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Abstract: Renal sympathetic denervation (RDN) is a novel treatment strategy for patients with resistant arterial hypertension. Recently, the Symplicity trials demonstrated significant peripheral blood pressure (BP) reduction. The present study aimed at measuring central aortic pressures and arterial stiffness as better predictors for cardiovascular risk in patients undergoing RDN. RDN was performed in 21 patients (systolic peripheral BP>=150 mm Hg) with an Ardian/Medtronic (Mountain View, CA) ablation system. Data were recorded with an Arteriograph. After 6 months, peripheral systolic BP was reduced by 6.1% (P<.05) while central systolic pressure was reduced by 7.0% (P<.05). Subgroup analysis showed that in responders, peripheral systolic BP was reduced by 16.1% (P<.01) while central systolic pressure was reduced by 18.3% (P<.01). Arterial stiffness improved significantly. Aortic augmentation index (Alx) improved by 9.5% (P<.05). In responders, Alx improved by 19.2% (P<.02). Pulse wave velocity (PWV) was high at baseline (10.8 m/s) and improved by 10.4% (P<.05). In responders, PWV improved by 13.7% (P<.05). Multivariate analysis showed that short-term effects on PWV were BP-related, whereas during follow-up, improvement of PWV becomes BP-unrelated. RDN improves peripheral and central blood pressure as well as arterial stiffness and, thus,
may improve cardiovascular outcome.