INDEXED LEFT ATRIAL VOLUME PREDICTS ADVERSE OUTCOMES INDEPENDENT OF THE SEVERITY OF ISCHAEMIC MITRAL REGURGITATION-A COHORT STUDY OF 1000 PATIENTS FOLLOWING ACUTE MYOCARDIAL INFARCTION

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Background Ischaemic mitral regurgitation (IMR) is associated with left atrial (LA) dilatation. In patients with primary MR, LA enlargement is an independent predictor of mortality following medical management and mitral valve surgery. The prognostic significance of LA dilatation in IMR post-mitral infarction (MI) has not been studied.

Purpose To determine the impact of LA dilatation on mortality in patients with IMR.

Methods 1000 consecutive patients admitted to the Queen Elizabeth Hospital Birmingham with MI who underwent percutaneous coronary intervention were included. Early inpatient TTE was performed within 24-48 hours by accredited echocardiographers using standard multiparametric quantification of IMR, including proximal isovelocity surface area (PISA), effective regurgitant orifice (EROA), vena contracta (VC), and regurgitant volume (RVol). LA size was measured by the recommended biplane method for calculation of LA volume and indexed to body surface area (Mosteller). Analysis was performed on patients with indexed LA volume (LAVi) above and below 34ml/m2 (defined as the upper limit of normal in European Cardiovascular Imaging guidelines).

Results MR was observed in 294/1000 patients (29.4%) post-MI, graded as mild (76%), moderate (21%) and severe (3%). A total of 275/294 (94%) had complete chamber volume data.

LA dilatation (LAVi > 34ml/m2) was seen in 124 (43%) patients while 151/275 (55%) had normal LA volume (LAVi <34ml/m2). Patients with LA dilatation had more severe MR by multiparametric categorisation (mild 60%, moderate 34%, severe 7%) than those with normal LA volume (mild 87%, moderate 13%, severe 0.6%). Those with larger LAVi also had more severe MR based on individual quantification, as determined by larger mean PISA (0.63+/-.21 vs 0.48+/-.18; p <0.0001), EROA (0.24+/-.03 vs 0.18+/-.06; p=0.0009), VC (0.56+/-.21 vs 0.45+/-.17; p <0.0001) and RVol (40+/-.25 vs 30+/-.24; p=0.0008).

Conclusion These data suggest that in patients with severe AS and CAD a transcatheter approach has comparable outcomes to a surgical approach. Pending high level evidence, surgical risk assessment should form the cornerstone of individualised decision making.

Conflict of Interest None

THE EFFECT OF DIFFERENT CONTOURING TECHNIQUES ON CARDIAC MAGNETIC RESONANCE ASSESSMENT OF RIGHT VENTRICULAR VOLUMES IN REPAIRED TETRALOGY OF FALLOT: IMPLICATIONS ON PREOPERATIVE THRESHOLDS FOR INTERVENTION

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Introduction Patients with repaired tetralogy of Fallot (RTOF) who are not suitable for surgical intervention may benefit from transcatheter mitral valve replacement (TMVR). Preoperative thresholds for intervention are currently based on the European Society of Cardiology (ESC) guidelines. However, these are based on studies using different contouring techniques, and therefore, may not be accurate.

Methods Consecutive patients (n = 24, age 25.2±15.5 years, 42% male) with RTOF who were identified as potential candidates for TMVR based on ESC guidelines were recruited. Cardiac magnetic resonance imaging (CMR) was performed using a 1.5 T scanner with the patient in a right lateral decubitus position. Three different contouring techniques were used to measure right ventricular volumes: (1) manual, (2) semi-automated and (3) fully-automated. The volumes were then compared with preoperative thresholds for intervention recommended by the ESC guidelines.

Results Right ventricular end-diastolic volume (EDV) was largest for smooth contours compared with thresholding and semi-automated techniques. However, there was a significant difference in the volume measured using different contouring techniques. The manual technique resulted in higher EDV values compared with the fully-automated technique, which in turn resulted in lower EDV values compared with the semi-automated technique. The ESC guidelines recommend an EDV of >50 ml/m2 as a threshold for intervention, but the threshold differences observed in this study suggest that the ESC guidelines may not be appropriate for all patients.

Conclusion The choice of contouring technique used in CMR imaging can significantly affect the measurement of right ventricular volumes. Therefore, the ESC guidelines may need to be revised to accommodate different contouring techniques used in clinical practice.