

**Multidisciplinary approach in patients with supraventricular arrhythmias late after Fontan surgery: Transcatheter and surgical ablation.**

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Introduction: Classical atriopulmonary Fontan connections tend to fail in the long term due to progressive anastomotic site obstruction, right atrial enlargement, and refractory atrial arrhythmias. Timing to conversion to total cavopulmonary connection and arrhythmias management are controversial issues.

Methods: We reviewed data from 22 Fontan patients (pts) referred to our centre for refractory supraventricular arrhythmias. All pts underwent complete clinical and instrumental evaluation. After multidisciplinary discussion pts were referred to cavopulmonary connection with concomitant arrhythmia surgery when hemodynamic indication to surgery was present or when they were not eligible for transcatheter (TC) ablation. All others pts underwent TC ablation.

Results: TC ablation was performed in 8/22 pts. Multiple arrhythmias were present in 5/8 pts. The most common form of arrhythmia was intra-atrial reentrant tachycardia (IART); focal atrial arrhythmia was present in 2 pts and atrioventricular nodal reentry in 2 pts (in one case using a twin atrio-ventricular node). TC ablation was acutely effective in all patients. At a median follow-up of 30 months (8-45) two pts experienced arrhythmia recurrence. After clinical reevaluation one was referred to a second TC ablation, the other patient underwent surgery for the occurrence of new hemodynamic indication. Conversion to total cavopulmonary connection and surgical ablation was performed in 14/22 pts. Atrial fibrillation was present in 8 pts; IART in 5 pts and atrial flutter in 1 pt. Maze ablation was performed in the right atrium or in both atria according to the arrhythmia diagnosis obtained by EKG or, when needed, by electrophysiological study. There were two patients who died in the early post-operative period. At the mid-term follow-up, late atrial arrhythmias had recurred in 2/14 pts.

Conclusions: TC ablation is effective in Fontan patients not having hemodynamic indication to surgery. In the presence of a failing Fontan surgical ablation during conversion to cavopulmonary connection reduces the incidence of atrial arrhythmias. A multidisciplinary evaluation needs to be performed to identify patients who might benefit from TC ablation and in order to optimize the timing for surgical approach.