

Transient renal artery stenosis during renal sympathetic denervation in a patient with resistant hypertension

Przejściowe zwężenie tętnicy nerkowej w przebiegu denerwacji współczulnej u pacjenta z nadciśnieniem tętniczym opornym

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A 52-year-old female 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 6 antihypertensive medications, which included a loop diuretic and an aldosterone antagonist. During the course of the patient's previous hospitalisation, secondary hypertension was excluded. Angio-computed tomography (CT) results showed a bilateral double renal artery with a diameter of the main trunks of more than 4 mm (corresponding angiography, Fig. 1). A denervation procedure *Simplicity* catheter (Medtronic) was applied. In the main left renal artery, 6 ablations were performed, with a mean impedance change of 8.82 (Δ ,%) and temperature of 52°C without any complications. During the first ablation of the main right renal artery, with an impedance change of 20 (Δ ,%) and a temperature of 75.3°C, oedema of the arterial wall with a significant stenosis of 80% occurred (Fig. 2). A local administration of nitroglycerine and verapamil (injected via a catheter) was ineffective. Due to the above, no further ablations have been performed. A follow-up arteriography of the right renal artery was performed 24 h later, showing a minimal stenosis in the previously affected area (corresponding angiography, Fig. 3). No clinical complications have been observed during this adverse event based on blood pressure parameters and control laboratory tests including serum creatinine level. A follow-up angio-CT of the right renal artery is scheduled in 3 months. Based on published papers, there have been no case reports of acute transient renal artery stenosis during renal denervation procedures. One case of a single structural renal artery stenosis, which occurred in the form of a late complication (i.e. after 6 months), was reported by Kaltenbach et al. (J Am Coll Cardiol, 2012; 60: 2694–2695).



Figure 1. Angiography of the right renal artery before renal denervation



Figure 2. Angiography of the right renal artery after the first ablation. Stenosis of the artery



Figure 3. Follow-up angiography of the right renal artery performed 24 h after denervation

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Conflict of interest: none declared