

CATEGORIES ENDOVASCULAR: Hypertension Therapies and Renal Denervation

KEYWORDS Renal Denervation

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Renal denervation: more ablative points major reduction in blood pressure?

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BACKGROUND Data published in the study Simplicity III reported that the effectiveness of the procedure is directly related to the number of ablative points with a threshold calculated as about 14 points. In our experience this threshold has been exceeded since we use the device Enlightn St Jude whose conformation allows both a more favorable contact of the electrodes with the vessel wall and the possibility of varying those points more precisely. This result can be achieved only beginning the ablation as distally as possible in the renal arteries, performing the procedure even in the branches when they have a minimum diameter of 4 mm. The purpose of our study was to see if a larger number of points of ablation were related to a greater effectiveness of the procedure.

METHODS In our center 29 patients (17 men. Average age 58.4 ± 14 years) with resistant hypertension were submitted to transcatheter renal denervation between November 2011 and May 2015. 12 patients had signs of hypertensive vascular damage. All of them were taking an average of 4 antihypertensive drugs in dosage ceiling, including a diuretic. The values of mean arterial pressure were: 176/98 ± 17/14 mmHg. For all patients we used the femoral arterial access. All patients were treated with dual anti platelet therapy for 3/6 months after the procedure. 7 patients had complex renal anatomy: 2 patients had superior polar arteries, 1 patient presented one superior and one inferior polar artery and 4 patients presented an early bifurcation (length of the proximal segment <10 mm), all arteries had a diameter >4 mm. 16 patients, treated from March 2014 to May 2015, were treated with an average of 24-36 ablative points overall compared with the first group of patients in which the ablative points were only 16.

RESULTS All patients were treated successfully. Renal function remained stable. The average pressure was reduced by about 15 mmHg at six months in the group of patients treated with 16 ablative points, whereas in patients treated with 24-36 ablative points this reduction was approximately 27 mmHg. One patient of the first group was hospitalized for hypertensive crisis seven months after the procedure, the values of blood pressure normalized after about one year and are still stable. All patients have gradually reduced the number of antihypertensive drugs (1-2 against 4 or more pre-procedure). Computed tomography angiography of the patients with complex renal vascular anatomy (6) and of the patients in which the ablation was performed very distally and showed a more important parietal notch of the renal artery after the procedure (16) documented the absence of parietal complications three months after the procedure.

CONCLUSIONS Our experience confirms that renal denervation is an effective procedure in the treatment of hypertensive patients refractory to medical therapy. A larger number of ablative points seems to be strongly related to an increased efficacy of treatment.

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KEYWORDS Ambulatory blood pressure monitoring (ABPM), Renal sympathetic denervation, Resistant hypertension

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Catheter-based renal sympathetic denervation for resistant hypertension: A meta-analysis of randomized trials

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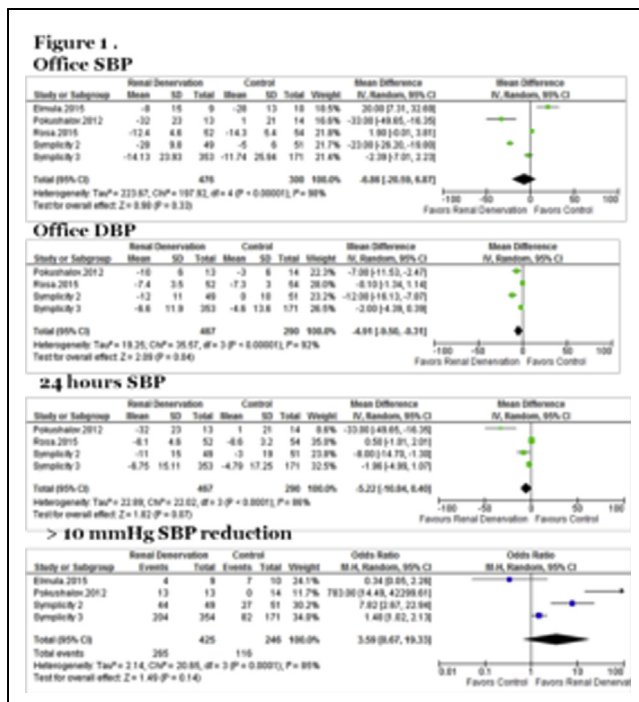
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BACKGROUND Percutaneous renal artery denervation has been shown to decrease blood pressure among patients with resistant arterial hypertension. We present in this review a meta-analysis of all randomized controlled trials evaluating effectiveness and

complications of catheter-based RDN for blood pressure control in patients with resistant hypertension.

METHODS We searched Pub Med, Cochrane and Scopus were systematically searched up for all RTCs up to June 2015. Primary outcomes were 6 months reduction of office systolic and diastolic blood pressure. Secondary outcomes were 24 hours systolic blood pressure reduction and more than 10 mmHg systolic blood pressure reduction. We used fixed or random Effect analysis using the Cochrane Handbook of Systematic Reviews.

RESULTS Out of 860 articles, five RCTs were included. The pooled data provided a total of 776 patients, being 476 in the RDN group and 300 patients in the control group with mean 6 months of follow-up. Both groups had office systolic and diastolic blood pressures significantly decreased (p<0.05). There was no significant difference in SBP reduction between the two groups but RDN had higher DBP reduction (p<0.05). RDN group presented with a trend towards higher decrease of 24-hours systolic blood pressure (mean reduction -5.22; p=0.07). RDN trended to present more patients who had ≥ 10 mmHg SBP decrease (p = 0.1) (Figure 1).



CONCLUSIONS Resistant hypertension treated with catheter-based RDN respond well to blood pressure reduction and with sustained control. It is yet to be determined if some RDN catheters are capable to provide more concise results and therefore lead to better procedural outcomes. Therefore more randomized clinical data are warranted.

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KEYWORDS Renal denervation, Resistant hypertension

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Safety and Performance of the Enlightn Renal Denervation System in Patients with Uncontrolled Hypertension and Chronic Kidney Disease: 12 Month Results from the Enlightn II Study

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BACKGROUND Percutaneous sympathetic renal artery denervation is available for the treatment of patients with resistant hypertension and preserved renal function. We investigated the safety and efficacy of a