

## Renal Sympathetic Denervation: Using an Old Tool for a New Job?

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**A**rterial hypertension remains an important cause of morbidity and mortality, and is one of the main causes of stroke, heart failure, and atrial fibrillation.<sup>1</sup> Although drug therapy reduces blood pressure (BP),<sup>2</sup> many patients do not achieve adequate control of BP levels, due to side effects of medication, poor adherence to treatment, and the presence of refractory hypertension.<sup>3</sup> For these reasons, there has been great interest in recent reports suggesting that catheter-based renal sympathetic-nerve ablation through the renal artery can significantly reduce BP.<sup>4,5</sup>

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In this issue of the **Revista Brasileira de Cardiologia Invasiva (Brazilian Journal of Invasive Cardiology)**, Staico et al.<sup>6</sup> publish the results of an *ex vivo* study, in which 18 ablations were performed in six porcine renal arteries, using three different radiofrequency ablation catheters designed for intracardiac procedures. The authors demonstrated that with adequate power, duration, and flow, it is possible to perform effective ablation of renal nerves from the renal artery lumen. The irrigated-tip catheter, produced deeper lesions, but the solid-tip, 4 mm/7F catheter, was also effective in nervous tissue ablation. The use of an *ex vivo* model is a logical first step; however, *in vivo* studies with this technique are needed if we are to have clear understanding of its clinical efficacy and potential for collateral damage.

Their article not only provides useful data, but also raises important issues and highlights the need for more research in the field of renal denervation therapy. The experiment by Staico was inspired by the lack of access, in Brazil, to equipment specifically designed for renal sympathetic ablation. The adaptation of commonly available cardiac ablation equipment makes sense from

the intuitive point of view; however, the clearly off-label indication of these devices has yet to be studied. In the United States, the manual of catheters used for radiofrequency ablation usually indicates that they are designed for intracardiac use, and in the case of irrigated-tip catheters, it often specifies the types of arrhythmia they should be used for.<sup>7</sup>

Although renal denervation is a promising treatment for a very common problem, this therapeutic strategy is still in its infancy. Long-term randomized trials are necessary to confirm the safety and efficacy of this technique, and its impact on clinically important outcomes, such as stroke and heart failure. At the current stage, we must be cautious in our enthusiasm and particularly prudent regarding the performance of procedures using different approaches from those demonstrated in previously published studies.<sup>4,5</sup> The use of intracardiac ablation catheters to perform renal ablation is a practical potential solution in regions where dedicated catheters are not available, and it is a potentially cost-effective approach in hypertensive patients submitted to catheter ablation, typically for atrial fibrillation. However, it represents a different technique, which should be submitted to an evaluation similar to that of renal denervation with the use of specifically-designed catheters.<sup>4,5</sup> The authors of this study should be congratulated for their careful approach in conducting the experiment.

### CONFLICT OF INTERESTS

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