Abstract: P466

Acute and long-term success of catheter ablation of atypical atrial flutter in patients with previous pulmonary vein isolation

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Introduction: Atypical atrial flutter frequently occurs in patients who have undergone previous medical procedures, such as cardiac surgery or pulmonary vein isolation (PVI) for the treatment of atrial fibrillation. Mapping and ablation of these complex arrhythmias continue to be a challenge and there are few studies addressing this issue.

Purpose: Characterize and evaluate the acute and long-term success of catheter ablation of atypical atrial flutter in patients with previous PVI.

Methods: Retrospective single center analysis of consecutive patients with previous pulmonary vein isolation undergoing catheter ablation of atypical atrial flutter from October 2007 to July 2018. Clinical profiles and procedural details were determined. We evaluated the acute success rate and long-term recurrence of AAF alone or a combination of AAF, atrial flutter or atrial fibrillation.

Results: A total of 59 patients (61% men with mean age 61.9 ± 10.3 years) were included. 54 (91.5%) had previously underwent catheter PVI, 5 (8.5%) had previous surgical radiofrequency PVI and 21 (35.6%) patients had a second catheter PVI procedure. A total of 52 (88.1%) AAF were mappable and distributed as follows: peri-mitral flutter (19, 32.2%), focal reentry through gaps in the prior PVI line (PVI-AAF) (19, 32.2%), LA-roof dependent flutter (11, 18.6%) and right atrium non-CTI flutter (3, 5.1%). High-density activation-sequence mapping was used in 22 (37.3%) of cases. A different AAF circuit after the first set of radiofrequency applications was seen in 13 (22%) patients. Acute success rate was achieved in 38 (64.4%) patients and was more likely to occur in patients with PVI-AAF (84.2% vs 15.8%, p = 0.029) and less likely in patients with more than one AAF circuit (25.9% vs 75.1%, p < 0.001). Over a mean follow-up of 46.1 ± 35 months, AAF recurred in 15 (25.4%) after a mean of 21.8 months (IQR 4–35) and 31 (52.5%) had recurrent atrial tachyarrhythmias (atrial fibrillation, AF or AAF). Although not statistically significant, there was a lower recurrence rate of AAF in patients who achieved sinus rhythm during ablation of the first mapped AAF (18.9% vs 38.1%, p = 0.09) or those who had left PV-dependent flutter (12.5% vs 28%, p = 0.3).

Conclusion: Catheter ablation of AAF is a complex procedure, with acute success observed in approximately 2 out of 3 patients. AAF involving gaps in prior PVI lines are more likely to be successfully ablated. During follow-up, approximately 25% and 50% had recurrent AAF or atrial tachyarrhythmias (AAF, atrial flutter or atrial fibrillation), respectively. There was a tendency for lower recurrence of AAF in patients who had left PV-dependent flutter or achieved sinus rhythm during ablation of the first mapped AAF.