

The First Experience in Central Europe with Video Thoracoscopic SNS Ablation for Complex IST and POTS Syndrome

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OBJECTIVES

Cardioneuromodulation for the treatment of atrial and ventricular arrhythmias as well as cardiovascular disease may require targeting both sympathetic and parasympathetic systems. Moreover, some patients with persistent atrial fibrillation (AF) referred for video-assisted thoracoscopic (VATS) AF ablation with epicardial GP ablation have indications for simultaneous bilateral cardiac sympathetic denervation (BCSD). This preliminary study aimed to describe indications, efficacy, and mid-term outcomes of minimally invasive thoracoscopic approach to persistent AF ablation and cardioneuromodulation.

METHODS

MINimally Invasive Complex Hybrid staged Antiarrhythmic and cardioneuroModulation ablation ProcedureS (MINI-CHAMPS) was a pilot study and enrolled 5 patients (aged 63±8 years) with persistent AF to undergo 2 stages: 1) VATS AF ablation with epicardial GP ablation and BCSD and 2) electrophysiological study to confirm binodal cardioneuroablation by vagus nerve stimulation, inducibility of arrhythmia, mapping, and additional catheter AF ablation if necessary. Baseline characteristics, indications, procedural data including complications, and arrhythmia outcomes were evaluated.

RESULTS

Indications for BCSD were recurrent ventricular tachycardia (VT) in two, recurrent Takotsubo cardiomyopathy with ventricular fibrillation (VF), severe hyperhidrosis, mixed (VT + hyperhidrosis) and daily recurrence of Prinzmetal angina. During the second procedure, noninducibility of VT/VF was confirmed in all patients. Binodal cardioneuroablation was confirmed by vagus nerve stimulation and atropine challenge. All patients required additional pulmonary veins (PV) or non-PV substrate ablation. At a mean follow-up of 12±5 months, all patients were free of paroxysmal/persistent AF, VT/VF recurrence, life-threatening major procedure-related complications, and potential risks related to simultaneous CNA and CSD.

CONCLUSIONS

MINI-CHAMPS for persistent AF is safe and effective with concomitant indications for cardioneuroablation and BCSD. Comprehensive hybrid minimally invasive staged AA approach with cardioneuromodulation (CNA+bilateral sympathectomy) - safe and feasible; 6% persAF referred for PVI and 25-33% pts referred for BCSD required MINI-CHAMPS. All patients with complete denervation (CNA) after CS (ECANS+ atropine tests); Mixed group: Discontinuation for the need of AP/VP, ICD discharge;

