Outcomes of catheter ablation for typical atrioventricular nodal reentrant tachycardia with low power energy

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Background: Atrioventricular nodal reentrant tachycardia (AVNRT) is most common supraventricular tachycardia with acceptable outcome of catheter ablation. However, the serious complication of atrioventricular block (AVB) can occur and affects 0.2% to 2.3% of patients during or after procedures.

Purpose: We hypothesized that slow pathway ablation with 20 watt (W) energy would facilitate acceptable clinical outcomes and low procedure related AVB needed permanent pacemaker.

Methods: Prospective single center trial was performed. Slow pathway ablation was performed in 212 patients (mean age 56.5±18.4 years, 131 women) from January 2017 to May 2020. Twenty watt energy was delivered at the posterior region of the triangle of Koch until accelerated junctional rhythm was obtained.

Results: A total of 212 patients who underwent ablation for typical AVNRT were included. The acute success rate, the mean radiofrequency pulses applied per patient were 98.1% and 8.6±6.6, respectively. Transient AVB occurred in 5 patients (2.4%) and no permanent AVB requiring permanent pacemaker implantation occurred. Those who failed 20 W ablation were younger (success group age vs failed group age 58.2±17.4 vs 31.8±17.9 years, p=0.005) and had a faster heart rate just before slow pathway ablation (success group heart rate vs failed group heart rate 69.2±11.3 vs 76.8±5.6 bpm, p=0.59). The recurrence rate of 20 W ablation was 2.6% and the follow-up period was 18.3±4.1 months.

Conclusion: The low power approach for slow pathway ablation is highly effective and safe. If the heart rate just before ablation is lesser than 70 bpm, slow pathway ablation with 20 W energy could be considered. Further well-designed large-randomized studies are needed to define the role and effect of catheter ablation for typical AVNRT with low power energy.