

### REPLY: Procedural Characteristics and Medications to Prevent Sinus Node Artery Occlusion During Cardioneuroablation



We would like to thank Dr Debruyne for his interest in our paper.<sup>1</sup> Based on his observations with >130 procedures and no acute sinus node dysfunction, Dr Debruyne proposes to limit ablation to the posterior aspect of the superior vena cava (SVC) and to limit the contact force to avoid sinus node artery (SNA) lesions.

Ganglionated plexi ablation has been shown to be effective in preventing syncope recurrence in patients with functional bradycardia. However, as procedural experience grows, the operator's attention should turn to the recognition of undescribed complications. It is worth mentioning that SNA flow can be spontaneously restored after occlusion (as in patient 2), resulting in a transient sinus dysfunction that could go unnoticed and unreported.<sup>1</sup>

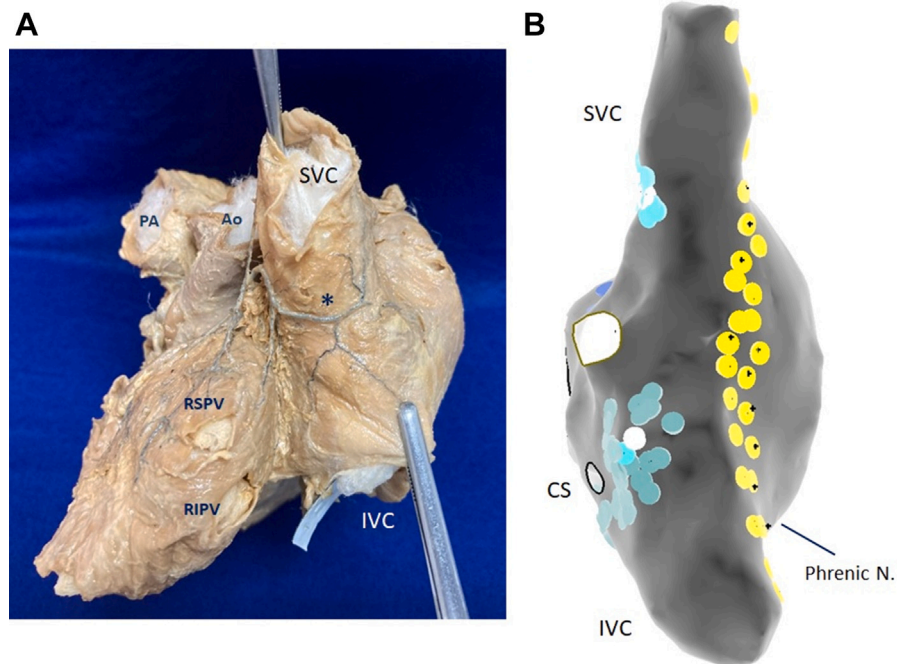
Another important aspect refers to the ablation strategy. Most authors target >1 site and prefer a biatrial approach, as opposed to Dr Debruyne's

unifocal procedure. A multisite ablation seems more appropriate for achieving denervation of both sinus and atrioventricular nodes—something that even patients with exclusive sinus bradycardia may benefit from<sup>2</sup> but that also requires further attention.

We congratulate Dr Debruyne for his remarkable record of 130 cases (by referring only refractory patients, our group has performed 42 cases since 2007;<sup>1</sup> and Dr Pachon's group, who first described the method in 2005, reports 83 procedures<sup>3</sup>). However, larger experience (frequently of many hundreds of cases), is necessary for a full assessment of the effects and risks of any given treatment. For instance, the first report of an atriopharyngeal fistula complicating atrial fibrillation ablation was described only after 220 uneventful procedures<sup>4</sup>.

Reducing the contact force may be of value to improve safety, but targeting the posterior aspect of the SVC will not always prevent SNA injury (Figure 1A) and will bring the radiofrequency lesion close to the phrenic nerve (Figure 1B). No technique is risk free, especially with the latest technologies (irrigation catheters, ablation indexes, contact force) intended

FIGURE 1 Structures in Close Proximity to the Atrioaval Junction



(A) Postmortem human heart study (posterior aspect) revealing a retrocaval sinus node artery anatomical course (asterisk) crossing the posterior and septal aspects of the cavoatrial junction. (B) Electroanatomical mapping of the posterior aspect of the right atrium, displaying the phrenic nerve posterior pathway (yellow dots). Green dots represent radiofrequency pulses. Ao = aorta; CS = coronary sinus; IVC = inferior vena cava; PA = pulmonary artery; RIPV = right inferior pulmonary vein; RSPV = right superior pulmonary vein.

to optimize lesion depth. Caution and surveillance are of the essence.

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Administration guidelines, including patient consent where appropriate. For more information, visit the [Author Center](#).

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