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 in Figure 2, detailing the response of MSNA to RDN, 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 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.

Irrespective, 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.3 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 colleagues4 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,5 may well be an appropriate and perhaps more successful therapeutic approach for these patients.

Disclosures

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