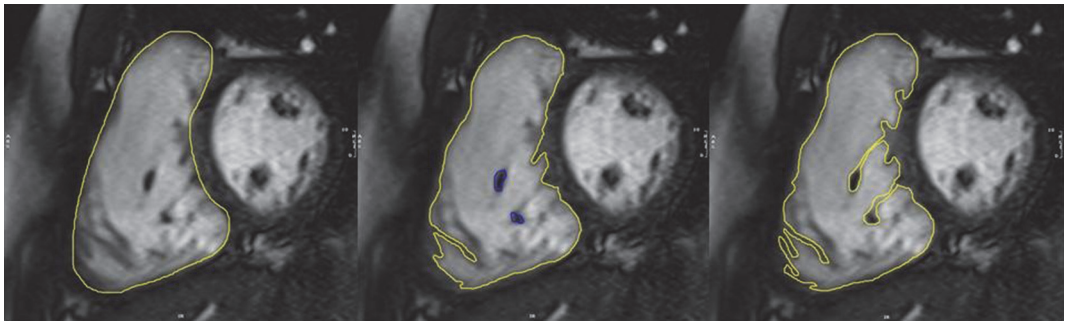

Abstract 14 Figure 1

Abstract 14 Table 1 Right ventricular volume measurement using the three contouring methods (mean ± standard deviation). EDV = end-diastolic volume; ESV = end-systolic volume; EF = ejection fraction; SV = stroke volume; indexed values are divided by body surface area (Mostellar formula)

	Method 1 (Smooth)	Method 2 (Detailed – thresholding)	Method 3 (Detailed – manual)	P-value (method 1 vs. 2)	P-value (method 2 vs. 3)
EDV (ml)	233±105	215±95	206±94	<0.001	<0.001
ESV (ml)	122±71	113±67	103±64	<0.001	<0.001
SV (ml)	111±40	102±31	103±32	0.002	0.52
EF (%)	49±7	49±6	52±8	0.96	<0.001
EDV index (ml/m^2)	128±40	119±38	113±37	<0.001	<0.001
ESV index (ml/m^2(	67±27	67±32	56±27	1.0	0.009

manual (table), as was end-systolic volume (ESV) ($p<0.001$ for all comparisons). Ejection fraction was similar for smooth and thresholding ($p=0.96$) but was larger for manual ($p=0.005$). In four cases, the indexed EDV was ≥130ml/m^2 by smooth contouring, but <130ml/m^2 for both detailed techniques. There was excellent inter-observer agreement for the smooth method (ICC: EDV 1.0 (confidence interval 0.98-1.0, $p<0.001$); ESV 0.94 (0.55-0.99, $p=0.001$) and detailed thresholding (EDV 0.94 (0.52-0.99, $p=0.04$); ESV 0.96 (0.65-1.0, $p=0.02$) with the weakest agreement seen for the detailed manual method (EDV 0.89 (0.33-0.99, $p=0.01$); ESV 0.88 (0.30-0.99, $p=0.01$).

Conclusions

- Smooth right ventricular contouring in RTOF creates larger RV volumes than detailed and may result in differences in management strategy.
- Smooth contouring is more reproducible than detailed methods using thresholding. Manual contouring was the least reproducible in this series.
- Our results are similar to studies of left ventricular contouring demonstrating larger volumes using smooth compared with detailed methods.
- The difference in right ventricular volume is accentuated in RTOF due to increased RV trabeculation.
- Consensus on contouring techniques in RTOF is vital to ensure standardisation of care.

Conflict of Interest None

15 PREVALENCE OF ISCHAEMIC MITRAL REGURGITATION MEETING COAPT AND MITRA-FR CRITERIA FOR MITRACLIP INTERVENTION – A COHORT STUDY OF 1000 PATIENTS FOLLOWING MYOCARDIAL INFARCTION

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Background Ischaemic mitral regurgitation (IMR) confers a poor prognosis. Transcatheter mitral edge-to-edge repair may improve outcomes but MITRA-FR and COAPT trials have produced conflicting results, attributed to different patient selection criteria. Following acute myocardial infarction (MI), the number of patients eligible for transcatheter mitral repair using MITRA-FR and COAPT eligibility criteria is not known, nor whether these criteria produce cohorts with significantly different characteristics.

Purpose To determine the number and characteristics of IMR patients qualifying for MITRA-FR and COAPT echocardiographic eligibility criteria amongst patients receiving coronary revascularization following acute MI.

Methods 1000 consecutive patients admitted to the Queen Elizabeth Hospital Birmingham with acute MI who underwent coronary angioplasty were included. Early inpatient TTE was performed by accredited echocardiographers using standard multiparametric quantification, including (where possible) proximal isovelocity surface area (PISA), effective regurgitant orfice area (EROA), vena contracta (VC) regurgitant volume (RVol), regurgitant fraction (RF) and left ventricular ejection fraction (LVEF).

Patients within our admission population fulfilling the following echo criteria were identified:

1. MITRA-FR: LVEF 15-40% and EROA > 0.2cm2 or RVol > 30ml
2. COAPT: LVEF 20-50% and either:
   - Tier 1: EROA > 0.3cm2 or pulmonary vein flow reversal
   - Tier 2: EROA > 0.2cm2 and <0.3cm2 with one of the following:

   RVol > 45ml/beat;
   RF > 40%;
   VC > 0.5cm;
   - Tier 3: EROA <0.2cm2 or not measured and > 2 of the following:

   RVol > 45ml/beat;
   RF > 40%;

VC > 0.5cm;
PISA > 0.9cm but continuous wave of MR jet not done;
Large (> 6cm) holosystolic jet wrapping around left atrium;
Peak E wave velocity > 150cm/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+/-0.13cm2 vs 0.35+/-0.13cm2), VC (0.6+/-0.2cm vs 0.6+/-0.2cm), RVol (52+/-24ml vs 51+/-25ml), indexed LA volume (LAVi) (54+/-20ml/m2 vs 51+/-20ml/m2), indexed LV end-diastolic volume (LVEDVi) (62+/-17ml/m2 vs 63+/-18ml/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+/-0.15cm2), VC (0.6+/-0.2cm vs 0.6+/-0.2cm), LAVi (56+/-20ml/m2 vs 50+/-19ml/m2), LVEDVi (69+/-25ml/m2 vs 67+/-19ml/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 year 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