

Arrhythmias after transcatheter closure of persistent foramen ovale are related to the type of the implanted device.

Monika Pieculewicz, MD, Ph.D. Institute of Cardiology, Jagiellonian University School of Medicine, Cracow, Poland;

Arrhythmias may occur in patients following persistent foramen ovale (PFO) closure. Therefore, the aim of the study was to prospectively perform ambulatory 24-hours ECG monitoring to assess the electrocardiographic effects of transcatheter closure of PFO depending of the different type of implanted device.

Material and methods

Consecutive 120 adult subjects (68 F, 52M; mean age: 42.3 ± 12.3) were enrolled into the study, with a view to performing the PFO closure with the Amplatzer Septal Occluder - ASO (80 pts), and Cardia device (40).

Holter monitoring was performed on all patients before procedure, 1, and 12 months of follow-up.

Results

The successful rate of PFO closure procedure was 94.5% (120 cases from 93 qualified in TEE), in 6 cases the PFO tunnels were too small to force it by catheter, in 1 case there was the septum injury by PFO device and ASD Amplatzer device was implanted.

During the procedure in 2 (1.7%) cases a transient supraventricular arrhythmia and in 1 (0.8%) case bradycardia to 30/min occurred.

At 1 month: in 7 (5.8%) pts changes in AV conduction occurred: 1 pts (0.9%) had complete AV dissociation, 6 (5%) pts present intermittent first degree AV block; paroxysmal atrial fibrillation (pAF) occurred in 6 (5%) pts, 2 of whom had pAF prior to closure.

There was no change in the mean number of ventricular arrhythmias/24h after the procedure.

A significant increase in number of SVE premature beats/24 hours was noted 1 month after procedure: 1020.9 ± 431 (27-9600) compared to baseline data 54.5 ± 43 (0-560) ($p < 0.0001$), after 12 month SVE number decreased to 61.8 ± 51 (4-701) and there were no significant differences with the baseline data.

There was a significant correlation between SVE premature beats/24 hours 1 month after procedure and device size ($p < 0.0001$ $r = 0.95921$)

Pts with ASO device presented significantly higher number of SVE ectopy 1 month after PFO closure (1768.9 ± 671) compared to pts with Cardia device (895.9 ± 211), $p < 0.0001$.

Conclusions

1. Transcatheter closure of PFO is associated with a transient increase in supraventricular premature beats and a small risk of AV conduction abnormalities and paroxysmal atrial fibrillation in the early follow-up. There is a regression of periprocedural arrhythmias after 12 months of PFO closure.
2. Transcatheter closure of PFO with Cardia device is related with lower risk of supraventricular arrhythmias in the early follow-up.
3. The smaller device is implanted the lower risk of periprocedural arrhythmias is expected.