

Full Article Review Form

Refid: 2, Effects of renal sympathetic denervation on cardiac sympathetic activity and function in patients with therapy resistant hypertension P. M. van Brussel, D. W. Eeftinck Schattenkerk, L. C. Dobrowolski, R. J. de Winter, J. A. Reekers, H. J. Verberne, L. Vogt and B. H. van den Born

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BACKGROUND: Renal sympathetic denervation (RSD) is currently being investigated in multiple studies of sympathetically driven cardiovascular diseases such as heart failure and arrhythmias. Our aim was to assess systemic and cardiac sympatholytic effects of RSD by the measurement of cardiac sympathetic activity and cardiovascular parameters.

METHODS: A total of 21 consecutive patients with refractory hypertension (daytime ambulatory blood pressure (BP) $\geq 150/100$ mmHg despite the use of 3 or more antihypertensive drugs), no evidence for secondary hypertension and normal renovascular anatomy were included. RSD was performed with the Medtronic Symplicity renal denervation catheter with an average of 4.2 (range 3-6) ablations per renal artery. To assess cardiac sympathetic activity, 123I-mIBG cardiac scintigraphy was performed before and 6 weeks after. In addition, the effect of RSD on peripheral BP and cardiac hemodynamics were assessed non-invasively.

RESULTS: 123I-mIBG uptake before and after RSD was $1.7 \pm 0.4\%$ vs. $1.7 \pm 0.5\%$ at 15min, and $1.4 \pm 0.4\%$ vs. $1.5 \pm 0.5\%$ after 4h. As a consequence, washout rate was similar before ($33.7 \pm 11.7\%$) and after RSD ($30.1 \pm 12.6\%$, $p=0.27$). In line with earlier RSD studies, a significant drop in systolic office BP (-12.2 mmHg, $p=0.04$) was detected, whereas the decrease in ambulatory BP was not significant. No changes were seen in heart rate, stroke volume or left ventricular contractility, both in supine position and after standing.

CONCLUSION: In concert with previous reports, RSD leads to a significant drop in office BP. However, a reduction in sympathetic activity could not be demonstrated on a cardiac level.

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