Blood Pressure and Sympathetic Nervous System Response to Renal Denervation

To the Editor:

In contrast to several other studies, including the randomized controlled Symplicity-2 trial, renal denervation (RDN) was not associated with a blood pressure (BP) reduction in this small study by Brinkmann et al.²

It is noteworthy that average baseline BP was significantly lower (157±7/85±4 mm Hg) compared with baseline levels of 178±18/97±16 mm Hg in Symplicity-2, which may explain the less pronounced BP response, given that baseline systolic BP (SBP) determines BP response.² In contrast to Symplicity-2 the less pronounced BP response, given that baseline systolic of 178±18/97±16 mm Hg in Symplicity-2, which may explain lower (157±7/85±4 mm Hg) compared with baseline levels (140±90 mm Hg; 01:140/84 mm Hg; 05:139/71 mm Hg; 09:137/81 mm Hg;10:139/71 mm Hg;11:121/65 mm Hg), and it remains mysterious why these patients were considered for RDN in the first place. Interestingly, the 1 patient who had severely elevated SBP of 222 mm Hg experienced a huge BP reduction to 156 mm Hg.

In contrast to our own findings, in >50 patients with resistant hypertension, in whom we found muscle sympathetic nerve activity (MSNA) to be substantially elevated with an average of 50±2 bursts/min, the level of MSNA in the current study appears quite low (34±2 bursts/min), indicating that their patients may not be characterized by a predominantly neurogenic phenotype of resistant hypertension, as suggested by the authors.

Irrespectively, we were intrigued by their statement that a reduction in MSNA appears to be the exception rather than the rule in their patient cohort, which is contradicted by their own data.¹ In Figure 2, detailing the response of MSNA to RDN, 6 of 11 patients (54.5%) show a substantial reduction in MSNA, whereas the unchanged average MSNA in the group as a whole is driven primarily by the 1 patient who obviously experienced an unusual dramatic rise in MSNA from around 28 to 50 bursts/min. If this patient were to be excluded from the analysis, it appears quite likely that a (significant) reduction in average MSNA could be detected.

Interestingly, heart rate was reduced in 7 of 11 patients, which is consistent with recent data from Ukena and colleagues¹ obtained in a larger cohort of 136 patients with resistant hypertension, which led the authors to propose that a reduction in resting heart rate may provide an alternative criterion for response to RDN.

Finally, it needs to be taken into account that a delayed response to RDN up to 6 months and beyond has been described,⁴ and it will be interesting to learn about the longer term follow-up of these patients. If no BP improvement can be documented with RDN in the longer term (at least in those patients who had acceptable baseline BP), baroreflex stimulation therapy, a treatment modality in which the authors have substantial experience,³ may well be an appropriate and perhaps more successful therapeutic approach for these patients.

Disclosures

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