Catheter ablation for atrial fibrillation in very young patients

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Introduction: Pulmonary vein automaticity is an established trigger of paroxysmal atrial fibrillation (PAF) making pulmonary vein isolation (PVI) the cornerstone for catheter ablation. However, data on triggers of AF and catheter ablation strategy in very young (<30 years old) patients are sparse.

Methods and results: Sixteen young patients (mean age 25.2 ± 4.9 years; 75% men) with recurrent drug refractory PAF underwent EP study and ablation at 3 EP centers. None of the patients had structural heart disease or family history of AF. EP study revealed degeneration of induced supraventricular tachycardia (SVT) into AF in 5 patients (n = 5, 31.2%). Induced SVTs were left lateral concealed accessory pathway mediated orthodromic AVRT in two patients, typical AVNRT in two patients, and left superior PV tachycardia in one patient respectively. In patients with induced SVTs, SVT ablation without PVI was performed as an index procedure. Remaining patients underwent second generation cryoballoon (CB-2) based PVI (n = 11, 68.7%). There were no major complications related to ablation procedures. Follow-up was based on outpatient visits including 24-h Holter-ECG at 3, 6 and, 12 months post ablation, or additional Holter-ECG was ordered in case of symptoms suggesting recurrence. Recurrence was defined as any atrial tachyarrhythmia (ATA) episode >30s following a 3-month blanking period. After a median follow-up of 18.3 ± 6.2 months, 13 of 16 (81.2%) patients were free of ATA recurrence. None of the patients belonging to SVT ablation only group experienced ATA recurrence. Three patients with previous CB-2 PVI recurred, one had typical atrial flutter and underwent CTI ablation, remaining 2 patients had AF recurrence and medically followed.

Conclusion: In a considerable fraction of young adult patients with history of PAF SVTs may be responsible and SVT ablation without PVI may be sufficient as an index procedure. Catheter ablation AF seems to be safe and effective in this population.