

Effect of unilateral catheter-based renal sympathetic denervation in a patient with resistant hypertension

Efekt jednostronnej denerwacji tętnicy nerkowej u pacjenta z opornym nadciśnieniem tętniczym

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A 52-year-old woman was admitted to the Department of Hypertension with resistant hypertension coexistent with type 2 diabetes mellitus, two episodes of transient ischaemic attack in the past, and obesity. The patient's arterial hypertension was uncontrolled on six antihypertensive medications. A denervation procedure *Simplicity* catheter (Medtronic) was applied. In the main left renal artery, six ablations were performed without any complications. During the first ablation of the main right renal artery, oedema of the arterial wall with a significant stenosis of 80% occurred. Due to the above, no further ablations were attempted. A follow-up arteriography of the right renal artery was performed 24 h later, showing a minimal stenosis in the previously affected area. On the qualification visit, the average office blood pressure (BP) was 203.33/107.66 mm Hg, and on ambulatory BP monitoring mean BP was 189/109 mm Hg in the day and 139/77 mm Hg in the night. In the central BP measurement (Sphygmocor, AtCor Medical), systolic BP was 172 mm Hg, diastolic BP — 98 mm Hg, augmentation index (Alx) — 40, Alx standardised to a heart rate of 75 bpm (Alx@HR75) — 40% (Fig. 1A). In the follow-up visits after six and 12 months, we observed significant falls in all measured parameters (Table 1, Fig. 1B). There was no modification of antihypertensive therapy in the follow up. There are just a few publications concerning unilateral renal denervation, and the presented results are contradictory. The measurement of central BP in hypertensive patients is of increasing interest because of both its predictive value for cardiovascular events and the differential effect of antihypertensive therapies compared to brachial BP. In our opinion, central BP should be considered as a valuable and objective marker of the effectiveness of invasive therapies. Our case shows that even unilateral renal ablation can be fully successful and decrease BP values to a remarkable extent in a 12 month observation.

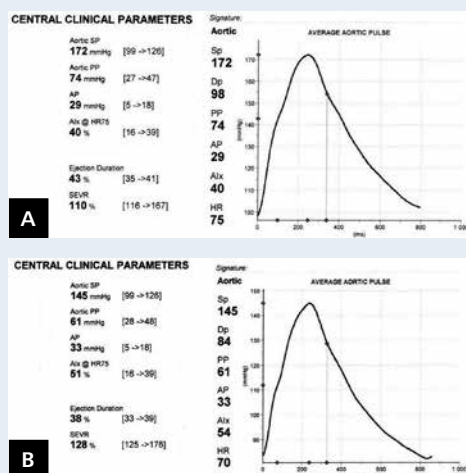


Figure 1. Results of central blood pressure measurement — baseline (A) and after unilateral denervation (12 months) (B)

Table 1. Results of blood pressure (BP) measurements (office BP, ambulatory BP monitoring [ABPM], central BP) on baseline visit before denervation and two control visits, after six and 12 months

	Baseline	Visit 1: after six months	Visit 2: after 12 months	Difference baseline: visit 2
Office BP: systolic BP	203	180	156	-47
Office BP: diastolic BP	108	98	88	-20
ABPM: day systolic BP	189	150	148	-45
ABPM: day diastolic BP	107	89	90	-17
ABPM: night systolic BP	139	129	128	-11
ABPM: night diastolic BP	77	71	71	-6
SpAo	172	156	145	-27
DpAo	98	96	84	-14
PPAo	74	60	61	-13
Augmentation index	40	41	54	14
Alx@HR75	40%	37%	51%	11

SpAo — aorta (central) systolic blood pressure; DpAo — aorta (central) diastolic blood pressure; PPAo — aorta (central) pulse pressure; Alx@HR75 — augmentation index standardised to a heart rate of 75 bpm

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Conflict of interest: K. Kostka-Jeziorny, A. Tykarski, S. Grajek: participation in the study RDN-Pol (Medtronic), fees for lectures (Medtronic)