Ablation Points of Renal Sympathetic Denervation: The More, the Better?

To the Editor:

We have recently read with great interest the report by Lewalter and Brodherr1 concerning a cooled tip renal denervation using a 3-dimensional nonfluoroscopic guiding system to treat resistant hypertension in a patient with renal failure. This approach allows for an ablation requiring only a minimal amount of contrast medium so that it can avoid renal function deterioration. What is more, it makes the anatomy of the renal arteries much more visible than conventional angiography. What is also worth mentioning is that using an irrigated catheter can adopt an achievement of a 10% to 20% drop in impedance at each location as ablation end point.2

However, we are confused by some details in this report. First, the authors used the system to obtain 11 ablation points in the right renal artery and 13 in the left. As reported previously by many experimental centers,3,4 radiofrequency ablations were usually applied to obtain <6 ablations separated both longitudinally and rotationally within each renal artery to avoid renal stenosis in the long-term follow-up and the procedure could reduce noradrenaline content in the kidney by 47% (95% CI, 28–65%).1 Logically, the more the ablation points, the greater the risk of vascular complications in the follow-up. A recent case report3 describes the development of renal artery stenosis in a patient who underwent renal denervation. So this may be more than just a theoretical consideration. Herein, we do not know why the authors obtained so many ablation points, which can apparently increase the risk of vascular complications. Second, the virtual anatomy of renal arteries was created by touching the vessel walls that can also increase the acute vascular complications, such as perforation, dissection, and so on. What is more, a recent report4 suggests that renal denervation was safe and effective in patients with stages 3 to 4 chronic kidney disease (an estimated glomerular filtration rate <45 mL/min per 1.73 m²) and resistant hypertension. The serum creatinine of the 68-year-old women in the report was 1.4 mg/dL. (the estimated glomerular filtration rate is 42.9 mL/min per 1.73 m² calculated by the modified Modification of Diet in Renal Disease equation). Thus, the higher amount of contrast medium of conventional angiography may not even be necessary for this patient. However, the chronic kidney disease study mentioned above was only a small feasibility study of 15 patients and requires confirmation from larger trials.

To sum up, we propose that the relation between the number of ablation points of renal denervation and the reduction of noradrenaline content in the kidney needs further research to determine the optimal procedure balancing the beneficial effects and its complications. Further large and multicenter research is also needed to assure the safety and efficiency of renal denervation in patients with chronic kidney disease and resistant hypertension.

Disclosures

None.

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*Hypertension*. 2012;60:e47; originally published online October 29, 2012;
doi: 10.1161/HYPERTENSIONAHA.111.00097

*Hypertension* is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0194-911X. Online ISSN: 1524-4563

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