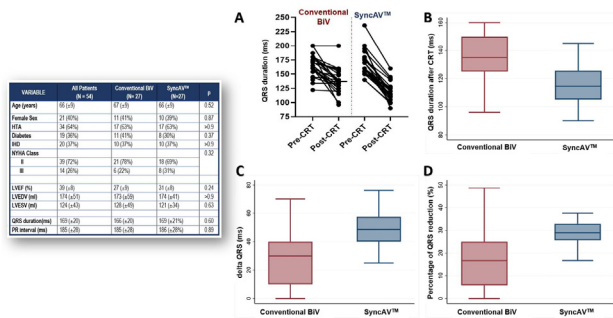


that allow us to evaluate the clinical benefit of this marked electrical improvement.



## ABSTRACT CE-521: Understanding and manipulating the autonomic nervous system

Friday, April 29, 2022

10:30 AM - 11:30 AM

CE-521-01

### STELLATE GANGLION INSTRUMENTATION FOR RECORDING AND STIMULATION IN PATIENTS WITH VENTRICULAR ARRHYTHMIAS. PRELIMINARY EXPERIENCE

Adi Lador MD; Sufen Wang PhD; Amish S. Dave MD, PhD and Miguel Valderrabano MD

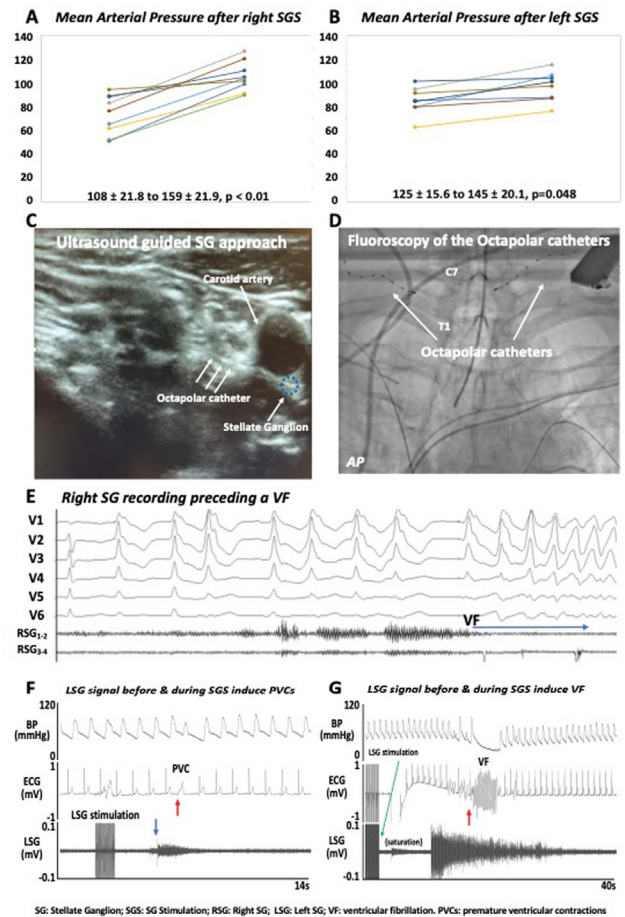
**Background:** Stellate Ganglion (SG) blockade is used for controlling ventricular arrhythmias (VA). In animal models, SG instrumentation with electrode catheters can allow stimulation and recording of cardiac sympathetic activity. Studies on direct modulation and recording of the sympathetic nervous system in human are lacking.

**Objective:** To assess the feasibility of SG stimulation (SGS) and recording in humans undergoing VA ablation

**Methods:** Patients (n=11) undergoing ablation procedures for VAs underwent bilateral SG recording and stimulation. Under ultrasound guidance, a 2F octapolar catheter was advanced in the SG at the C7 level. Signals were recorded at 30 kHz and filtered at 0.5-2kHz bandpass. Nerve activities were defined as a 3-fold increase in the amplitude over baseline. Stimulation was performed up to 80 mA output (50 Hz, 2 ms pulse width) for 20-30 s.

**Results:** Eleven patients (age  $63 \pm 12.7$  years; 82.7% men) with ischemic ventricular tachycardia (VT) (4, 36%), nonischemic VT (5, 45%), and PVCs (2, 18.2%) were included. Stimulation catheter placement was successful without complications in all patients. SGS caused significant increase in the systolic blood pressure (Fig A-B). More after right than left SGS. SGS induced PVCs in 2 patients and VF in 1. We were able to record SG firing preceding VF in a patient with primary VF in the context of ischemic cardiomyopathy (Fig C-E), and left SG firing preceding the arrhythmia after SD stimulation (Fig F-G) in a patient with PVCs induced VF.

**Conclusion:** SG recording and stimulation are feasible in humans. SGS leads to blood pressure increases, more pronounced after right SGS. SG firing can precede VA onset in humans. Technical refinements are needed to improve reliability of SG recordings.



CE-521-02

### REPRODUCIBILITY OF CARDIAC GANGLIONATED PLEXUS LOCALISATION USING A NOVEL CURRENT-CONTROLLED HIGH FREQUENCY STIMULATOR

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**Background:** Ganglionated plexuses (GPs) are epicardial structures, implicated in arrhythmogenesis, that can be located by triggering their physiological effect via endocardial high frequency stimulation (HFS). Mapping and ablation of GP sites may be an effective treatment for AF. Further research is hampered by regulatory and clinical issues relating to commonly used stimulators. A novel current-controlled stimulator was developed to overcome some of these.

**Objective:** To assess efficacy and reproducibility of localising atrial GP using a novel current-controlled HFS (Tau-20) in comparison to the Grass S88 with SIU5 (voltage-controlled).