Renal Sympathetic Denervation: Renal Function Concerns

To the Editor:

We have read the report of the Simplicity HTN-1 investigators on the 2-year durability of blood pressure reduction induced by catheter-based renal sympathetic denervation with great excitement because it represents a promising approach for treatment of resistant hypertension. However, several concerns arise that require clarification.

First, the effect of renal sympathetic denervation on renal function should be dealt with the greatest circumspection. In the 10 patients with available 2-year estimated glomerular filtration rate data, a decrease by −16.0 mL/min per 1.73 m² was noticed, which was as well observed to a lesser but significant degree (−7.8 mL/min per 1.73 m²) in 5 of those patients who did not have spironolactone or another diuretic added after the first year of follow-up. This can be considered a dramatic fall when compared with the change observed in recent studies, for example, under antihypertensive treatment with ramipril (−1.96 mL/min per 1.73 m²) or telmisartan (−3.05 mL/min per 1.73 m²) for the same follow-up period, in the Ongoing Telmisartan Alone and in Combination With Ramipril Global Endpoint Trial in high-risk patients. Of note, patients undergoing renal denervation had significantly higher estimated glomerular filtration rate levels at baseline than the Ongoing Telmisartan Alone and in Combination With Ramipril Global Endpoint Trial participants (83 versus 73.6 mL/min per 1.73 m², respectively). The impact on estimated glomerular filtration rate is evident after the first 6 months of renal denervation (−0.1 mL/min at 6 months in this study), which implies that estimated glomerular filtration rate decrease may be observed after a considerable period of time postprocedurally. Whether the differences might be attributed to different study populations, differences in blood pressure levels or a direct effect of renal denervation require clarification. This finding calls for meticulous studies on renal hemodynamics before and after renal denervation, as well as studies evaluating preferred or contraindicated combinations with antihypertensive drugs.

Second, blood pressure reduction in these 18 patients seems to follow a different pattern of consistently greater blood pressure reduction after the first month postprocedurally. Although these patients exhibit a lower blood pressure reduction compared with the 138 patients with available data on the first month after the procedure (−12/−8 versus −20/−10 mm Hg, respectively), ever since the third month of follow-up, their blood pressure reduction overcomes the mean blood pressure reduction of the whole group, which is particularly evident at 12 months (−33/−18 versus −23/−11 mm Hg, respectively). It would be interesting to know whether any antihypertensive drugs were added to these patients after the first month of follow-up, which might explain this divergence. The addition of low doses of spironolactone in patients with treatment-resistant hypertension may switch them over to the blood pressure control group, and it seems that ≥5 of the 18 patients who completed the 2-year follow-up had spironolactone or another diuretic added after the first year.

Third, estimation of blood pressure reduction is based on office measurements and not on ambulatory blood pressure monitoring recordings, which is potentially limiting the validity of the findings.

Disclosures

None.

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