

control subjects were excluded from any cardiac events. The serum samples were collected from the patients after the admission to the hospital. A sandwich-like ELISA assay was established with human cTnI and anti-human IgG to detect the serum level of autoantibodies against cTnI. The level of the autoantibodies was expressed as the relative absorbance of optical density and the level exceeds 3XSD was defined as positive. After the patients were discharged from the hospital, a follow-up from 3 months to 6 months was performed.

**Results** The levels of the autoantibodies were  $0.49 \pm 0.10$  for control subjects,  $0.72 \pm 0.38$  for patients with MI and  $0.55 \pm 0.24$  for patients with CHF. Among 38 MI and 59 CHF patients, eight were positive (8/38) and nine were positive (9/59), respectively. During the follow-up period, one patient died and one patient underwent MI again in the eight positive patients with MI. Among 59 CHF patients, 34 patients finished follow-up investigation. Three of the seven positive CHF patients were death whereas only two of the 27 negative CHF patients were death. The life quality decreased in the positive CHF patients compared with that in negative CHF patients.

**Conclusion** The present study suggested that the level of autoantibodies against cTnI could be a worse prognostic marker in patients with MI or CHF. The underlying mechanism remains to be illustrated.

## Related Subjects: Imaging in Cardiovascular Disease (Radiology, Ultrasonography, Nuclear Medicine, CT, MRI)

### e0684 RIGHT VENTRICULAR EJECTION FRACTION FURTHER DECREASES IN HEART TRANSPLANTED HT PATIENTS WHEN REJECTION OCCURS

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**Objective** To investigate the shape and function of right ventricles in patients who received heart transplantation (HT) using single-beat real-time three-dimensional echocardiography (sRT-3DE).

**Methods** 60 healthy volunteers (40 male, mean age  $43.69 \pm 14.81$  years) and 31 HT patients [27 male, mean age  $40.10 \pm 14.67$  years] were enrolled consecutively as Normal controls and the HT group, respectively. All the participants received routine echocardiography as well as sRT-3DE by SIEMENS SC2000 to get parameters concerning morphology and systolic function of the right ventricle. All the HT patients received endomyocardial biopsy within 3 months before or after the echo exams and the HT group was further divided into the rejection group (HTr) and the non-rejection group (HTn) according to the endomyocardial biopsy results as well as the long term group (HTl) and the short term group (HTs) based on the post-operation length (cut point: 1 year), respectively. HTn was also divided into a long term group (HTnl) and a short term group (HTns) to rule out the influence of rejection on post-operation length.

**Results** 1. Right ventricular stroke volume and right ventricular ejection fraction (RVEF) were significantly different among the groups and the difference values progressively decreased. (Right ventricular stroke volume: Con vs HTn vs HTr was  $56.18 \pm 23.72$  vs  $36.08 \pm 10.94$  vs  $26.22 \pm 9.84$  ( $p < 0.0001$ ); RVEF: Con vs HTn vs HTr was  $62.09 \pm 7.18$  vs  $51.04 \pm 7.58$  vs  $35.86 \pm 9.86$ ,  $p < 0.00001$ ). 2. When taking the influence of rejection into consideration, none but RVEF proved to be a stable and sensitive indicator.

**Conclusions** sRT-3DE can quickly assess shape and systolic function of right ventricle. RVEF was the most stable and sensitive among all the RV-related and LV-related indicators and is a promising indicator in the clinic follow-up of HT patients.

### e0685 EVALUATE RIGHT VENTRICULAR SHAPE AND FUNCTION IN PATIENTS WITH ATRIAL SEPTAL DEFECT BY SINGLE-BEAT REAL-TIME THREE-DIMENSIONAL ECHOCARDIOGRAPHY SRT3DE

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**Objective** The current study was the first in China to investigate the value of single-beat real-time three-dimensional echocardiography (sRT-3DE) in assessing the shape and function of right ventricle in Patients with Atrial Septal Defect (ASD).

**Methods** 33 healthy volunteers (11 male, mean age  $41.15 \pm 17.49$  years) and 18 ASD patients (six male, mean age  $34.67 \pm 19.50$  years) were enrolled. All the participants received routine echocardiography. sRT-3DE by SIEMENS SC2000 was performed in all to evaluate parameters concerning morphology and systolic function of participants' right ventricle. All the parameters were indexed by body surface area. Further correlative analysis was calculated between right ventricular parameters and right heart pressures by cardiac catheter as well as right ventricular parameters and body surface area-indexed maximum diameter of ASD ( $I_{ASD}$ ). 21 participants (15 controls and six ASD patients) were randomly selected to explore the inter-observer agreement of this novel technique.

**Results** Rt-3DE was successful in all participants, even in patients with large right ventricle volume up to 250 ml. Statistic analysis showed the technology has good inter-observer correlation, ( $EDV_{RV}$ : ICC 0.891 (95% CI 0.731 to 0.956);  $ESV_{RV}$ : ICC 0.737 (95% CI 0.731 to 0.893)) Indexed right ventricular end diastolic volume ( $IEDV_{RV}$ ) and end systolic volume ( $IESV_{RV}$ ), indexed right ventricular systolic volume ( $ISV_{RV}$ ) and right ventricular ejection fraction (RVEF) were greater in the ASD group than in controls ( $p < 0.001$ ,  $p < 0.01$ ,  $p < 0.001$ ,  $p < 0.05$ ).  $IEDV_{RV}$ ,  $IESV_{RV}$  and  $ISV_{RV}$  had positive relations with pulmonary artery pressures, especially pulmonary artery diastolic pressure measured by cardiac catheter ( $r = 0.61$ ,  $r = 0.79$ ,  $r = 0.83$ , all  $p < 0.05$ ) and  $I_{ASD}$  ( $r = 0.57$ ,  $p < 0.05$ ;  $r = 0.6$ ,  $p < 0.01$ ;  $r = 0.55$ ,  $p < 0.05$  respectively). At the same time, they had negative relations with LVEF ( $r = -0.47$ ,  $r = -0.5$ ,  $r = -0.52$ ; all  $p < 0.05$ ).

**Conclusions** Left-to-right shunt in ASD patients may lead to an aggressive increase of pulmonary artery pressure and right ventricular volume. The enlargement of right ventricle increases right ventricular contraction and affects the morphology and function of left ventricle. sRT-3DE is a unique new modality to precisely and stably evaluate right ventricular changes in ASD patients.

### e0686 EVALUATION OF LEFT ATRIAL SYSTOLIC FUNCTION IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY OR HYPERTENSIVE LEFT VENTRICULAR HYPERTROPHY BY STRAIN RATE IMAGING

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**Objective** To explore the value of strain rate imaging in detecting left atrial systolic function in patients with hypertrophic cardiomyopathy (HCM) or hypertensive left ventricular hypertrophy (HLVH).

**Methods** There were three groups in this study, the group of HCM, HLVH and control, each group had 30 cases. Left atrial diameter, interventricular septal thickness, posterior left ventricle thickness, peak E and A of mitralis were measured by conventional echocardiography. Left atrial fractional shortening (LAFS) was calculated.