ATRIOVENTRICULAR NODAL REENTRANT TACHYCARDIA IN THE ELDERLY: EFFICACY AND SAFETY OF RADIOFREQUENCY CATHETER ABLATION

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Radiofrequency (RF) catheter ablation is an accepted mode of therapy in patients (pts) with atrioventricular nodal reentrant tachycardia (AVNRT). The aim of this study was to assess the efficacy and risks of RF ablation in older patients with AVNRT.

Methods: We retrospectively analysed data of 350 consecutive pts referred for AVNRT RF ablation between 1995 and 2005. Pts were divided according to age: pts <65 years (Gr.1, n = 280; mean age 46 ± 13 yrs, 69% female); pts ≥65 yrs (Gr. 2, n = 70; mean age 72 ± 6 yrs, 59% female).

Results: Compared to Gr. 1, older pts more often had structural heart disease (12/70 vs 17/280, p = 0.002), but there was no difference in the incidence of syncope (6/70 vs 18/280, p = 0.52) or atrial fibrillation (1/70 vs 6/280, p = 0.70). Before RF ablation, Gr. 2 pts had longer A–H intervals (90 ± 31 ms vs 77 ± 19 ms, p < 0.0001), longer H–V intervals (44 ± 6 ms vs 41 ± 5 ms, p < 0.0001), longer fast pathway refractory period (358 ± 14 ms vs 335 ± 68 ms, p = 0.01), and longer tachycardia cycle length (394 ± 71 ms vs 315 ± 59 ms, p = 0.0001). A prolonged A–H interval (≥ 140 ms) was present in 3/70 Gr. 2 pts vs 0/280 Gr. 1 pts (p < 0.001). No difference was observed between the two groups in terms of primary RF ablation success (70/70 vs 277/280, p = 0.38), total procedure duration (75 ± 35 min vs 78 ± 45 min, p = 0.61), fluoroscopy time (4 ± 12 min vs 13 ± 12 min, p = 0.63), or number of RF pulses (median 5 vs 4, p = 0.051). Two complications (0.57%, 3° AV block with pacemaker implantation) were observed, both in Gr. 1. Recurrences occurred only in Gr. 1 (10/280 vs 0/70, p = 0.001).

Conclusion: RF ablation for AVNRT is highly effective and safe in the elderly despite a higher prevalence of structural heart disease and longer A–H intervals at baseline. RF ablation should be considered as first-line therapy for the elderly with AVNRT.

CONSERVATIVE APPROACH IN THE ABLATION OF ATRIOVENTRICULAR NODAL REENTRANT TACHYCARDIA


Background: The major complication during catheter ablation of atrioventricular nodal reentrant tachycardia (AVNRT) is the inadvertent creation of permanent atrioventricular block (AVB). Many techniques have been proposed to reduce this risk but AVB is still reported in literature in a percentage varying from 0.5 to 2% of cases.

Methods: From August 2000 to August 2005, 361 consecutive patients (206 female ~56%, mean age 56±16 years, structural cardiopathy in 71~20%~) underwent slow pathway catheter ablation. In order to reduce AVB risk, besides methods commonly in use, the following measures were also systematically adopted: 1) maximum time of continuous RF delivery not over 20 seconds; 2) incremental atrial stimulation after each RF delivery in order to detect significant modification of Wenckebach point in advance.

Results: During the electrophysiological study a slow –fast AVNRT was induced in 354 (98%) patients, while in the remaining 7 (2%) a fast–slow AVNRT was observed. Acute efficacy of the procedure, defined as the impossibility to reproduce the tachycardia also during isoproterenol infusion, was obtained in 357 (99%) patients, with a mean number of 7±6 RF pulses, of a mean duration of 15±4 seconds. A transient procedure-related AVB was seen in 11 (3%) patients: in 8 it appeared during the RF delivery and resolved in a time of 30–60 seconds; in 3 patients it occurred on average 12 hours after the procedure, was preceded acutely by a significant modification of the Wenckebach point, and completely disappeared in a maximum time of 48 hours. Only 1 (0.25%) patient presented a stable, procedure-related AVB that required pacemaker implantation. During a subsequent follow-up of 30±17 months, AVNRT recurred in 12 (3%) patients who underwent an effective second procedure. No patient developed atrioventricular conduction disturbances that required pacemaker implantation.

Conclusions: A conservative approach during the AVNRT ablation is safe and effective, minimizing the risk of procedural and long-term complications.

IMMEDIATE AND DELAYED PACEMAKER IMPLANTATION AFTER RADIOFREQUENCY CATHETER ABLATION OF SLOW PATHWAY: A MULTICENTRIC RETROSPECTIVE STUDY

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Radiofrequency catheter ablation of the slow pathway as a core for Atrioventricular nodal reentrant tachycardia (AVNRT) has been reported to be highly effective and safe. In most of the published studies the incidence of complete atrioventricular block (AVB) requiring pacemaker (PM) therapy could be underestimated as result of the short duration of FU (a few years) and the physiological reduction in atrioventricular node function related to aging. The objective was to evaluate the risk of early (15 days after ablation) and delayed PM implantation during the FU.

Methods: This multicenter retrospective study included 999 pts (52% females; and 47% females) with AVNRT’s underwent slow pathway ablation. The mean FU is 35±20 months.

Results: 19 pts required PM implantation. 11 in the 2 weeks (mean of 3.7±4 days) after ablation and the remainder during a mean FU of 17±9 months. For early PM implantations the different degrees of AVB were respectively a 2° AV block in 1 pt and complete AVB in 10 pts. For delayed implantations 1 pt developed 2° AVB and 7 pts a complete AVB. The global incidence of implantation is 1.9% [31±1.1–2.9]. There is no difference between pts with or without PM concerning the age, sex, type of tachycardia (slow –fast or fast-slow) or number of applications of radiofrequency. The difference is significant if the procedure duration is long (105±54 vs 166±49 p = 0.015) or if the patient needed 2 procedures (5.4% vs 21% p = 0.019). The pts who developed immediate or delayed, transient or permanent 2° AVB after RF have a higher risk to need PM implantation at the FU = 0.058.

Conclusions: Definite complete AVB is rare (0.9%) but the risk persist after slow pathway ablation (0.8%). Long-term FU remains necessary after ablation for pts with AVNRT specially if the patients developed transient or permanent 1° AVB.