dependent ventriculoatrial conduction were demonstrated to exist by EP study and the atrio-ventrieular reentrant tachycardia with the earliest atrial activated site located were induced. When pacing with slow rate in RVA, there were no ventriculoatrial conduction by AP; when pacing with fast rate, there were internal ventriculoatrial conduction by AP and when pacing with faster rate, there were 1:1 ventriculoatrial conduction by AP. Ablation were identified during rapid rate ventricular pacing and a successful ablation was attained in every patient.

Conclusion Rapid rate dependent conduction of left concealed atrioventricular accessory pathway is existent and it can also induce atrioventrieular reentrant tachycardia. We should pay attention to it avoiding missed diagnosis.

e0551 RADIOFREQUENCY CATHETER ABLATION OF VENTRICULAR TACHYCARDIA IN PATIENTS WITH STRUCTURAL HEART DISEASES USING CARTO ELECTROANATOMIC MAPPING SYSTEM AND A SALINEIRRIGATED TIP CATHETER

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Introduction The aim of this study was to investigate the results of radiofrequency catheter ablation of ventricular tachycardia (VT) in patients with organic heart diseases utilising CARTO system and a saline-irrigated tip catheter.

Method 31 patients (26 men), aged from 6 to 75 years, had palpitation and sustained VT or ventricular fibrillation (VF) and 15 patients had the histories of syncope. 9 patients with Fallot syndromes after cardiac surgery, 4 patients with old myocardial infarction (one had ventricular electrical storm after ICD implantation), 1 patient with ventricular electrical storm after acute myocardial infarction, 17 patients with ARVC or dilated cardiomyopathy. CARTO system was used for directing mapping and ablating VT. For mappable VT, the VT mapping techniques included activation, entrainment, and voltage mapping using standard criteria. For unmappable VT, the site of origin was approximated by the site of pace mapping that generated QRS complexes similar to those of VT. Radiofrequency ablation was performed as linear lesions based on the location of the best pace map, the location of valvular anatomic boundaries, and the substrate defined by the voltage mapping.

Result 56 morphologies of VT (1–5 morphologies of VT in 1 patient) were induced in 29 patients, including 38 morphologies of mappable VT and 18 unmappable VT. In 24 patients who had at least 1 morphology of mappable VT, mapping and ablation was performed during VT, and in the other 5 patients who had unmappable VT, substrate mapping and ablation was performed during sinus rhythm. Radiofrequency ablation eliminated VT in 20 patients and failed to ablate VT in 9 patients (most had cardiomyopathy). In 1 ARVC patient with multiple morphologies of frequent ventricular premature beats (VPBs) and syncope, ablation of VPBs and VT substrate were performed. In the other patient who had drug-refractory ventricular electrical storm after acute myocardial infarction, ablation of VPBs originating from Purkinje network eliminated VT and VF recurrence. During 3 to 42 months of follow-up, 20 out of 22 patients who had a successful VT or VPBs ablation did not had VT and VF recurrence, and the 2 patient who had VT recurrence had a successful VT ablation in the second procedures. In the 9 patients who had a failure ablation of VT (no ICD implantation because of economic reason), antiarrhythmic drugs were taken. There were no VT recurrence in 2 patients and less VT attacks in 4 patients.

Conclusion Based on the electronanatomic mapping, radiofrequency ablation of VT using a saline-irrigated tip catheter in patients with organic heart diseases might have high successful and effective rate.

e0552 THE ANALYSIS OF CAUSE AND INCIDENCE OF NONRESPONSE AFTER CARDIAC RESYNCHRONISATION THERAPY

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Introduction The aim of this study was to observe the incidence of CRT nonresponse in our center and investigate the possible reasons to lead to CRT nonresponse.

Methods 112 patients with CRT implantation were included in this study. There were 33 with ischaemic heart disease and 79 with non-ischaemic heart disease, 23 patients with permanent atrial fibrillation, 59 in NYHA class III and 53 in class IV. Patients were followed up more than 1 year. CRT response was defined as the improvement in NYHA class of ≥1 grade and 6-min walk test (6-MWT) of ≥25% and/or the increase of left ventricular ejection fraction (LVEF) of ≥15%.

Results The all mortality was 11.61%, the reasons of death were due to heart failure aggravation in 3 patients, sudden death in 4, acute myocardial infarction in 2 and noncardiac death in 4. 82 patients had a positive CRT response, but the other 30 patients (26.79%) were nonresponse to CRT including 9 patients (8.04%) with no improvement in NYHA class, 6-MWT and LVEF. 21 patients (18.75%) with no improvement in LVEF but with significant improvement in NYHA class and 6-MWT. Among nonresponders 3 patients died for heart failure aggravation. The basal data before CRT implantation were comparable between CRT response group and nonresponse group ($p>0.05$). The age, gender, narrow QRS duration before CRT and increased QRS duration after CRT did not impacted in CRT response ($p>0.05$). Permanent atrial fibrillation (AF) did not lead to CRT nonresponse, among them the incidence of nonresponse was not more than in patients without AF (17.39% vs 25.84%, $p>0.05$). There was also no relation between different RV pacing leads position and the incidence of CRT nonresponse (27.06% in RV apex leads vs 25.93% in RV septum, $p>0.05$). There were 6 patients with right bundle branch block (RBBB), 5 of them had nonrespons to CRT (83.33%, $p<0.01$). The patients with non-ischaemic heart disease had higher incidence than patients with ischaemic heart disease (32.05% vs 14.71%, $p<0.05$). LV lead positions can impact CRT response. The incidence of CRT nonresponse was 23.08% in lateral marginal, 22.22% in posterolateral vein, 38.10% in middle cardiac vein and 75% in great cardiac vein ($p<0.01$).

Conclusions The incidence of CRT nonresponse was higher in patients with non-ischaemic heart disease than with ischaemic heart disease since coronary angioplasty had been completed in the criminal vessels. Although QRS duration was obviously wider in RBBB, the incidence of CRT nonresponse was still significant increase. LV pacing lead positions was the crucial factor to response of CRT.

e0553 EFFECT OF PULMONARY HYPERTENSION ON THE PROGNOSIS OF PATIENTS WITH CARDIAC RESYNCHRONISATION THERAPY

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Introduction There was a little of information about the effect of pulmonary artery hypertension to the clinical prognosis in patients with cardiac resynchronisation therapy (CRT). We aimed to

investigate the effect of pulmonary artery systolic pressure (PASP) to the response of patients with CRT.

Methods 93 patients (76 male, mean ages: 61.23±15.56) with heart failure involved in our study. According to the level of preoperative PASP, they were divided into three groups (Group I: PASP ≥50 mm Hg, n=29; Group II: 30 mm Hg 0.05) and Group II (from 69 mm to 66 mm, p>0.05). LVEF increased averagely by 31–38% (p<0.01) in Group III at 3-6 months, But in Group I and II which had not obvious increased at 3 months (p>0.05) and had increased by 17% (Group I, p<0.05) and 26% (Group II, p<0.01)at 6 months. LVEF in Group III had increased more than that in Group I and Group II (p<0.05–0.01).

Conclusions Clinical outcomes post-CRT can be predicted by elevated PASP. A preoperative PASP ≥50 mm Hg is associated with increased risks for adverse events and a higher mortality for aggravation of heart function.

e0554 QRS DURATION CHANGES DURING DIFFERENT VV INTERVALS AFTER CARDIAC RESYNCHRONISATION THERAPY

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Introduction The aim of this study was to investigate the influence of different VV intervals on QRS duration of surface ECG after cardiac resynchronisation therapy (CRT).

Methods 54 patients after CRT treatment due to congestive heart failure (CHF) in our hospital were enrolled in this study, of which 43 cases with the QRS duration of surface ECG >120 ms and 11 cases with QRS duration ≤120 ms (Tissue doppler ultrasound showed the existence of ventricular asynchrony), all patients were appropriate for CRT or CRT-D implantation with type I or IIa indication. After CRT implantation, the VV durations were programed by the pacemaker programme at 9 different settings: simultaneous left and right ventricle pacing, left ventricle pre-excitation (left ventricle+20, 40, 60 and 80 ms, respectively), and right ventricle pre-excitation (right ventricle+20, 40, 60 and 80 ms, respectively). During these VV intervals, the aortic velocity time integral (VTI) was measured by echocardiography, and we defined the VV intervals with the highest VTI as the best VV interval, QRS duration of surface ECG was recorded at the same time.

Results There is no significant difference of QRS durations among different VV intervals. In the simultaneous pacing of LV and RV model, the best VV interval was 12.96% of all the 54 patients, it was 37.02% in left ventricle pre-excitation and 49.98% in right ventricle pre-excitation. This was suggested that sequential pacing of the two ventricles was superior to the synchronously pacing. There was no significant correlation between the best VV interval and the width of QRS wave (r=0.205, p=0.136), and the width of QRS wave were the smallest in 9 patients (9/54, 16%) in the best VV interval, but that of the other 45 patients were not the smallest, so it was inaccurate for assessing the best VV interval merely by the width of QRS wave, and we'd better to optimise VV intervals with the help of echocardiography.

Conclusions There were no significant changes of the QRS durations during different VV intervals after CRT treatment. The sequential pacing of the two ventricles could bring 87% patients better haemodynamic effects. There was no significant correlation between the best VV interval and the width of QRS wave, and the width of QRS duration of most patients in the best VV interval was not the smallest. The effect of CRT could be improved more by optimisation of the VV interval individually.

e0555 AN 5-YEAR FOLLOW-UP OF PATIENT WITH VALVULAR HEART DISEASE AND CHRONIC ATRIAL FIBRILLATION UNDERGOING ABLATION OF THE ORIFICES OF THE PULMONARY VEINS UNDER DIRECT VISION BY USING THE TRANSBALLOON ULTRASOUND ABLATION CATHETER

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Objective To evaluate the effect and possibility of surgical ablation of the pulmonary vein orifices under direct vision with transballoon ultrasound ablation catheter for patients with permanent atrial fibrillation and rheumatic valve disease.

Methods 21 consecutive patients with rheumatic valve disease and permanent atrial fibrillation undergoing mitral valve replacement surgery from December 2002 to September 2003 were enrolled for this study. All cases were divided into 2 groups by whether or not receiving an additive pulmonary vein ablation procedure. The test group (6 male, 5 female, aged 51.55±7.83 years, atrial fibrillation duration 5.50±5.40 years, left atrial diameter 7.27±1.39 cm, LVEF 53.95±4.54% and NYHA class II–IV) undertook a surgical isolation of the pulmonary vein orifices by using a transballoon ultrasound ablation catheter addition to routine mitral valve replacement. The control group (3 male, 7 female, aged 53.30±7.86 years, atrial fibrillation duration 4.50±3.47 years, left atrial diameter 6.74±0.62 cm, LVEF 56.91±3.78% and NYHA class II–IV) received the valve replacement surgery alone.

Results There were not any complications in both groups. With an electrical cardioversion 3 months after the surgery, 73% patients in the ultrasound ablation group were free from AF over 1 year while only 10% patients in control group (p=0.003). During an average follow-up duration of 69.92±4.61 months, 65.6% were in sinus rhythm in ultrasound ablation group while none in the control group. Left atrial volume decreased significantly at 5 year after surgery compared to 3 months after surgery in the test group (78.83±32.39 cm^3 VS 150.78±52.32 cm^3 p<0.05), and the end systolic diameter (LAESD) and end diastolic diameter? (LAEDD) also decreased (3.92±0.43 cm vs 5.09±0.98 cm, p<0.05; and 3.92±0.43 cm vs 4.46±1.15 cm, p<0.05, respectively).

Conclusions Ablation of the orifices of the pulmonary veins under direct vision with transballoon ultrasound ablation catheter during mitral valve surgery is effective to maintain sinus rhythm after electrical cardioversion and can be performed safely. The function of left atrial and cardiac output improves during long term follow-up.

e0556 CATHETER ABLATION OF ATRIAL TACHYCARDIA FROM THE NONCORONARY CUSP OF THE AORTIC VALVE

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Objective In this study, we examine the characteristics of antero-septal Atrial tachycardias (AT) originating from the Noncoronary Cusp (NCC) of the Aortic Valve, and demonstrate the long-term efficacy and safety of targeting the arrhythmias by Catheter Ablation.

Methods From among a cohort of 43 patients with symptomatic focal AT undergoing electrophysiological evaluation, the point of earliest activation was at NCC region in 7 patients.

Results The arrhythmia terminated with <10 seconds of radio-frequency delivery and was successfully eliminated in 7 patients. All patients have been arrhythmia free during follow-up (20±6) months.