

Cryoablation for AV Nodal Reentrant Tachycardia in Children and Congenital Heart Disease Patients: Risk Factors for Recurrence

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Background: AV nodal reentrant tachycardia (AVNRT) is a common arrhythmia in children and patients with congenital heart disease (CHD). Cryoablation is used frequently in pediatric electrophysiology centers, to minimize risk of AV block, but there is significant risk of recurrence. Factors associated with recurrence are not clearly defined.

Purpose: To determine factors related to recurrence in pediatric and congenital patients with AVNRT.

Methods and results: From 17/11/2004-29/06/2015, 101 consecutive patients underwent cryoablation for AVNRT by the same operators. A 3D mapping system (NavX St Jude Medical) was used in all cases. We labeled the first 41 pts as early group and the final 60 as late group. Acute success was achieved in every studied patient. Follow-up ranged from 2.44 to 13.05 years. We compared pts without recurrence (Group A, n=90) to those with recurrence (Group B, n=11). There were no differences between groups in patient age (12.5 ± 4.7 vs 12.7 ± 4 years $p = 0.89$). Patients in Group A, were more likely to belong in the late era ($p = 0.022$). They tended to have longer procedure time (193 ± 55 vs 165 ± 35 min $p = 0.11$), although the difference was not statistically significant. Fluoroscopy times were similar, although they trended downwards with more experience (4.59 ± 4.2 early group vs 3.3 ± 4.6 late group $p = 0.178$). The number of cryolesions, residual slow pathway conduction and presence of CHD did not show any relationship with recurrence. There were no complications in either group.

Conclusions: Cryoablation is extremely safe and with very high acute success for AVNRT ablation. No risk factors associated with higher recurrence rates were identified, other than less experience. Larger studies are needed to determine methods to increase long-term success.