Response to Blood Pressure and Sympathetic Nervous System Response to Renal Denervation

Dr Schlaich et al suggest that differences in blood pressure and muscle sympathetic nerve responses to renal nerve ablation between studies could be explained by differences in patient characteristics. All of our patients fulfilled diagnostic criteria for treatment-resistant arterial hypertension and had office blood pressure measurements in the hypertensive range, despite treatment with multiple antihypertensive drugs. Yet, we assessed blood pressure after an almost 60-minute resting period in the supine position. In the SYMPLICITY trials, office blood pressure measurements were taken in the seated position. Thus, baseline blood pressure is difficult to compare between studies. Even if blood pressure readings were somewhat lower in our patients, their referral to renal denervation therapy reflects the current clinical practice in Germany.

The idea that patients with a larger neurogenic component of hypertension might respond more to renal nerve ablation is intriguing. The concept is based on the assumption that renal sensory afferents stimulate efferent sympathetic nerve traffic. Yet, the picture may be more complex: Afferents from other regions, central integration, and efferent nerve traffic to organs other than skeletal muscle may play a role, including the coupling between electrical nerve activity and norepinephrine release, receptor sensitivity, and so on. Detailed autonomic cardiovascular profiling may be required to unravel the underlying mechanisms. Criteria identifying patients more or less likely to respond have not yet been defined. In the future, device-based treatments, including renal nerve ablation and electrical carotid sinus stimulation, should restricted to patients most likely to experience a clinical benefit.

Schlaich et al suggest that a significant proportion of our patients exhibited reductions in muscle sympathetic nerve activity. Sympathetic inhibition was not a typical response because the average change in muscle sympathetic nerve activity was close to 0. None showed a muscle sympathetic nerve activity reduction as pronounced as the patient reported by Schlaich et al. Remarkably, patients with reductions in muscle sympathetic nerve activity in our study exhibited increases rather than reductions in blood pressure, which indicates that baroreflex blood pressure buffering may be involved. In the patient with the largest blood pressure reduction of 66 mm Hg, sympathetic activity did not change. The observation is not consistent with a central sympatholytic response elicited by renal nerve ablation. Our study does not exclude that interruption of renal afferent nerve traffic may attenuate centrally generated sympathetic activity and blood pressure in some patients.

Disclosures

None.

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An erratum has been published regarding this article. Please see the attached page for:
/content/61/5/e53.full.pdf
Correction


Not all of the authors were listed in this Letter to the Editor response. The complete author listing is as follows:

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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/e14.full.