Predictors of Successful ablation & recurrence in Atrio-ventricular Nodal Re-entrant Tachycardia

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INTRODUCTION

Atrio-ventricular Nodal re-entrant tachycardia (AVNRT), the most common form of paroxysmal supraventricular tachycardia, is a fascinating complex of arrhythmias **(Lockwood et al, 2004)**.

It is the operative mechanism in up to 60% of patients presenting with paroxysmal supraventricular tachycardia **(Fogoros, 1998)**.

Intracardiac electrogram recordings and programmed electrical stimulation have helped a great deal in improving our understanding of this arrhythmia. The evolution of this knowledge has led to the development of rational therapy, including transcatheter ablation using radiofrequency energy for treatment of AVNRT **(Akhtar et al., 1993)**.

Catheter-based radiofrequency (RF) energy has become the preferred modality for tachyarrhythmia ablation and has proven to be highly effective in the treatment of atrioventricular nodal re-entrant tachycardias (AVNRT), accessory pathway tachycardias, atrial flutter, atrial fibrillation, and ventricular tachycardias. However, lesions created by RF energy which inevitably involve some degree of tissue disruption, are irreversible and thrombogenic **(Anfinsen et al., 2001)**.

Radiofrequency ablation of the slow pathway has become first-line therapy for the elimination of AV nodal reentrant tachycardia (AVNRT). Slow pathway ablation is guided by a combination of fluoroscopic landmarks, electrogram morphology, and the induction of accelerated junctional tachycardia (AJT) during the application of radiofrequency energy **(Skanes et al., 2000).**

Also, atrioventricular nodal reentrant tachycardia (AVNRT) is one of the most common forms of supraventricular tachycardia in the pediatric population. Selective radiofrequency current ablation/modulation of the slow pathway is a safe and curative treatment of AVNRT in young patients **(Kriebel et al., 1989)**.

During ablation of the slow pathway in AVNRT, and of (para)septally located accessory pathways, there is an increased risk of right bundle branch block or inadvertent complete AV-block, as these pathways run in close proximity to the atrioventricular node **(Lipscomb et al., 2001)**.

Anteroseptal approach of slow pathway ablation is associated with a higher incidence of transient AV block and AVNRT recurrence than other approaches. Residual dual atrioventricular nodal pathway after apparently successful ablation also carries a high risk of recurrence **(Wang et al., 2002)**.

Although no significant changes were observed in systolic function after RF ablation, this procedure may have some detrimental effects on ventricular diastolic function parameters **(Eksik et al., 2004)**.

Persistent inappropriate sinus tachycardia may evolve as a complication after radiofrequency (RF) fast pathway ablation of atrioventricular nodal reentrant tachycardia (AVNRT). Parasympathetic denervation may serve as one of the possible mechanisms. RF ablation of the slow pathway in AVNRT does not change parameters of HR and heart rate variability significantly by means of serial 24-hour Holter recordings **(Purerfellner et al., 1998)**.