

Modified Cryoablation Versus Radiofrequency Ablation of Atrioventricular Nodal Reentrant Tachycardia (AVNRT) in Children: Results of a Prospective Randomized Study

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Introduction : Both cryoablation and radiofrequency (RF) ablation are effective treatments for AVNRT. Because of the small risk of permanent atrioventricular (AV) block in RF ablation and higher recurrence rates of cryoablation there is still some uncertainty about which treatment to choose. In this report we compare RF ablation with a modified cryoablation technique.

Methods: Between January 2012 and June 2014 a total of 94 patients diagnosed with AVNRT (64 female) were treated with ablation. Patients were grouped randomly as cryoablation (n=53) or RF (n=41). All the procedures were performed by the same specialist. Acute success rates, complication rates and recurrence at follow up are compared between the two groups.

Results: Patients' average age and weight in cryo group were 13±3.4 years and 48.3±14 kg and in RF group 11.6±3.1 years and 47.3 ± 17 kg respectively. While applying cryoablation, a line consisting of 5-6 lesions was put adjacent to the successful site closest to the compact AV node. There was no significant difference in acute success rates between the two groups during the process (in the cryo group, 98.1%, in the RFA group 97.5%). RF ablation group had a shorter total processing time, but according to the cryoablation group fluoroscopy time was significantly longer (p <0.05). During cryomapping or energy, temporary complete AV block was observed in four patients and 1st degree AV block in six patients. Mean follow up time after the procedure was 2.31±0.82 years. Relapse rates were 7.6% in cryo group (4/52) and 5% in RF group (2/40). No permanent AV block or complications were observed in both groups.

Conclusions: According to our work in AVNRT in children, cryoablation therapy is as effective as RFA method for acute procedural success and recurrence rates. Being less fluoroscopy exposure in cryoablation procedures is an important advantage. Compared with the literature, these more successful results can be depend on modified ablation technique we used.

	CRYO	RF	p	ALL
N	53	41	-	94
F/M	36/17	28/13	-	64/30
Mean Age (years)	12.98±3.41	11.63±3.14	0.06	12.39±3.34 (3-18)
Mean Weight (kg)	48.3±14	47.3±17	0.8	48.5
Procedure Duration (min)	116±45	76±28	<0.05	98.86±43.69
Fluoroscopy Time (min)	13.1±7.8	19±10	<0.05	15.76±9.73
Acute Success	52/53 (98.1%)	40/41 (97.5%)	0.6	92/94
Follow up Time (years)	2.40±0.89 (1.25-3.75)	2.19±0.70 (1.3-3.75)	0.5	2.31±0.82
Recurrence	4/52 (7.6%)	2/40 (5%)	0.4	6/92
Permanent AV Block	0	0	-	0