VC > 0.5 cm;
PISA > 0.9 cm but continuous wave of MR jet not done;
Large (> 6 cm) holosystolic jet wrapping around left atrium;
Peak E wave velocity > 150 cm/s.

Results MR was observed in 294/1000 patients (29.4%) post-MI, graded as mild (76%), moderate (21%) and severe (3%).

Based on MR characteristics alone (not including LVEF), the number of patients fulfilling MITRA-FR and COAPT eligibility criteria were 23 (7.8% of all IMR) and 24 (8.1% of all IMR) respectively. Both groups had a similar ratio of moderate/severe MR (74.26% vs 75.25%), EROA (0.34 +/-0.13 cm² vs 0.35 +/-0.13 cm²), VC (0.6 +/-0.2 cm vs 0.6 +/-0.2 cm), RVol (52 +/-24 ml vs 51 +/-25 ml), indexed LA volume (LAVi) (54 +/-20 ml/m² vs 51 +/-20 ml/m²), indexed LV end-diastolic volume (LVEDVi) (62 +/-17 ml/m² vs 63 +/-18 ml/m²), LVEF (48 +/-13% vs 47 +/-13%) and mortality (MITRA-FR: 23% vs COAPT: 29%, p=0.9243).

After including LVEF as a criterion, the number of patients eligible for MITRA-FR and COAPT were just 5 (1.7% of all IMR) and 14 (4.7% of all IMR) respectively. As expected, COAPT patients had a higher mean LVEF (MITRA-FR: 33% vs COAPT: 40%; p=0.077). Both groups remained similar with respect to ratio of moderate/severe MR (60.40% vs 64.36%), EROA (0.40 +/-0.13 vs 0.38 +/-0.15 cm²), VC (0.6 +/-0.2 cm vs 0.6 +/-0.2 cm), LAVi (56 +/-20 ml/m² vs 50 +/-19 ml/m²), LVEDVi (69 +/-25 ml/m² vs 67 +/-19 ml/m²) and mortality (MITRA-FR: 40% vs COAPT: 35%).

Conclusion

- Post-acute MI, more patients with IMR met COAPT criteria (4.7%) than MITRA-FR echocardiographic criteria (1.7%) however both cohorts had similarly high mortality.
- Notwithstanding the difference in LVEF, MITRA-FR and COAPT echo criteria identified almost identical cohorts post-MI.

Conflict of Interest None

16 MANAGEMENT OF TRICUSPID VALVE REGURGITATION IN CONGENITAL HEART DISEASE: A SINGLE CENTRE EXPERIENCE

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Background Congenital anomalies of the tricuspid valve (TV), pose significant management challenges; when to intervene, what type of repair should be performed and when is TV replacement preferable. This observational study documents outcomes following TV repair versus replacement in a single centre.

Methods A total of 73 patients underwent tricuspid valve surgery in our centre from January 2014 to November 2019. Patients with primary left heart lesions, AVSD repair or systemic right ventricle (RV) were excluded. The final study population included 57 patients. Ebstein anomaly was present in 16 patients (28%) and previous Tetralogy of Fallot repair in 12 patients (21%). Echocardiographic assessment of the degree of TV regurgitation pre and post-surgery and degree of RV dysfunction, was visually performed by a single operator accredited in congenital echocardiography (SC).

Results TV replacement was performed in 12 patients (21%) and TV repair in 45 patients (79%). One patient with Ebstein anomaly initially underwent TV repair but required TV replacement one year later. The mean age was 46 ± 13.5 years in patients undergoing replacement and 33 ± 14 year in patient undergoing TV repair (p= 0.0081). The mean body mass index (BMI) in the TV replacement group was 29.9 ± 4.9 vs 23.8 ± 4 in the repair group (p=0.0037). Overall 30-day mortality was 1.7% due to the death of a patient with severe Ebstein anomaly undergoing TV replacement who died on ECMO two weeks post-operatively.

Most patients (91%) who underwent TV replacement had a degree of RV impairment pre-operatively compared to the 29% of patients undergoing TV repair. All the patients with severe RV dysfunction post TV replacement had at least moderate RV dysfunction pre-operatively. Severe TR was present in 8 (66%) of the patients undergoing TV replacement and 20 (45%) who underwent TV repair. Three patients (25%) post TV replacement required re-admission for signs of RV failure compared to 1 (2%) in the TV repair group.

Discussion Our data, in line with previous series, suggest patients undergoing TV repair have better outcomes compared to TV replacement, with lower mortality and re-admission with RV failure. Patients undergoing TV replacement were significantly older with higher body mass index than patients undergoing TV repair. It is likely these factors influenced decision making; greater peri-operative risk is associated with prolonged bypass time; bypass time is generally prolonged in TV repair relative to replacement. Older patients with raised body mass index may have been deemed too high peri-operative risk to undergo repair.

Alternatively, it may be that delaying intervention in TV disease technically makes repair more challenging. This poses the questions whether outcomes would be better if intervention were performed earlier in TV disease and if we focused on optimising patients’ pre-operative fitness prior to surgery.

We recognise this observational, retrospective study with small sample size has its limitation. A more reliable assessment of the RV function through TDI and TAPSE would be preferable together with a larger study population to validate these findings.

Conclusions Patients outcomes were better following TV repair compare to replacement. Patients who underwent TV replacement tended to be older and with higher BMI posing the questions whether we should intervene earlier and optimise patients’ fitness prior to surgery.

Conflict of Interest None

17 REAL-WORLD EXPERIENCE AND OUTCOMES AFTER DEVICE-LED PATENT FORAMEN OVALE CLOSURE

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Aims A patent foramen ovale (PFO) is a common defect that affects up to 34% of the population. Recent evidence has emerged supporting PFO closure in the event of cryptogenic ischaemic stroke, transient ischaemic attack (TIA), systemic...
embolism and migraine. We aimed to report real-world experience and outcomes for all consecutive patients that had PFO closure in our hospital between March 2009 and October 2019.

Methods We retrospectively analysed baseline clinical characteristics, indications for PFO closure, procedural characteristics and long-term clinical follow-up using our dedicated hospital database and Northern Ireland Electronic Care Record.

Results PFO closure was performed in 133 patients between March 2009 and October 2019. 59 (44%) of cases were performed between 2009-2016 with 74 (56%) cases performed between 2017-2019, coinciding with the publication of supporting randomized control trials. The mean patient age was 43 ±15 years and 69 (52%) patients were female. 16 (12.1%) of patients had a history of systemic hypertension, 4 (3%) diabetes mellitus and 35 (26%) had a smoking history. Only one patient had a thrombophilia diagnosis.

Cerebrovascular events including ischaemic stroke and TIAs were the leading indication for PFO closure in 123 (92.5%) cases. Systemic embolism, platypnea-orthodeoxia syndrome and decompressive illness were the indications in 4 (3%), 2 (1.5%) and 1(0.75%) case(s), respectively. ‘Other’ indications made up the remaining 3 patients.

The majority of procedures were performed under general anaesthetic (GA) in 129 (97%) cases. All cases were performed using trans-oesophageal echocardiography guidance. The mean procedure time was 38 ± 23 minutes and the mean size of percutaneous device used was 25mm. Gore (52%) and Amplatzer (35%) septal occluders were the most commonly used devices.

There were no procedural deaths. Cardiac tamponade, major vascular injury, pulmonary embolism and/or device embolism did not occur in any patient. Only one patient had a new arrhythmia (atrial fibrillation (AF)) during the periprocedural period. The median length of stay was 1 day.

Antithrombotic data at discharge was available for 129 (97%) patients. The main antithrombotic strategy adopted was dual antiplatelets in 112 (87%) cases, single antiplatelet in 10 (8%) cases and oral anticoagulation +/- a single antiplatelet made up the remainder of cases, respectively. No patients were readmitted to hospital for bleeding events on interrogation of NIECR.

The median follow-up duration after PFO closure was 31 months (range 2-143 months). 3 patients suffered a recurrent neurological event during follow-up, giving an event rate of 0.6/100 patient-years (PY). Infective endocarditis was not observed for any patients. 5 (3.8%) patients had a diagnosis of new AF or atrial flutter during follow-up, all of which occurred within three months of the procedure.

3 patients (2.3%) died during follow-up (median age 56 years (20-75 years)) but all of these deaths were non-cardiac in nature.

Conclusions PFO closure was performed safely in our hospital with a very low rate of procedural complications. New arrhythmias and cerebrovascular events occurred in a low proportion of the population. Our real-world outcomes in combination with the previously published major randomized control trials supports the continued application of device-led PFO closure in patients with cryptogenic ischaemic stroke, TIA and/or systemic embolism.

Conflict of Interest none

**Development of a Wire-Injury Model of Calcific Aortic Stenosis**

Calcific aortic stenosis (CAS) is the most common valve disease in the Western world and has no effective pharmaceutical treatment options. Stenosis can be caused by a combination of mechanical injury, inflammation, fibrosis and calcification, which eventually leads to left ventricular hypertrophy and heart failure. Males are at greater risk of developing aortic calcification and androgens are a risk factor in this condition. Elucidating the mechanisms underlying male predisposition to aortic stenosis is hampered by the lack of appropriate animal models; particularly valve-injury models which develop stenosis and calcification. This study describes introduction of a murine model for investigation of CAS in male and female mice. Damage was induced in the aortic valve of adult, male and female C57BL/6J mice by inserting a guidewire into the left ventricle under ultrasound guidance and rubbing the valve by rotating the guidewire twenty times. Pilot investigations demonstrated low mortality and weight loss (less than 15% of pre-surgery weight) but no significant changes in aortic or cardiac function (measured by ultrasound) following surgery. HE staining demonstrated variable thickening of valve cusps (30-140 μM). Cusps displayed fibrosis and stained positive for inflammatory cells (Mac2). No calcification (as determined by alizarin red staining) was observed. These results suggest that wire injury is producing mild damage and non-calcific remodelling in the aortic valve, indicating that greater damage is required to produce haemodynamic changes and aortic stenosis with calcification. successful development of this model will provide a valuable tool for clarifying the mechanisms that predispose males to CAS.

**Conflict of Interest** none

**Acute Coronary Syndromes & Interventional Cardiology**

**The Mechanism of Supply-Demand Imbalance and Clinical Outcomes in Patients with Type 2 Myocardial Infarction**

Background Type 2 myocardial infarction is common and associated with substantial risk of adverse clinical outcomes, worse than type 1 myocardial infarction, with as few as 30% of patients still alive at five years. However, this broad diagnostic term encompasses multiple mechanisms of supply-demand imbalance, which may be associated with different risks of adverse outcomes.

Purpose We aimed to assess the prevalence and clinical outcomes of different mechanisms of supply-demand imbalance...