Letter to the Editor

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Response to Catheter-Based Renal Nerve Ablation and Centrally Generated Sympathetic Activity in Difficult-to-Control Hypertensive Patients: Prospective Case Series

Mahfoud et al1 suggest that several aspects in our publication should be clarified. A previous case report showed massive sympathetic vasomotor tone reduction in a patient with treatment-resistant arterial hypertension after renal nerve ablation.2 Our study, albeit small, was sufficiently powered to address our prespecified primary question whether massive sympathetic inhibition is a typical response to catheter-based renal denervation. We strongly believe that the patient population was suitable for our purposes. Our patients showed uncontrolled arterial hypertension despite treatment with an average of 7 antihypertensive medications. Patients in the Symplicity HTN-2 trial were on 5 antihypertensive medications.3 Previous trials reported office blood pressure measurements. In contrast, we assessed supine blood pressure after an ≈1-hour resting period, which cannot be equated with office blood pressure measurements. Furthermore, the subgroup of patients tested with intravenous clonidine exhibited reductions in blood pressure and sympathetic activity, proving that there was still room for improvement. Thus, our negative findings cannot fully be explained by differences in patient characteristics. Instead, renal denervation may not always elicit a reduction in sympathetic activity and blood pressure. Only one third of 294 hypertensive patients who had undergone surgical sympathectomy exhibited a depressor response exceeding the range of spontaneous blood pressure fluctuations.4 The reference to larger case series is not helpful because treatment success cannot be quantified in the absence of a control group.

We disagree with the notion that elevated blood pressure is a surrogate of excessive sympathetic activity. The contribution of the sympathetic nervous system to arterial hypertension varies from patient to patient.5 Pure autonomic failure patients with supine hypertension are an excellent example that severe hypertension can occur independently of sympathetic nervous system activity. Moreover, in our patient with the highest blood pressure reading, blood pressure was reduced at follow-up, whereas muscle sympathetic nerve activity did not decrease.

Mahfoud et al refer to German and European expert comments about catheter-based renal denervation in patients with treatment-resistant arterial hypertension. The European comment states open questions that ought to be addressed in future trials. For example, the panel advocates truly blinded randomized-controlled studies, using ambulatory blood pressure monitoring for enrollment and follow-up, and testing influences on morbidity and mortality among others. All these ideas are excellent. It remains unclear how treatment recommendations can be based on one 6-month randomized-controlled clinical trial. The Symplicity HTN-2 trial analyzed data from 49 patients in the renal denervation group and 51 patients in the control group. Meanwhile, other companies developing catheter-based approaches for renal nerve ablation gained European regulatory approval. European approval requirements for medical devices differ markedly from drug approval processes. In a nutshell, medical devices have to show that they serve their stated purposes from a mainly technical point of view. Larger randomized-controlled clinical trials showing efficacy and safety are not needed. The scientific community should demand more data before endorsing undoubtedly promising experimental medical devices.

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This correction has been made to the current online version of the article, which is available at http://hyper.ahajournals.org/content/61/2/e18.full.