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Early outcomes for surgical radiofrequency ablation for atrial arrhythmia in children: A single institution experience

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Introduction: Radio-frequency ablation (RFA) surgery is steadily gaining ground as management for atrial fibrillation/flutter (AF) especially in patients who undergo cardiac surgery; however, it is not commonly performed in children. Freedom from AF will provide pediatric patients with long term improved cardiac output and lessen the risk of a stroke.

Objective: This paper will focus on the subset of pediatric patients who received RFA surgery together with their open heart surgery and their early outcomes.

Methods: A series of nine consecutive pediatric patients who underwent surgical RFA for AF together with open heart surgery were reviewed from a single institution. These patients were then followed up for recurrence of AF and any other rhythm disturbances. Seven of these patients had multiple rheumatic valvular pathology with secondary dilatation of both atria, necessitating biatrial AF surgery. The remaining two patients had congenital pulmonary stenosis causing severe tricuspid regurgitation and right atrial dilatation; hence, only right-sided RFA was performed.

Results: On follow up, two patients still had persistence of atrial fibrillation after a six months follow-up with regular and controlled ventricular response. Another patient was readmitted 15 months post-operatively for recurrent AF in rapid ventricular response, with note of severe mitral regurgitation and severe tricuspid regurgitation after mitral valve repair and tricuspid ring annuloplasty. This patient underwent redo sternotomy, mitral valve replacement and tricuspid valve repair, converting to sinus rhythm, postoperatively. The rest of the patients (77%) had sinus rhythm since AF surgery. There were no mortalities for these procedures.

Conclusion: RFA surgery concomitant with open heart surgery is beneficial for pediatric patients with atrial arrhythmia. A longer follow-up study is recommended together with more surgical experience.