9 serves as a glycerol facilitator in cardiomyocytes and glycerol was one of the substrates for cardiac energy production. AQP 7 knock-out (KO) mice were obese with increases of fat weight after 12 weeks and also showed insulin resistance in accordance with obesity. Glycerol and ATP content in the muscle were significantly reduced in AQP 7 KO mice compared to wild type mice. Although AQP 7 gene has been demonstrated the down-regulation in obese patients, it remains uncertain that hypertrophic cardiomyopathy is still gold standard for myocardial protection during cardiac surgery. The abundance of different safety measures and mechanisms within the NHS, human errors due to lack of effective communication have a significant impact on the daily workflow of care. Following a similar human error, which compromised the quality of care delivered, the Thoracic Surgical Unit of University College London Hospitals NHS Foundation Trust, took the initiative to propose a new safety mechanism to minimize the burden of human factors in the daily clinical practice.

Therefore, as a quality improvement project we introduced a 10-second per patient post-round huddle (PRH), during which the doctor and each patient after the ward-round is reiterated to the primary aim of the project, which is to eliminate within-staff communication errors. The primary aim was to examine the integration of PRH by the team members and to boost confidence of each individual to discuss their opinions and raise concerns.

In order to achieve the set targets, a questionnaire (image 1) was handed out to 26 members of staff in a busy London Thoracic Surgical Unit before the implementation of PRH to assess the staff’s grasping of the management plan after the ward-round and their level of confidence to vocally regard the plans. A repeat questionnaire was completed four weeks after the introduction of PRH aiming to re-assess staff’s confidence, and the impact of introducing PRH on the prevention of untoward events, effects on workload, and time management.

Analysis of the answers of the pre-introduction questionnaire revealed that 71% (15 out of 26) of staff were moderately confident regarding the management plan after the ward round as compared to five members of staff (24%) who were absolutely confident. After the introduction of PRH the absolute confidence level has increased three-fold (p<0.001). Similarly, staff’s confidence raising after the introduction of the PRH has significantly increased by more than 3-folds (24% versus 79%, p<0.0001). 68% of the respondents believed that it was time effective. Overall, 100% of the team members were positive about the introduction of PRH, with 63% identifying a positive impact on the management of patients and the prevention of untoward events.

In conclusion, our survey clearly demonstrated that the implementation of PRH was crucial in increasing the confidence of the team members as reemphasising the ward round plans allowed them to capture every detail regarding patient management. Apart from that, it enabled the staff to gain confidence to speak up and raise concerns in relation to the management of the patients.

The initial concerns that it could pose a burden to the daily routine and further increase the heavy workload, were diminished once we reviewed the replies from the second questionnaire supporting that the majority of the staff were satisfied with the extra time spent for the PRH. It was ultimately included by all members of staff. There was indisputable evidence of elimination of within-staff communication errors distinctly validated by the positive influence in the management of patients.

Ten seconds huddle: A new quality improvement measure in thoracic surgery

Kakos Christos; Sacramento Jorci; O’Brian Pauza; Papadimitriou Nikolaos; Lawrence David; Patrini Davide; Hayward Martin; George Robert University College London Hospitals NHS Foundation Trust, London, UK

During the daily ward-round we introduced a 10-second per patient post-round huddle (PRH), during which the doctor and each patient after the ward-round is reiterated to the primary aim of the project, which is to eliminate within-staff communication errors. The primary aim was to examine the integration of PRH by the team members and to boost confidence of each individual to discuss their opinions and raise concerns.

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enhanced recovery after surgery (ERAS) practices aim to improve surgical and patient-centred outcomes, utilising a variety of methods which encompass the entirety of a patient’s surgical journey. Adoption of ERAS practices in thoracic surgery across UK has resulted in shorter hospital stays and reduced incidence of post-operative complications. A variety of pre-operative factors put patients at a higher risk of complications which in turn limits the benefit achieved by the ERAS practices. Predictive Post-operative (PPO) FEV1 and DLCO are widely used to assess the risk of undergoing major lung resection surgery. Our aim was to assess the relationship between PPO FEV1/DLCO and success in achieving ERAS goals.

At our based in Glasgow, United Kingdom, we studied 384 patients undergoing lung resection over a one-year period between July 2017 and June 2018. Data gathered included PPO FEV1/DLCO, duration of chest drain and length of hospital stay, noting if patients were discharged within ERAS targets. Multivariable binary logistic regression modelling was used to analyse the relationship between pulmonary function tests and post-operative outcomes. The results showed that PPO FEV1 and PPO DLCO were significant predictors of length of hospital stay, with higher PPO FEV1 and PPO DLCO relating to increased likelihood of discharge within ERAS targets for both the VATS and the thoracotomy groups. These findings illustrate that patients with superior pre-operative pulmonary function test results are more likely to meet their ERAS goals. Higher PPO FEV1 values were also shown to reduce the risk of drain requirement for a period longer than 72 hours in both groups, which is of significant benefit in efficient patient recovery.

In summary, our data illustrates that a higher PPO FEV1 and PPO DLCO are associated with reduced rates of failure to meet ERAS targets. The currently available pulmonary rehabilitation programs have limited applications in the pre-operative phase of the patient journey, and are mostly used in lung volume reduction procedures. The potential extension of these rehabilitation programs to patients undergoing lung resections may help them to achieve better ERAS results, however, there is a limited time window for this to be completed within. The 62 day cancer pathway, in which a patient needs to be staged, fitness checked and treated, leaves a small window of opportunity to improve their lung capacity. Therefore, pulmonary rehabilitation should be initiated at the very start of the patient journey in order to help an enhance the recovery of those who undergo major lung resections.

Outcomes of emergency re-sternotomy on the intensive care unit following cardiac surgery

Ahmed M A Shafi and Wael I Awad Department of Cardiothoracic Surgery, St. Bartholomew’s Hospital, London, UK

Early following cardiac surgery, patients are at increased risk of complications which can lead to clinical haemodynamic instability and cardiac arrest. The specific causes of cardiac arrest, such as tamponade, myocardial ischaemia, tension pneumothorax, or pacing failure are all potentially reversible. The key to the successful resuscitation of cardiac arrest in these patients, usually on the ITU, is the need to perform emergency re-sternotomy early, especially in the context of tamponade or haemorrhage, where external chest compressions may be ineffective.

The aim of this study was to evaluate the outcomes of patients that required emergency re-sternotomy carried out on the ITU following adult cardiac surgery from March 2015 until September 2018 at our tertiary centre, one of the largest in the UK.

During this period a total of 6,570 cardiac operations were performed with only 49 patients undergoing an emergency re-sternotomy on the intensive care unit, representing 0.75% of the total cases. Fifteen patients underwent CABG, 13 underwent CABG plus valve operation, seven had a valve operation and 14 patients had other procedures. Of the 49 (63.3%) patients who underwent elective surgery, 57% of the emergency re-sternotomies were undertaken within 24 hours of arrival to the intensive care. The most common indication for re-sternotomy was a cardiac arrest seen in 29 (59.2%) patients and in this group of patients, there was a 69% mortality. Findings during re-sternotomy were often acute cardiac tamponade or active bleeding. Survival decreased the greater the duration from arrival on ITU to the re-sternotomy (54% survival at <6 hours, 33% survival between 6-24 hours and 17% survival from 24-48 hours). Overall 34.7% (17 out of 49) patients left hospital alive post re-sternotomy and at 1 month only 30.6% (15/49) patients were still alive.

Despite the low incidence of re-sternotomy on the intensive care unit, these patients have poor outcomes. As many patients may potentially be saved by prompt treatment, ITU staff must be well versed in managing cardiac arrest. Practising protocol-based arrest management has been shown to halve the time to chest reopening and reduce complications in the conduct of the re-sternotomy after cardiac surgery. Identifying patient's haemodynamically deteriorating on the ITU prior to a cardiac arrest may allow earlier intervention and possibly improve outcomes.

Specialised aortic and endovascular teams are dedicating efforts to improving the mortality and morbidity of thoracoabdominal aortic aneurysm (TAAA). Rapidly developing technology and strategies include staged procedures, motor evoked potentials monitoring, careful perioperative blood pressure control and cerebrospinal fluid drainage (CSFD). It is thus particularly important to assess advances and estimate the contemporary prevalence of spinal cord ischaemia (SCI) and other complications in TAAA repair, but numbers vary widely in the literature.

Objective

It is difficult to estimate the contemporary prevalence of spinal cord ischaemia (SCI) associated with thoracoabdominal aortic aneurysm (TAAA) surgery since numbers vary widely in the literature. The present review examines data from recently published studies reporting on mortality and morbidity categorised by the Crawford Classification.

Methods

PubMed, Embase, and Cochrane library were searched for eligible studies published between January 2012 and 2017 containing the keywords: aortic repair, open TAAA, spinal cord protection. The papers were evaluated for consistency in defining outcomes and for completeness in reporting major contributors to variance in SCI prevalence.

Results

Out of 36 full-text articles assessed for eligibility 11 were included in qualitative synthesis. In total, we inspected 6,772 patients who underwent open TAAA. Only 4,316 patient (five studies) provided sufficient data for detailed analysis of SCI, mortality and morbidity breakdown depending on Crawford classification. Many papers do not provide a breakdown of SCI and other major outcomes by Crawford type and urgency status. Omitting such papers from a meta-analysis would lead to uncontrolled bias and one cannot expect to obtain enough data by requesting it from the authors. A meta-analysis will thus require sophisticated mathematical modelling and several sensitivity and sub-group analyses for verification. Uniform and high-quality reporting standards are urgently required in the field of TAAA repair.

SCTS CONFERENCE NEWS 10–12 March 2019 31
Conventional – Congenital Abstracts Rutherford Monday 11 March 14:20

Evaluating the effects of superproacaryonic aorta replacement with theRoss procedure on subsequent aortic root dilatation and aortic valve regurgitation

Rechel Stedman*, Aislinn Hanrahan 1 University of Glasgow; 2 Freeman Hospital

I am currently a fourth-year medical student at the University of Glasgow. In October 2018, I undertook a research project for five weeks with the Freeman Hospital in Newcastle with the Adult Congenital Heart Disease Department. Work was produced looking at the Ross procedure with ascending aorta replacement in comparison to the Ross procedure alone. In the future, we hope to re-audit and look in more detail at the outcomes that were found with the current research.

Objectives
The purpose of the study was to find out if patients undergoing the Ross procedure with superparacoronary aorta replacement with a Vascutek graft will have better post-operative outcomes regarding aortic insufficiency and aortic root dilatation as well as the need for reintervention with the neo-aortic root valve in comparison to patients solely undergoing the Ross procedure.

Methods
A retrospective case review of 202 patients undergoing the Ross procedure (Group A) or Ross with Vascutek graft (Group B) between 1997 to 2018 was carried out. Data was analyzed from the Ross database which included demographic information, intraoperative data and echocardiogram data. Thirty-six patients were excluded due to online records being unavailable for analysis, follow-up elsewhere or patients deceased.

Results
Fifty-five patients were children and 147 adults. The primary anatomical diagnosis that was most common was aortic stenosis and isolated aortic valve disease and in the time of operation, the most common finding for valve morphology was a bicuspid valve. Main findings include more re-interventions in Group B, post procedure, higher severity of regurgitation post-procedure for group B in comparison to A however greater severity of regurgitation and stenosis/dilatation at the patient's most recent echo for group A. Group A patients also had a worse group percentage change for severity of regurgitation and stenosis between echos.

Conclusion
The study shows positive outcomes for the Ross procedure with Vascutek graft due to reduced reintervention complications. However, in future it would be of benefit to analyse results separately for adults and children due to the differential anatomy and to re-evaluate the service with the addition of the patient's written notes for extra information. Statistical analysis will also be done in future with this extra information to see if there are positive significant changes regarding post-operative outcomes between the patients who had the Ross procedure and those who had the Ross with superparacoronary aorta replacement.

Adult Cardiac – BHVS Session: Aortic valve Westminster Tuesday 12 March 09:20

Prosthesis-patient mismatch increases early and late mortality in low risk isolated aortic valve replacement: Time for small aortic annulus multidisciplinary team

Wald Emlyntho Senior Cardiac Anaesthetist, Fellow, Papworth Hospital, UK

The concept of prosthesis-patient mismatch (PPM) was first described by Rahimtoola in 1978 as follows: “when the effective prosthesis valve area, after insertion into the patient, is less than that of a normal human valve.” 

The validated criterion to identify PPM is the effective orifice area of the prosthesis indexed to the patient’s body surface area (EOA). There remains considerable discussion regarding the association between PPM and mortality. However, a large body of literature reported such an association especially concerning bicuspid valves. Despite a lack of consensus on the issue, surgeons and valve companies remain concerned about the concept of PPM. In Papworth hospital, we studied the effect of PPM on postoperative and late all-cause mortality of isolated primary AVR in a relatively low risk group of patients who years of age with preserved left ventricular function. Between 2008 and 2018, we operated on 1707 consecutive patients fulfilling the criteria, with mean age 69 (+/- 8) years, 55% females, 50% aortic stenosis, 60% hypertension, 18% diabetes, 17% COPD, 5% prior PCI, 3% CABG, 4% MR, EuroSCORE 5.4 (+/- 1.9) and Logistic EuroSCORE 5.1 (+/- 3.5). Biological valves were implanted in 84% of patients, of whom 30% received a size 19 or 21 valve. Overall in-hospital mortality was 0.8%.

Figure 1

Taking a cut-off point of EOA of 0.85 cm²/m², PPM was present in 96 patients (5.6%). PPM occurred more frequently in females and older patients. In the PPM group, 67.4% received 19 or 21 size valves compared to 23.7% of the PPM patients. The effect of PPM was studied in a univariate analysis. PPM was highly predictive of mortality in (HR: 4.2, 95% CI: 0.055, P=0.005). Ten-year all-cause mortality was 290/1707 (17%). The survival curves separated early and the difference increased significantly for PPM in out to 10 years, with more than two fold increase in relative mortality in the PPM group (57.5%) compared to the No-PPM group (15.9%) (P<0.001). PPM was also significantly predictive of morbidity (median 4 years [2-7] HR: 1.79, 95% CI: 1.27-2.55, P=0.002) [Figure 1], and remained strongly and independently predictive after adjustment for other risk factors (HR: 1.56, 95% CI: 1.09-2.24, P=0.015). We conclude that PPM increases in-hospital mortality and is an independent predictor of late all-cause mortality after primary isolated AVR operations. In the current era with increasing implantation of stented biologic valves, there’s a rising demand for a well-structured system to preoperatively detect small aortic annulus through imaging, predict PPM from EOA reference, discuss in “small aortic annulus multidisciplinary team (MST)” meetings to explore available options to prevent PPM. These include new generation valve designs, mechanical valves with lower target INR, aortic root enlargement, sutureless valves, stentless valves and TAVI, all potentially offering larger EOA.

References

CT Forum (Nurse and AHP) – Quality and Safety Windsor Monday 11 March 16:10

Predicting surgical site infection with the new Barts Surgical Infection Risk (B-SIR) tool

Rosalie Magpie Senior Nurse, ACCU, Barts Heart Centre, St Bartholomew’s Hospital, London, UK

Surgical site infections (SSI) are serious complication after any surgical procedure. The overall incidence for 20% of all the healthcare-associated infections and are considered the second most frequent type of hospital-acquired infection (HAI) in Europe and the United States. SSI affects approximately 3.6% of the patients following cardiac surgery. Without doubt, patients with HAI are among the most vulnerable HAIs, they represent a significant burden in terms of morbidity, mortality and additional costs to health care system. Risk assessment has been recommended to be useful in identifying at-risk populations who may benefit from targeted interventions to reduce this possible complication of cardiac surgery. Several SSI risk stratification tools exist, such as the National Nosocomial Infection Score (NNIS), Australian Clinical Risk Index (ACRI) and Brampton and Harefield Infection Score (BHIS), but that they have several limitations. For example, the NNIS risk index was traditionally used to provide procedure-specific risk-stratified rates to hospitals. It categorises patients according to their infections in terms of American Association of Anaesthetologists (ASA) score, wound type and duration of surgery. Additionally, many of the patients who undergo cardiac surgery, however, have ASA scores greater than three and clean wounds; hence, this index only dichotomised these patients on the basis of the procedure duration. New methods of predicting and stratifying SSI risks in cardiac populations were then developed including ACRI and BHIS. They both have good predictive power in comparison with the NNIS risk index. Both these tools, however, were developed in post coronary artery bypass graft (CABG) patients and it is unclear whether they can be applied to another patients’ group. Further, it has been recognised that risk profile assessment may vary according to each institution’s patient populations. These led to an interest in the development and validation of a new risk tool to improve on existing tools. The development of the B-SIR tool was conducted at Barts Heart Centre using a previously collected existing local data obtained from the National Institute of Cardiovascular Outcomes Research (NICOR), Intensive Care National Audit and Research Centre (ICNARC) and Public Health England from the study. The six independent predictors of SSI were identified in our patients’ cohort, including: gender, increased body mass index, diabetes, peripheral vascular disease, left ventricular ejection fraction <45% and operation type. We also found that the B-SIR tool improves the predictive power for the risk of SSI in the study sample. Figure 1 shows that the area under the Receiver Operating Characteristics (ROC) of the B-SIR tool is more sensitive and specific than those currently available.
Physicians’ assistants (anaesthesia) join cardiothoracic national organ retrieval service

Lorraine Fingleton  Trainee Physicians’ Assistant in Anaesthesia & Donor Care Physiologist, Papworth Hospital NHS Foundation Trust, Cambridge, UK

P roductivity within Royal Papworth Hospital has been steadily increasing throughout the years with the development of new and innovative procedures. Unsurprisingly, the demand for anaesthetic resources has also increased, not only for general anaesthesia but also regional anaesthesia and sedation. With the role of Physicians’ Assistant- Anaesthesia (PAA) well established in general surgery, Royal Papworth Hospital commissioned a pilot initiative designed to assess if the role of PAA could be successfully expanded to reinforce the current medical service for our patients. Continuing to provide the most beneficial and efficient service for our patients.

The successful candidates for this pilot program had extensive experience as either a Senior Band 6 Anaesthetist Nurse or Operating Department Practitioner. They each enrolled in to the full-time, Physicians’ Assistant (Anaesthesia) Postgraduate Diploma course in Birmingham University. This course involved 24 months of distance learning covering modules such as applied physics, anatomy and physiology, fundamentals of general anaesthesia and advanced practice. Weakly tutorials delivered by Consultant and fellow Anaesthetists supported the University modules, whilst teaching on the specialist topics of cardiothoracic surgery and cardiothoracic organ retrieval was supplemented by the surgical team. The PAA-DCP students attended 30 hours per week of clinical placement between Royal Papworth Hospital and a local General Department Hospital to develop their skills and knowledge (table 1) in addition to regular shadowing of Donor Retrievals and Scouts. Further skills such as Transoesophageal Echocardiography & Bronchoscopy were also achieved during the training period.

Having successfully passed their University examinations alongside additional local competencies designed for the specialist area, the trainee PAA currently await University exam board ratification to design for the specialist areas, the trainee PAAs work as independent practitioners undertaking invasive and complex investigations of potential organ donors, enhancing donor optimization and providing donor care support during organ retrieval in trusts around the country.

The aim of creating a unique group of highly trained staff to complement both the anaesthetic and donor retrieval teams has been successful. The combined PAA-DCP presence within this trust has already created increased availability for both anaesthetic and donor care physiologist cover, and therefore provides a valuable service improvement. The trust endeavours to provide ongoing support for the development of the roles to create a strong, reliable PAA and DCP team whilst continuing to provide the most beneficial and efficient service for our patients.

Video Presentation – Video Displays
Exhibition Hall  Monday 11 March

Sasha Stamenkovic  Consultant Thoracic Surgeon, Director of Robotic Surgery, Barts Thorax Centre, St Bartholomew’s Hospital, London, UK

The versatility of the robot to get to the difficult spots of the chest

When a patient has a lung tumour invading two or three ribs only, then the resulting en-bloc lung and chest wall resection could come out using a minimally-invasive approach from the inside-out. The author had already resected a third rib for a metastatic cholangiocarcinoma using a robotic technique (da Vinci Si, Intuitive, Sunnyvale, California) in Newcastle and the bone scalpel (Mikros, Farmingdale, NY, USA), meaning no ankyly or breast trauma would be caused.

Extrapolating this to the lung cancer patient in Barts Thorax Centre, an Xi-robotic stapled division of the lung well medially to the cancer was performed to allow better vision. Then the hook monopolar diathermy was used to score and dissect out the peripheral margins of the chest wall resection. Once the bone has been mobilised, the bone scalpel was deployed to slice through the ribs laterally and medially. The scalpel is water-cooled and oscillates at a speed that only allows bone cutting, streaming like a butter knife, with the intercostal bundle unaffected. The lung was anatomically resected with a totally-endoscopic robotic technique en bloc and was removed in a bag through a slightly enlarged incision.

The chest wall did not need reconstruction as the scalpel provided that protection, but a mesh could have easily have been clipped into place if the defect was more lateral. The patient went on a holiday for three weeks to Malaysia after being discharged on day three and is currently undergoing chemotherapy.

Video Presentation – Video Displays
Exhibition Hall  Monday 11 March

Sasha Stamenkovic  Consultant Thoracic Surgeon, Director of Robotic Surgery, Barts Thorax Centre, St Bartholomew’s Hospital, London, UK

Fig1: Being dissected to evacuate mass behind flk to lower lobe

Robotic resection of the chest wall and lung inside-out allows patient her dream holiday

N eedless to say the patient is delighted that she has had a tiny-hole operation into the parenchyma. It is clearly a very delicate matter operating behind a pulmonary artery, which is cells-thick. The magnification and the gain on the robotic console set at fine meant that within a 5x5 cm visual field we had the best possible conditions to get this mass out without harm to the patient. She left hospital Day 2 but decided to stay and sight-see in London with her husband.

The pathologist had a hard time with this also and eventually had to settle on calling it exactly what it looks like in the video—a very abnormal lymph node. Follow-up CT has not shown any cause for concern. Needless to say the patient is delighted that she has had a tiny-hole operation and did not need any lung removed.

Table 1: Total number of invasive lines inserted by one PAA- DCP student during training

<table>
<thead>
<tr>
<th>Arterial</th>
<th>Central venous</th>
<th>Swan Sheath</th>
<th>Swan Ganz</th>
</tr>
</thead>
<tbody>
<tr>
<td>196</td>
<td>173</td>
<td>83</td>
<td>59</td>
</tr>
</tbody>
</table>

Adult Cardiac – BHVS Session: Aortic valve  Westminster  Tuesday 12 March 09:20
Has TAVI influenced the choice of prosthesis in SAVR?

TAVI is currently an established intervention for aortic valve disease. The recent technical and technological refinements in the field of TAVI have seen an increase in the number of valve-in-valve TAVI (ViV TAVI) being successfully performed. This has led to a new emerging paradigm: should younger patients be offered a biological valve with a subsequent ViV TAVI to avoid both anticoagulation and reoperation?

Our aim was to determine whether TAVI has influenced the choice of surgical prosthesis in patients undergoing surgical AVR. St Bartholomew’s Hospital is both a high volume surgical AVR centre and TAVI implanters in the UK. We are currently the highest TAVI implanters in the country with >300 procedures performed last year alone. From 2004 to 2018, all patients undergoing surgical aortic valve replacements were reviewed. We also looked at the number of TAVI performed at our institution over the same time period. The average age at implantation of both biological and mechanical prostheses were reviewed and compared between the pre-TAVI (2004 – 2010) and TAVI era. A total of 8069 aortic valve replacements were performed. 69.4% (n=5620) had a biological valve implanted. The mean age of patients receiving a biological valve remained above 70 years in both the pre-TAVI and TAVI era. Moreover, the ratio of biological to mechanical prostheses has not increased over the studied time period.

While there have been major improvements in TAVI procedures and outcomes, there are still technical limitations with regards to ViV TAVI. We do not currently advocate choosing a biological prosthesis in younger patients with a subsequent ViV TAVI strategy. Despite the popularity and availability of TAVI at our institution, this has not influenced the choice of SAVR prosthesis.
LVRS: Improvement in lung function and mortality significantly reduced in recent practice

Brianda Ripoll1, Abraham Nash1, Giuseppe Arnes1, Adam Perry1, Jasbir Parmar2, Ravi Mahadevan1, Aman Conner1
1 Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK
2 Northumbria University, Newcastle upon Tyne, UK

There remains debate as to the optimal treatment for patients with emphysema. For example, standard management of emphysema entails smoking cessation, pharmacological treatment with bronchodilators and anti-inflammatory drugs, treatment of exacerbations, supplemental oxygen and rehabilitation. In some patients with emphysema medical therapy has been shown to be inferior to lung volume reduction surgery.

The NETT study reported a mortality of 16.5% at 90 days and from that data we estimated a 19% mortality at one year.

The programme has been based on staged unilateral VATS, enhanced recovery and from 2015 selection has been by MDT with pre-optimisation. VATS techniques and technology have improved.

We were interested in evaluating our performance. Retrospective review was performed on 209 cases that underwent surgery since 1998. Primary outcomes analysed were 30-day, 90-day and one-year mortality rates. Secondary outcomes (pulmonary function, BODE, MMW, MRC, CAT and St. George’s Respiratory Questionnaire) were analysed for pre and post LVRS change in mean. Analysis was done with SPSS.

Compared to the period of 1998-2007, there has been an improvement in the death rate in the period of 2008-2018 of 3.6% at 30 days, 7.2% at 90 days, and 9.1% at 1 year mortality (p<0.05). Our more recent performance is also superior to the NETT investigation.

Compared to baseline, NVEF increased (29.0 ± 10.5 vs 35.8 ± 14.2, respectively, p<0.05) while residual volume (mL) significantly decreased (211.6 ± 45.8 vs 173.6 ± 48.9, respectively, p<0.01) at 3 months post-LVRS. On six minute walk testing, values increased from baseline to post-LVRS in metres (297.2 ± 98.2 vs 323.4 ± 105.8, respectively, p<0.05), while BODE decreased (5.6 ± 2.0 vs 2.9 ± 3.8, respectively, p<0.05).

In summary, in an emphysema population, many with marked frailty, we have demonstrated an improvement in objective patient related outcomes. We have also shown that MDT selection and staged unilateral VATS LVRS with intensive peri-operative management in an experienced centre is relatively safe and effective.

CT Forum (Nurse and AHP) – Research
Windson: Monday 11 March 14:40

Recovery from intensive care unit-acquired weakness following aortic valve surgery

Ashley Thomas
Nurse Lead, Cardiothoracic Critical Care and PhD Student, St Bartholomew’s Hospital, Barts Health NHS Trust, London, UK

Critical illness is an annual event in the UK, and over the last 20 years has dramatically increased leading to a paradigm shift, where the new focus is on recovering from the injurious effects caused by intensive care. Intensive Care Unit Acquired Weakness (ICUAW) is a multifactorial catastrophic process associated with increased patient mortality and morbidity, with patients undergoing elective cardiac surgery losing significant muscle mass (9.6% in the vastus group). Despite the new focus, there remains little evidence on the effects of ICUAW on recovery (including functional ability and health-related quality of life (HRQoL) after cardiac surgery.

Our aim for project VARIANCE is to investigate determinants of recovery from ICUAW and to discover its effects on physical function, strength, and HRQoL post aortic valve replacement (AVR).

Over the last decade, common imaging technologies such as ultrasound (US) have become available. These allow for the assessment of functional ability (Hand and Knee dynamometry, spirometry, fat-free mass index and short physical performance battery) and HRQoL. With the increased use of US, there is a greater understanding of muscle homeostasis and genomics. The collaborative data should allow us to split the patients into those that have recovered well and those that have recovered poorly, understanding potential up-regulated molecules and predisposing factors in the development and recovery of ICUAW. Most of the data will be collected pre-operatively on day 7 or hospital discharge and during the 6-week follow-up clinic.

Participant recruitment began on the 11th of February 2019. However, in the first year, we have refined our ultrasound technique and methodology, ensuring it is reproducible and accurate. We have concluded that 70% from the anterior superior iliac spine to the superior patellar border is optimal for probe placement and therefore RFcsa quantification (Table 1).

As a first-year nursing PhD student, I have experienced challenges while setting up project VARIANCE including; the transition from clinical practice to research, becoming an autonomous worker, effective time management and academic expectations. I have been taught invaluable techniques and strategies to help me overcome these challenges however, such as prioritising tasks based on their urgency, importance and significance to the PhD.

Furthermore, I feel privileged to be one of the few allied health professionals undertaking a research project as part of a PhD programme.

Our research aims to identify determinants of recovery from ICUAW using a subclinical cardiac surgical model. Exciting times lay ahead for us, as we embark on the research, assessing muscle loss, physical function and HRQoL post AVR.

Table 1: Rectus femoris cross sectional area (RFcsa) at progressive distances from 50% – 90% in healthy volunteers measured by ultrasound.

<table>
<thead>
<tr>
<th>Distance AHV to SBR (%)</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFcsa (left)</td>
<td>4.45 ± 1.28</td>
<td>3.92 ± 1.37</td>
<td>2.47 ± 1.25</td>
<td>2.07 ± 1.49</td>
<td>2.46 ± 1.56</td>
</tr>
<tr>
<td>RFcsa (right)</td>
<td>3.56 ± 0.60</td>
<td>2.06 ± 0.60</td>
<td>2.16 ± 0.60</td>
<td>1.56 ± 0.64</td>
<td>1.81 ± 0.64</td>
</tr>
</tbody>
</table>

Conclusion

Service disruption on the cardiovascular wards was minimised.

Hospital stay could be reduced.

Overwhelmingly positive feedback by patients and the healthcare team.

Further fine-tuning may be required to improve the Clinic.

A dedicated multi-professional approach highlighted what has become a fundamental part of our care.

CT Forum (Nurse and AHP) – Thoracic
Windson: Tuesday 12 March 16:00

Dedicated and drain clinic improves patient experience and relieves cardiothoracic wards from significant service disruption

Amy Bradford [United Kingdom], Sarah Melthon, Siren Barnard, Farouk Ojoo, Ali Kindtew
[Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK]

Objectives

A service audit highlighted a high number of discharged cardiothoracic surgical patients attending the ward for wound or drain care. This caused significant service disruption and often long waiting times.

A weekly clinic was set up to address this and investigated with an audit of its performance, together with feedback from patients and staff.

Methods

Prospective data was collected regarding Clinic activity including caseload and types of tasks performed. The amount of chest drains which were removed, potentially saving days of hospital beds was calculated. Additionally patient (21) and staff (40) feedback was sought via questionnaires.

Results

Ward attendances reduced to occasional episodes for urgent problems and patients’ convenience only. The Clinic was used by 191 patients with 376 attendances. Thirty-eight ambulatory chest drains were removed from 3-47 days post discharge, potentially saving 451 days of hospital beds.

Patient and staff feedback was overwhelmingly positive. A high percentage of patients (95.2%) stated they had a very good or good Clinic experience. Additionally, 100% of staff stating that the Clinic is necessary. Although, many staff (52.5%) expressed that further improvement might be possible.
Severe acute kidney injury after cardiac transplantation is a marker of poor early outcome and impacts on late renal function – a UK cohort study

Haemofiltration after lung transplantation is a marker of poor early outcomes but has no deleterious long-term renal effect – a UK cohort study

David Rose, Department of Cardiac Surgery, Lancashire Cardiac Centre, Blackpool Victoria Hospital, Blackpool, UK

In the last decades, several methods for mitral valve repair have been developed, to make the surgical option for mitral valve disease more attractive and to improve the long-term follow-up. Various techniques of chordae implantation and measurement have been described over the years; it is recognised that intraoperative creation of chordal loops can be tedious and adds to operative time.

A new device of pre-measured loops has been introduced by CryoLife and consists in artificial chordae prostheses ready for mitral chordal implantation. We describe our initial experience with this new device.

The pre-measured loop device was used in 30 symptomatic patient with severe mitral regurgitation from November 2012 to December 2013. The mean age (67±10 years); 21 patients were male (70%); four patients had coronary artery disease (13,3%); 12 patients were in sinus rhythm (60%); six patients had tricuspid valve regurgitation (20%); three patients had severe mitral regurgitation from November 2012 to December 2013. TOE at 4-6 months follow-up post-transplant.

We speculated that in this cohort, haemofiltration does not accelerate development of stage 4/5 chronic kidney disease (CKD), but rather increases the number of patients requiring post-transplant haemofiltration to avoid fluid overload. Hence, haemofiltration was started at an earlier stage than would be dictated by renal status alone. In conclusion, post-transplant AKI requiring haemofiltration predicts poor short-term outcomes and has slightly different impacts on long-term renal function in the heart and lung transplant recipients.

Nambita Thomas and Philippa Oram University Hospital North Midlands NHS Foundation Trust

Nebulised 7% hypertonic saline as a mucolytic in cardiothoracic patients

One of the big challenges faced by patients post cardiac transplantation is airway clearance. Poor chest wall compliance could provide unreliable auscultation findings and patients’ subjective feedback. We did not conduct spirometry studies on our patient cohort as we thought that post-surgical pain and poor chest wall compliance could provide unreliable and false results. Although 58.3% patients included in our study tolerated by post-operative cardiothoracic patients. None of the patients showed adverse respiratory events following the first dose and continued nebulised 7% HTS was well tolerated by post-operative cardiothoracic patients. None of the patients showed adverse respiratory events following the first dose and continued

Namita Thomas and Philippa Oram University Hospital North Midlands NHS Foundation Trust
Quality outcome measures for single port VATS resection of non-small cell lung cancer

Harvey George, Hannah Giacone, Emily Hockings, Jagan Rao, Laura Seco, Sara Tanevski, David Hopkinskin, John Edwardson
• University of Sheffield, UK; Northern General Hospital

In this case example, a 72-year-old female presented with a 3-month history of breathlessness on exertion, tachyarrhythmias, pulmonary hypertension and evidence of right ventricular dysfunction. This defect can lead to left to right pulmonary venous drainage of the right superior pulmonary vein. They are commonly associated with partial anomalous pulmonary venous drainage from the right side of the heart, with a high incidence of congenital heart disease and aortic dissection or rupture. A cut-off value for the indexed aortic area at the sino-tubular junction of 9.26 cm² was identified, translating into a relative risk of acute type A aortic dissection of 1.92.

Finally, we studied the influence of the IAA on the natural history of thoracic aortic aneurysms in 399 patients with non-intervened thoracic aortic aneurysms at a median follow-up of 3.5 years. 45 (11.3%) patients died, 44 of cardiac causes. Using backward stepwise multivariate logistic regression analysis, IAA at the sino-tubular junction wasl a predictor of acute type A aortic dissection. A cut-off value for the indexed aortic area at the sino-tubular junction of 9.26 cm² was identified, translating into a relative risk of acute type A aortic dissection of 1.92.

Benefits to patient
In minimally invasive access surgery both bypass and clamp times can be longer in comparison with a median sternotomy approach (bypass time 171 minutes, EndoClamp® time 60 minutes in this example). However, the advantages include less postoperative bleeding, shorter hospital stay, excellent cosmetic results, less wound infections and reduced levels of postoperative pain. This patient was discharged home on day 4 with little evidence on examination to suggest that she had undergone heart surgery. Her follow-up ECG showed no evidence of sinusoidal node dysfunction and the TTE demonstrated a satisfactory repair. Furthermore, there was no evidence of superior vena cava or pulmonary venous obstruction which are known complications associated with SVASD repair.

Benefits to trainee
Through careful prospective planning with the aid of echo and CT imaging you can appreciate the rigorous selection criteria which must be met before accepting a patient for minimally invasive repair. Minimally invasive repair of SVASD is a safe and successful procedure in carefully selected patients. As a trainee, my exposure to minimally invasive surgery has allowed me to discover an entirely unique way of operating. The use of 3D cameras provides a fantastic surgical view of pathology which is often not appreciated via conventional sternotomy for intra-atrial procedures. In addition, this has benefits for the entire theatre team who can become more involved in the procedure as they can directly visualise on-screen each stage of the operation.

Furthermore, utilizing patient approved video recording provides an excellent platform for surgical training, an opportunity where trainees can review each surgical decision in retrospect with their trainers.

Sinus venosus atrial septal defect repair with minimally invasive cardiac surgery

Mike Charlaine Tennyson
Blackpool Victoria Hospital, Blackpool, UK

Sinus venosus atrial septal defects (SVASD) account for between 4-11% of all atrial defects. When there is a malformation of the interatrial septum separating the venae cavae from the right side of the heart, the right atrial appendage is associated with partial anomalous pulmonary venous drainage from the right superior pulmonary vein. This defect can lead to left to right shunting and associated symptoms of breathlessness on exertion, tachyarrhythmias, pulmonary hypertension and evidence of right ventricular dysfunction. In this case example, a 72-year-old female presented for repair of a sinus venosus ASD. A transthoracic echocardiogram (TTE) was performed and showed a small right atrial appendage with left to right shunt. Her right ventricular systolic pressure was 40 mmHg.

Operative approach
In terms of operative approach for ASD repairs, the median sternotomy with atrialcardial bypass (CPB) is the most common incision performed.

Postoperative image of patient – demonstrating scars from minimal access surgery

Sinus venosus atrial septal defect repair with minimally invasive cardiac surgery

As a trainee, my exposure to minimally invasive surgery has allowed me to discover an entirely unique way of operating. The use of 3D cameras provides a fantastic surgical view of pathology which is often not appreciated via conventional sternotomy for intra-atrial procedures. In addition, this has benefits for the entire theatre team who can become more involved in the procedure as they can directly visualise on-screen each stage of the operation.

Furthermore, utilizing patient approved video recording provides an excellent platform for surgical training, an opportunity where trainees can review each surgical decision in retrospect with their trainers.

Adult Cardiac – Aortic Dissection
Abby: Monday 11 March 09:20

Cross-sectional aortic area / patient height ratio in thoracic aortic aneurysms: An additional predictor of complications

Melash Acharya, Onwando Valentine, Malee Tame, Robert Morgan, Macjan Jahnagen
St George’s Hospital, London

Current interventional guidelines published by the European Society of Cardiology in 2014 and American Heart Association in 2016 recommend prophylactic aortic root or aortic arch replacement at aortic diameters of 4.5–5.5 cm in non-aortopathy populations. However, 40% of type A aortic dissection occur at aortic diameters <5 cm, at which size 15% of patients with Marfan syndrome have undergone dissection or rupture. Looking beyond absolute aortic diameter as a surrogate marker for aortic complication risk, Svensson and colleagues proposed the aortic cross-sectional areapatient height ratio, which demonstrates significant prognostic value at the aortic root and ascending aortic level. Indexed aortic area (IAA) >10 cm²/m is associated with an increased risk of aortic complications.

We firstly analysed the IAA between the aortic root and mid-ascending aorta in 66 patients with acute type A aortic dissection and 107 patients with thoracic aortic aneurysms between 2010-2016 at St. George’s Hospital, London. All dissections occurred at mean diameters of 4.46 cm. In the aneurysm group, 56.7% of patients had an abnormal IAA at the mid-ascending aorta, and 39.6% at the mid-sinus of Valsalva. 49.1% of thoracic aneurysms measuring 4.5-5.0 cm had an IAA >10 cm²/m, rising to 98.5% at diameters of 5.0-5.5 cm. Out of the entire cohort of 200 aortic segments with an abnormal IAA exceeding 10 cm²/m, 139 aortic segments (69.5%) with diameters >5.5 cm would not fulfll the current criteria for aortic surgical intervention, despite being subject to increased risks of complications.

Next, we assessed the predictability of adverse aortic events using IAA.
Impact of diabetes on long-term outcomes following coronary artery bypass surgery

Umar Imran Hasami, Georgios Sotiropoulos, Adelina Dan, Manuel Pietzat, Giuseppe Sinicichi, Wearl Award
St Bartholomew’s Hospital, London, UK

The prevalence of diabetes in patients presenting for coronary artery bypass graft surgery (CABG) continues to rise. EuroScore II predicts operative mortality with increasing weight for greater degrees of systolic dysfunction. The aim of this study was to evaluate the impact of diabetes on long-term survival. Data of patients undergoing CABG in our centre over a two-year period, between January 2006 and December 2007. Patient characteristics undergoing CABG, at a single cardiac centre.

Insulin-dependent diabetic patients undergoing cardiac surgery in our centre over 3 years, actuarial survival in patients with good LV function was 86.4% (338/391), with moderately impaired LV function was 85.7% (197/230) and with poor LV function was 77.7% (51/66). Actuarial survival in patients with diabetes was 84.1% (p<0.001). At 5 years, actuarial survival in patients with good LV function was 77% and p<0.001). At 10 years, the 5-year survival in the ND group was 60.9% (140/230) and with poor LV function was 69.8% (233/331), with moderately impaired LV function was 60.9% (140/230) and with poor LV function was 31.4% (161/510) (p<0.001) (Figure 1).

Conclusions

Insulin-dependent diabetic patients experience worse early and long-term survival following CABG. Non-insulin-dependent diabetic patients appear to have similar long-term survival to non-diabetic patients.
EQ-5D-5L for critical care receiving rehabilitation

Tanya Usher (CU & Clinical Lead BND Cardiac Respiratory Therapy Team, Barts Health NHS Trust, London, UK)

The self-reported EQ-5D-5L questionnaire is a popular Quality of Life (QoL) measure in the inpatient environment and is easy to complete. It has been used within the critical care environment1 and been linked with economic considerations of intervention2. AHPs into Action (2017) states AHPs should evaluate improve and evidence the impact of their contribution. In this day and age of challenging NHS funding, therapists must be able to prove their worth to commissioners, and demonstrate the cost impact of interventions both from a clinical and economical perspective. The aim of this study was to assess the outcomes using the EQ-5D-5L for post-critical care patients in order to implement a functional assessment for patients after critical care in accordance with NICE CG83 guidelines.

Patients who received rehabilitation on critical care for over 48 hours and subsequently discharged home were included. Assessments were completed at discharge, six-weeks and three-months follow-up via telephone call. Those referred to a local hospital or following an integrated care pathway were excluded.

Fourteen patients were included in the study. There was a generalised trend of improvement in QoL and overall perception of individual health states with time. At discharge, all functional and non-functional domains highlighted perceptions spanning from ‘No Problems’ or ‘Slight Problems’ to ‘Severe’ and ‘Extreme Problems’. Subsequently, at six-weeks follow-up, extreme problems were not expressed, with the leastfavoured response being ‘Slight problems’ in the EQ-5D Domain ‘Usual Activities’. After three-months, the Domain ‘Usual activities’ again demonstrated the least favourable results with ‘Moderate Problems’. At this point, all physical and non-physical domains had respondents that felt they had ‘No Problems’. Thus, ‘Usual Activities’ may represent an area of focus for future rehabilitation needs.

Limitations included:
- a small sample size, and
- a reduced data collection period meaning linear data could not be collated. However, the EQ-5D-5L is easy to complete and implement with appropriate organisation of follow-up assessments. Established critical care follow-up clinics could facilitate 6-week and three-month data collection by sending EQ-5D-5L questionnaires with the appointment letter to minimise the time taken to make phone calls to the discharged patients and therefore clinician time. Furthermore, domains requiring further rehabilitation could be identified, this study revealed ‘usual activities’ to have the least favourable perceptions at each time-frame. Attention on rehabilitation goals related to usual activities could therefore be the focus of the rehabilitation team covering this patient population in the future.

Further data collection is required to generate linear relationships between interventions. Once established this also could be extrapolated to consider Quality Adjusted Life Years and cost-benefit analysis.


Patient Reported Quality of life is becoming one of the main outcomes for healthcare professionals. It can be used to assess the impact of current practice, and inform the planning of future services. However, there is a lack of evidence on the impact of rehabilitation on critical care on patient-reported outcomes. This study aimed to evaluate the impact of rehabilitation on critical care on patient-reported outcomes, using the EQ-5D-5L.

RESULTS

- 14 patients were included in the study.
- There was a generalised trend of improvement in QoL and overall perception of individual health states with time.
- At discharge, all functional and non-functional domains highlighted perceptions spanning from ‘No Problems’ or ‘Slight Problems’ to ‘Severe’ and ‘Extreme Problems’.
- Subsequently, at six-weeks follow-up, extreme problems were not expressed, with the leastfavoured response being ‘Slight problems’ in the EQ-5D Domain ‘Usual Activities’.
- After three-months, the Domain ‘Usual activities’ again demonstrated the least favourable results with ‘Moderate Problems’.

DISCUSSION

- ‘Usual Activities’ may represent an area of focus for future rehabilitation needs.
- Limitations included a small sample size and a reduced data collection period meaning linear data could not be collated.
- However, the EQ-5D-5L is easy to complete and implement with appropriate organisation of follow-up assessments.
- Established critical care follow-up clinics could facilitate 6-week and three-month data collection by sending EQ-5D-5L questionnaires with the appointment letter to minimise the time taken to make phone calls to the discharged patients.

CONCLUSIONS

- Rehabilitation on critical care has an impact on patient-reported outcomes.
- Further data collection is required to generate linear relationships between interventions.

References

Are the outcomes from Valve Sparing Root Replacement more favourable than the Bentall procedure in proximal aneurysms? A meta-analysis

A retrospective review of a prospectively collected database of all RATS cases completed since the establishment of the program in December 2017 was conducted. This database included information on operative procedure, duration of operation, blood loss, chest drain duration, and length of stay. Individual patient electronic records were reviewed for data regarding final pathological stage.

There were 50 RATS cases completed over the first 10 months of the program (December 2017 to October 2018). 12 lobectomies, 12 resections of mediastinal masses, and five other procedures (wedge resections, mediastinal lymph node sampling, and bullectomy / pleurectomy). Cases were undertaken on an all-comers basis. Amongst the lobectomy group, the blood loss was predominantly < 10 ml (< 10 ml – 900 ml) versus the mean chest drain duration of two days (0 – 10 days). Final histopathology was predominantly NSCLC, ranging from pT1aN0 to pT2/3N0 with two cases of occult N2 disease. The median length of stay was three days (1 – 9 days). Amongst the mediastinal group, the mean chest drain duration was < 1 day (0 – 1 day) and median length of stay was 1 day (1 – 4 days). Overall, operative times were expectedly longer and there were no conversions to VATS or open. Pain has been reduced for most patients.

These results demonstrated the safe establishment of a RATS program for three thoracic surgeons at a high-volume thoracic unit. The operative times are longer than VATS and there is an expected learning curve, however patients are doing well. Mr Wistyley concluded that “overall, our results would support the introduction of a team-based robotic assisted thoracic surgical program”.

Robotic assisted thoracic surgery – establishing a programme and lessons learned

Jacovos Theodosiou, M. Yousef Salmaa1, Phryanka Iyer1, Mohaiamn Al-Zubaidi2, Daniel Nayyar2, Mohammed Emekbi1, Angur Ch1, Thanos Athanasiou1

1 King College London, 2 Imperial College London; 3 St Bartholomew’s Hospital

Background
The debate surrounding the optimum choice of surgical approach in patients with aortic root pathology is ongoing and despite mounting evidence favouring the preservation of the aortic valve, rates of valve sparing root replacement (VSRR) continue to remain stubbornly lower than Bentall. Valvular preservation in VSRR is certainly more challenging and reports of most large series emerge only from specialist centres. However, the benefits in preserving the native valve are often underestimated. Averting the risks of both thromboembolism and anticoagulation associated with mechanical valves, and the risks of structural valve degeneration associated with bioprosthetic valves, may deem VSRR more favourable in many patient groups.

There are many studies comparing outcomes in aortic root procedures, however heterogeneity in patient groups (Marfans, bicuspid pathology, acute dissection) and operative techniques (mechanical vs. bio-Bentall, Yacoub vs. Davi) are present.Whilst there have been several reviews on this topic, our group set out to conduct the largest meta-analysis in the field with multiple subgroup and meta-regression analyses to account for heterogeneity.

Main findings
Initial search yielded 9,517 titles. Thirty-four studies were finally included for meta-analysis, comprising 7,313 patients (2,944 valve sparing and 4,369 Bentall). Operative mortality was found to be significantly lower in the VSRR group (OR 0.51, 95% CI 0.37 – 0.70, p=0.011). Five-year survival was also more favourable in the VSRR group (OR 1.93 95% CI 1.15 – 3.23, p=0.05). Significantly lower rates of both thromboembolism and stroke were also found after VSRR. There was no significant difference in rates of reoperation between groups at long-term follow-up (OR 1.32, 95% CI 0.75 – 2.33, p=0.336). Meta-regression of patient factors (age, gender, AR severity, valve morphology) and operative covariates yielded no influence on the main outcomes.

Discussion
Our current analysis found that VSRR results in significantly lower operative mortality and higher five-year survival compared to Bentall. This was observed despite longer cross clamp and bypass time, required in the VSR group which reflects the technical demand of the procedure and upon subgroup analysis of studies focusing on acute dissection, highlighting the efficacy of VSRR in the emergency setting. Although there was moderate heterogeneity present in these analyses, meta-regression analysis found that important and relevant covariates were found to have no significant influence on the positive survival profile affected by VSRR compared to Bentall. Also, no difference was observed in reoperation rates between VSRR and Bentall. Despite the expected heterogeneity present within our selection of retrospective studies, meta-regression found that neither age, bicuspid valve morphology, the use of biological valve conduits nor the severity of pre-operative AR, had any significant influence on the reoperation outcome reported.

The main limitation levelled against studies comparing VSRR with Bentall: are patients from one group comparable with the other group? It may be argued that the patient substrate is the main influence for a poorer outcome in the Bentall group, where valve morphology is either non-favourable for repair or irrelevant if the decision native valve sacrifice has already been made by the surgeon. Hence there is limited evidence to suggest that irreparable valves that are replaced have poorer outcomes compared to reparable valves that are replaced, i.e. once the decision to sacrifice the native valve is made, comparing prosthesis performance with the performance of native valve repair in another patient is a valid comparison.

Nevertheless, robust data from prospective randomised studies are lacking. Such studies are required to inform guidelines and consensus statements. Future studies would also need to control for valve separability and non-biased selection of valve morphology per treatment group. Prospective, randomized, clinical trials would be necessary in the incorporated retrospective studies, work on the notion that the outcomes of the two procedures should be compared, and help to inform the thoracic surgery community that the efforts to pursue VSRR as a first-line option for patients with root aneurysms are worth pursuing.
To multi-modality and beyond: a new model for risk rupture prediction in ascending aortic aneurysms

Yousuf Salimani, Omar Jarrai, Selene Pirlola, Thamos Athanassiou

Disclosure: This work is supported by the NHIR Imperial College BRC

Guidelines for the management of proximal thoracic aortic aneurysms (TAAs) are limited to size criteria only, and our understanding of which aneurysms are more vulnerable to suffer from acute dissection is very limited. What are the better diagnostic methods we can use to answer this important question? Most clinical studies tend to be anecdotal, poorly controlled and lack the scientific backing to make ground-breaking conclusions that may change clinical practice.

Biomechanics

The aorta is a strong elastic structure that acts as an important blood conduit, balancing the cycles of systolic and diastolic pressures, via complex flow patterns. Biomechanically, the aortic tissue fails when the forces exceed the strength of the aortic wall, leading to the clinical manifestations of aortic dissection. Studies have only just started to analyse these complex patterns by coupling in vivo measurements of blood flow patterns gathered from 4D flow MRI, with aortic tissue mechanical properties from explanted aneurysms (subjected to tensile strength and failure testing).

Vascular biology

As well as biomechanics, we have had a considerable rise in our understanding of syndromic and non-syndromic genetic mutations associated with hereditary causes of TAA disease. These studies have been coupled with histological analysis that have identified intracellular and matrix proteins associated with genetic defects associated with TAA and aortic dissection. While we understand that gene-expression and aortic phenotype can adapt in response to shear flow in the aortic lumen, studies have not associated aortic biomechanics with these intra- and extra-cellular pathways, nor have we used these mechanisms to create diagnostic indicators for TAA behaviour.

Our project

The work being undertaken at Imperial College is unique in that it addresses this multi-dimensional problem with a multi-modal model. We are recruiting patients undergoing proximal TAA surgical replacement (root or 2 ascending) and subject them to the following:

- Pre-operative 4D flow MRI scan. Using computational fluid dynamics and direct measurements from 4D flow images, patient-specific blood-flow profiles are generated.
- Pre-operative blood for targeted genomic testing metabolomics. As well as identify commonly associated genes with TAA, we hope to identify metabolic phenotypes that can potentially act as biomarkers of vulnerable TAs.
- Explanted aneurysm tissue from theatre. This is subjected to regional tensile strength and failure testing. This is coupled with the aforementioned haemodynamic parameters to generate a finite element model to simulate aortic wall biomechanics and predict aortic wall rupture.
- Aneurysm tissue is also analysed histologically using computational pathology methods.

Our project's central focus is to bring together advanced imaging technologies with tissue biomechanics, genomics, metabolomics and computational modelling.

The research of this type requires infrastructure, and this is what we have spent the last 12 months achieving. The team comprises several senior professors in clinical and scientific fields, as well as clinical researchers, nurses and fellows. In collaboration with Imperial College Chemical Engineering, Bioengineering, Clinical Genetics and Genomics (Brompton), the National Phenome Centre and Cardiac Histopathology, we have created an efficient workflow where patient recruitment, sample collection, laboratory processing and data analysis are entirely streamlined. Moreover, there are four cardiac centres and more than 10 surgeons around London involved in the project, which ensures adequate patient recruitment and aortic tissue acquisition; a factor which has not been present in other international studies of a similar nature.

Preliminary results and future implications

To date, we have recruited more than half the patient target (35/60) and initial results highlight the following:

- Anatomical areas in the aorta of elevated WSS correlate with reduced aortic wall strength and aortic medial degeneration (histology).
- Genetic mutations are associated with levels of higher WSS in the aortic root.
- We expect to demonstrate a significant association between blood flow and aortic wall biomarkers in the coming months, thus generating a risk rupture prediction algorithm aimed at risk-stratifying patients with TAA disease. Our project’s central focus is to transform the MDT process for patients at risk of a dissection. With the current preliminary results, we expect this work to provide clinicians with an improved risk stratification system and a stronger evidence base for clinical decision making. Current aortic guidelines are inadequate at providing the high level of clinical acumen that surgeons desire, and patients need. Relying solely on aneurysm size will soon become a thing of the past following the introduction of novel technologies and biomarkers in the clinical setting, which is a central goal of this project.

Acknowledgements:

Surgeons: Prof A Oo & Prof R Uppal (Barts), Prof J Pepper, Mr U Rosendahl & Mr G Ailsamopoulos (Brompton), Mr S Raja & Mr F De Roberts (Harefield), Prof Y Xu (Chemical Engineering), Prof J Moore Jr (Bioengineering), Dr D Morris-Rosendahl (Clinical Genetics and Genomics), Dr J L Roberts (Cardiac Histopathology), Dr D O’Regan (Cardiac MR), Dr Matthew Lewis (Metabolomics)

Are UK emergency departments diagnosing and referring acute aortic dissection correctly? results of a UK national survey

Phil Hartley, M. Yousuf Salimani, Omar Jarrai, Kamran Baig, Roberts Casula, George Ailsamopoulos, Aung Oo, John Pepper*, Thamos Athanassiou†, Imperial College London; St Thomas’s Hospital, Royal Brompton Hospital, St Bartholomew’s Hospital

Background:

According to the global burden of disease project, death from thoracic aortic aneurysms is on the rise. This is mainly from its life-threatening complication, type A aortic dissection (TAAD). Following a dissection, patients have approximately a 1.5% mortality per hour in the first 48 hours. Expedited transfer to a cardiothoracic centre for urgent surgery is therefore critical in the management of these patients. However, TAAD can be a diagnostic conundrum for the following reasons:

- Patients have variable signs and symptoms
- Conditions common to emergency conditions such as (e.g. stroke, myocardial infarction – MI)
- Up to 50% of TAAD can present with ST elevation and troponin positivity
- The risk of misdiagnosing TAAD has been reported in the literature and can often be associated with worsened outcome, especially in cases of thrombolysis administration.

In an era of increased public engagement and outcome reporting healthcare, the role of emergency departments (EDs) in the UK has been vital in the role of timely diagnosis since early presentation of TAAD is ever more important. The aim of this research was to assess the variability in practice amongst ED clinicians in TAAD management across the UK and whether prediction of misdiagnosis exist within these departments.

Methods:

Between April 2018 and October 2018 an online research survey was distributed to Emergency Department Consultants across the UK. The survey included a mixture of clinical questions assessing the way in which ED physicians would treat patients with symptoms, or investigation results which may, or may not, be consistent with TAAD, as well as factorial questions about their department.

Results:

Responses from 129 ED Consultants responded from 54 different NHS Trusts were gathered.

A fifth of responses were received from tertiary centres. The majority of ED consultants (97.4%) considered ST elevation in the setting of chest pain as sufficient for diagnosing STEMI. Furthermore, committing to STEMI by the administration of thrombolytic (prior to further investigation) was agreed by 54% of consultants. The response however, changed with the addition of unilateral pulse deficit in the patient signs (89.6% would not give thrombolysis) and signs of a cerebrovascular accident (92.0%).

Most ED consultants responded that D-dimer measurement was not useful if the troponin was elevated in chest pain (50.8%). In the same setting, 27.8% of respondents would never request a CT chest.

More than 70% described that an algorithm for TAAD diagnosis and management did not exist in the ED. More than half (55.8%) had no named cardiothoracic consultant for referral and 71.3% claimed no information on contact numbers for tertiary referral. Using logistic regression, we found that all these factors had a significant impact on the likelihood for clinicians send patients to the CT scanner or considering D-dimer as a useful tool.

Conclusion

How much do EDs Thinking Aorta? This survey has highlighted that a large gap remains in the infrastructure of UK emergency departments in their ability to appropriately diagnose and manage TAAD. TAAD presenting with ST changes is significantly more likely to be incorrectly managed as ACS than dissection presenting with features of CVA or unilateral pulse deficit. Additionally patients presenting with elevated cardiac enzymes, in the context of aortic dissection, are at significant risk of not receiving the imaging required to make the diagnosis. These results indicate aortic dissection presenting with features of ACS are at particularly high risk of inappropriate ACS management and/or insufficient investigation to make the diagnosis of TAAD. Further education with AD risk detection scores, “triple rule-out” methods and an improved index of suspicion is needed. In cases of diagnostic uncertainty, D-dimer and echocardiography should be encouraged.

Are UK emergency departments diagnosing and referring acute aortic dissection correctly? results of a UK national survey

Adult Cardio – Aortic Root

Abbey Monday 11 March 15:40

Adult Cardiac – Aortic Dissection

Abbey Monday 11 March 09:00

Left to right: Yousuf Salimani (ST4, research fellow), Omar Jarrai (ST7, post-doc), Selene Pirlola (Bioengineer)
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Floor plan

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**ENTRANCE**
Annuloplasty for aortic valve repair: A practical approach
27-29 March, Paris, France

Thoracic Surgery: Part I
4-6 April, Windsor, UK

Endoscopic Port-Access Mitral Valve Repair Drylab Training
29-30 April, Maastricht, The Netherlands

Video-Assisted Thoracoscopic Surgery (VATS)
16-17 May, Berlin, Germany

Fundamentals in Cardiac Surgery: Part II
3-7 June, Windsor, UK

EACTS Aortic Valve Repair Summit
20-21 June, Brussels, Belgium

Minimally Invasive Techniques in Adult Cardiac Surgery
27-28 June, Frankfurt, Germany

Endoscopic Port-Access Mitral Valve Repair Drylab Training
2-3 September, Maastricht, The Netherlands

Thoracic Surgery: Part II
5-7 September, Berlin, Germany

Reconstruction of the Aortic Valve and Root: A practical approach
18-20 September, Homburg Saar, Germany

Fundamentals in Cardiac Surgery: Part III
21-25 October, Windsor, UK

4th EACTS Mechanical Circulatory Support Summit
7-9 November, Prague, Czech Republic

Congenital Heart Disease
12-15 November, Windsor, UK

Thoracic Surgery: Part III
28-30 November, Porto, Portugal

For the full EACTS Academy calendar, visit www.eacts.org/educational-events

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