217
Characteristics of recurrent clockwise atrial flutter after previous radiofrequency catheter ablation for counterclockwise isthmus-dependent atrial flutter

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Introduction: Isthmus-dependent (ID) clockwise (CW) atrial flutters (AFi) are rare in comparison with counterclockwise (CCW) AFi. Little is known about clinical and electrophysiological characteristics of CW AFi occurring after previous radiofrequency (RF) catheter ablation of CCW AFi. We sought to compare CW AFi “de novo” versus CW AFi occurring after previous CCW AFi RF ablation.

Methods and results: From January 2007 to January 2010, out of 246 procedures of RF catheter ablation for AFi were reviewed. Patients were excluded if they were in sinus rhythm (n=70) at the beginning of the procedure, or if AFi was not ID (n=118). 25 patients presented CW AFi (10% of all ID AFi), including 10 CW AFi occurring after a previous RF catheter ablation for CCW AFi. Mean time for recurrence after the previous procedure of CCW AFi RF ablation was 3.5y. They were younger (61.6±11y) than patients with CW AFi de novo (74.0±7.2; p<0.005). Bidirectional isthmus block was obtained in all patients. There was a significant difference in terms of double potentials in the left atrium. Two pts with previously documented atrial flutter were younger than patients with CW AFi de novo versus CW AFi occurring after previous CCW AFi RF ablation.

Conclusion: Patients with CW AFi occurrence after CCW AFi RF catheter ablation are younger than patients presenting with CW AFi “de novo”. They have a smaller interspike interval after block completion, suggesting a smaller or a more rapidly conducting atrium.

218
Benefit of redo procedures using radiofrequency after failure of a first catheter ablation of atrial fibrillation using cryotherapy

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Introduction: In patients with atrial fibrillation (AF), cryoballoon can be used to achieve pulmonary vein isolation (PVI) but is associated with about 1/3 of AF recurrences. The objective of this prospective study is to evaluate the benefit of redo procedures with RF, after failure of the initial catheter ablation of AF using cryotherapy.

Methods: Circumferential PVI was first performed using a cryoballoon catheter in 60 consecutive patients with symptomatic paroxysmal AF (38 males, age 57±12 years). In case of tachyarrhythmia recurrence, a second procedure was performed using RF energy.

Results: At 4±2 months follow up after cryoballoon PVI, 24 patients (40%) had AF recurrences (15 males, age 58±10 years) and underwent a second catheter ablation using radiofrequency. Redo procedures were achieved under local anesthesia in 22/24 patients (92%). A 3-D mapping system of the left atrium (LA) was used only in 2 patients (8%). Mean procedure and fluoroscopy times were significantly shorter than those observed during previous ablation by cryoballoon, respectively 152±26 and 117±35 min, P<0.001; and 29±9 and 18±11 min, P=0.001. Atio-venous reconnections, usually discrete, were observed in 2.8±1.3 veins per patient, most frequently in the left inferior vein (21/24 patients, 88%; right inferior vein in 17/24 patients, 71%; right superior vein in 14/24 patients, 58%; left superior vein in 14/24 patients, 58%; and all PVs in 9/24 patients, 38%). Conduction gaps were readily ablated using focal RF energy applications in all patients. After a mean of 1.5±0.8 ablations, 98% of patients were free from AF at 10±5 months follow up. No serious complication was observed.

Conclusion: In patients with paroxysmal AF, redo procedures using RF energy after failure of cryoballoon ablation of AF can be safely and rapidly achieved and clearly improve outcomes of patients.