

IMPACT OF RENAL DENERVATION ON ARTERIAL PRESSURE PROFILE AND TARGET ORGAN LESION MARKERS OF RESISTANT HYPERTENSION PATIENTS

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INTRODUCTION

Arterial hypertension is an important risk factor for kidney and cardiovascular diseases. Several studies support beneficial effect of renal artery sympatic denervation (RD) in controlling arterial blood pressure. Nonetheless, Symplicity HTN-3 study showed no differences between RD and placebo.

OBJECTIVE AND METHODS

OBJECTIVE: Evaluate RD impact on resistant hypertension, through determination of arterial blood pressure (BP) profile and target organ lesion markers, after 12 months of follow-up.

METHODS: Single center prospective study including 61 patients with resistant high blood pressure (RHBP), between July 2011 and December 2014. From these, 31 had completed 12 months of follow up.

RHBP: systolic blood pressure > 160 mmHg (or > 150 mmHg if diabetic), under pharmacological therapy with at least four drug classes, including diuretics.

To evaluate RD results: variance of variables, immediately before and 12 months after:

- (1) Systolic BP on consultation (cSBP)
- (2) Mean BP on ambulatory monitoring (mAMBP)
- (3) Indexed left ventricular mass (ILVM)
- (4) Albumin-to-creatinine ratio (ACR)
- (5) Heart rate

We defined as **responder** in each variable:

- (A) Lowering of cSBP of more than 10 mmHg
- (B) Lowering of mAMBP of more than 10 mmHg
- (C) Reduction of ILVM > 13 g/m² in men and > 11 g/m² in women
- (D) Any reduction of ACR
- (E) Any reduction of heart rate.

RESULTS

- 61 patients
- Sixteen patients (51.6%) were female.
- Mean patients' age was 64.6±6.7 years-old.
- Five (16.1%) had chronic renal disease.

Comparison of average, standard deviation and variance of variables (Table 1)

Variável	Before RD		Follow-up 12 months		Variation		P value
	x	σ	x	σ	x	σ	
NHD	5.5	0.9	4.8	1.1	-0.8	1.3	0.018
cSBP	176	24	149	13	-26	23	<0.001
mAMBP	151	20	132	14	-19	22	<0.001
HR	73	11	70	11	-3	15	0.26
ILVM	152	32	136	34	-18	24	<0.001
ACR	400	696	178	450	-222	676	0.007

NHD: number of anti-hypertensive drugs; cSBP: Systolic BP on consultation; mAMBP: Mean BP on ambulatory monitoring; HR: heart ratio; ILVM: indexed left ventricular mass; ACR: albumin-to-creatinine ratio

Impact assessment of RD (Table 2)

Variable	Responder (%)
cSBP	71
mAMBP	58
HR	58
ILVM	55
ACR	77
At least 1 variable	100

CONCLUSION

RD is a procedure that significantly lowers arterial pressure profiles (cSBP and mAMBP) and target organ lesion markers (ILVM and ACR) in patients with resistant high blood pressure. This favorable outcome may be due to less sympatic activity is a population that maintained severe hypertension despite optimized medical therapy. Cardiologists experience can also be considered a relevant factor.

