

The outcome of cavotricuspid isthmus-dependent atrial flutter ablation in patients with adult congenital heart disease: A single centre experience.

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Background: Although radiofrequency catheter ablation (RFA) is the gold standard treatment for cavotricuspid isthmus (CTI)-dependent flutter (AFL) in the general population, its safety and outcome in adult congenital heart disease (ACHD) patients is backed only by published case reports and centre experiences in select ACHD groups. Here we report 4-year data for consecutive ACHD patients undergoing RFA for CTI-AFL in our centre.

Methods: We analysed data of consecutive RFA procedures for treatment of CTI-AFL in patients with ACHD between January 2013 and December 2016. Patients were divided into those with simple and those with moderate/complex ACHD as per the PACES/HRS expert consensus statement in 2015. Acute success was defined as termination of persistent AFL by ablation plus achievement of bidirectional block (BDB) across the CTI, or CTI BDB if ablation was done in sinus rhythm (SR).

Results: 23 patients (mean age:46 years) underwent 25 procedures. Five patients (six procedures) had simple ACHD (one unrepaired; five surgically repaired atrial septal defects) and 18 patients (19 procedures) had previous surgical repair for moderate/complex ACHD (Ebstein:1, tetralogy of Fallot (TOF):5, d-transposition of the great arteries (d-TGA):2, severe pulmonary stenosis (PS):2, Eisenmenger:1 and combinations:7). Acute ablation success was achieved in 100% of cases in both groups with no complications. Mean follow up post-procedure was 13.5 months (range:3-54). Freedom from arrhythmias during follow-up was 83% and 63% in the simple and moderate/complex ACHD groups respectively ($\chi^2=0.85$; $p=0.35$). Recurrent paroxysmal or sustained arrhythmias were documented in seven (37%) moderate/complex patients (TOF:1, d-TGA:1, PS:1, Ebstein repair:1 and combination:3) and included atrial fibrillation:2 patients (11%); typical or atypical AFL:3 patients (16%); non-sustained VT:1 patient (5%); and SVT:1 patient (5%). Mean time to first recurrence was 153 days (range: 1-395 days). Two patients (one simple; one moderate/complex ACHD) had recurrent CTI-AFL and underwent successful redo RFA with no recurrence at 3 months follow-up.

Conclusion: RFA of CTI-AFL in patients with simple and moderate/complex ACHD is safe and has high acute success rate. Post procedure freedom from all arrhythmias is more likely to be achieved in simple than moderate/complex ACHD, although the difference was not statistically significant in our cohort.