

Outcome of radiofrequency catheter ablation of supraventricular arrhythmias in patients with adult congenital heart disease: single centre experience

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Introduction: Data in the literature regarding the safety and outcome of catheter-based radiofrequency ablation (RFA) for the treatment of supraventricular arrhythmias (SVA) in patients with adult congenital heart disease (ACHD) is based on case-reports and centre experiences. Here we report three-year data for consecutive patients with simple and moderate/complex ACHD undergoing RFA for treatment of SVA in our centre.

Methods: Retrospective analysis of consecutive RFA procedures, between January 2014 and December 2016, for treatment of SVA in patients with repaired/unrepaired ACHD. Underlying ACHD was classified as simple (Group A) or moderate/complex (Group B) according to the PACES/HRS expert consensus statement in 2015. SVA was defined as AVNRT, AVRT, intra-atrial re-entrant tachycardia (IART), focal atrial tachycardia, atrial fibrillation or cavo-tricuspid/cavo-mitral isthmus atrial flutter. Acute success was defined according to the arrhythmia mechanism as one or more of the following: (1) termination of sustained tachycardia by ablation plus non-inducibility afterwards, or (2) pulmonary vein isolation, or (3) bidirectional block across ablation lines, or (4) non-inducibility of previously inducible arrhythmias. Outcome was defined as equivocal when: (1) substrate modification was performed during sinus/ paced rhythm, plus (2) clinical arrhythmia was non-inducible.

Results: 50 ablation procedures were performed in 41 patients (mean age: 41.8y). Ten patients (12 procedures) had simple ACHD (ASD or VSD) and 31 patients (38 procedures) had complex ACHD (Ebstein, TOF/pulmonary stenosis repair, Fontan repair, arterial switch, Senning repair, Eisenmenger and combinations). Acute success was achieved in 100% of Group A and 84.2% of Group B procedures. Outcome was equivocal in 5% of Group B procedures. There was one non-fatal complication in Group B (asystolic arrest following termination of IART). Post-procedure arrhythmia-free survival was 75% in Group A and 66% in Group B during mean follow up of 10 and 14.5 months respectively (p=0.15). Average time to recurrence of the same or different SVA was 1.5 months in Group A and 5.1 months in Group B.

Conclusion: RFA of SVA is safe and has high acute success rate in patients with ACHD. However, long term freedom from arrhythmias appears to be insignificantly lower in patients with moderate/complex compared to simple ACHD.