Out of 8 patients (87%). None of the control patients were recognized as ablated. The confidence score of the independent echo reviewer tended to be higher when the number of applications increased. Conclusions: 1, 3D MCE is a feasible method to visualize echocontrast infusion (SonoVue, Bracco). Three-dimensional reconstruction of Koch's triangle for ablation lesions in Koch's Triangle of Late Atrial Tachyarrhythmias After Orthotopic Cardiac Transplantation

Background: Orthotropic heart transplantation (OHT) affords a unique model of studying electrophysiological properties of denervated human atria. It has been reported that atrial tachyarrhythmias (AT) may be a marker of underlying alograft rejection but can also occur in the ablated atrium electrophysiologically unchanged. Method: We prospectively evaluated the long-term corrected sinus node recovery time (cSNRT) and atrial effective refractory period (ERP) in 39 OHT recipients (mean age 46±10 years; 21 patients(pts) received standard biatrial anastomosis while 18 received bicaval anastomoses. Mean follow up period was 36±25 months. Incidence of AT during follow-up, which prompted echocardiography, endomyocardial biopsy and electrophysiological assessment, was determined and compared with pts without AT at matched time after OHT (control).

Results: Thirteen pts (33%) developed 32 episodes of AT, there were 23 episodes of atrial flutter (AF) and 9 episodes of atrial fibrillation (AFib). AF/Afib were documented by cSNRT of ≥500 ms (mean ±D). ANOVA with stepwise logistic regression analysis, incidence of AT correlated positively with technique of biatrial anastomoses (p<0.001), recipient's age (p=0.005) and cSNRT (p=0.003). With stepwise logistic regression analysis, incidence of AT correlated positively with technique of biatrial anastomoses (p<0.001), recipient's age (p=0.005) and cSNRT (p=0.003) but was not associated with donor's age, ischemic time, left atrial size, ejection fraction and degree of tricuspid regurgitation, right atrial pressure, pulmonary capillary wedge pressure, cardiac output or grade of rejection on endomycocardial biopsy.

Conclusion: Occurrence of AT, predominantly atrial flutter, is more common in biatrial anastomosis and often in the absence of rejection. Possible mechanisms for site-onset atrial flutter after OHT include presence of anatomical substrates of anastomotic suture line, difference in atrial electrophysical properties of donor versus recipient atrium, impaired sinus node function and abnormal intraatrial conduction with altered anisotropy after atrial surgery.

Three-Dimensional Myocardial Contrast Echocardiography: A Novel Method to Assess Ablation Lesions in Koch's Triangle in Humans

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Background: Myocardial contrast echocardiography (MCE) has been shown to be a feasible method to visualize radiofrequency (RF) ablation lesions in the left ventricle in an animal model. Aim: To test the feasibility of MCE in visualizing ablation lesions in the human atrium using three-dimensional (3D) myocardial contrast echocardiography. We tested this method to assess RF as well as cryo ablation lesions. Methods: A total of 12 patients who underwent catheter ablation of supraventricular tachycardias were included in this prospective single-blind feasibility study. MCE was performed both at baseline and after ablation using a 5 MHz rotating transducer during continuous venous echocontrast infusion (SonoVue, Bracco). Three-dimensional reconstruction of Koch's triangle was performed before and after ablation in all patients using a 160°, 2-D, gated pulsed Doppler of the ICE transducer, with and without echocontrast infusion. Two independent observers examined the recordings off-line. 4 out of 12 patients with arrhythmias ablated exhibited hurdles Koch's triangle served as controls. Results: MCE identified ablation lesions as a low contrast area within the normal atrial myocardial tissue. Controls on the endocardial surface were seen in all 8 patients after ablation. Lesions were identified in 7 out of 8 patients (87%). None of the control patients were recognized as ablated. The confidence score of the independent echo reviewer tended to be higher when the number of applications increased. Conclusions: 1, 3D MCE is a feasible method to visualize ablation lesions in human atrial myocardium. 2, Both RF and cryo energy lesions are visible with MOC.