Renal sympathetic denervation in resistant hypertension late after surgical repair for aortic coarctation

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Here, we report the case of a 32-year-old male with previous surgery for aortic coarctation, who was referred for diagnostics and management of resistant arterial hypertension. The patient had undergone subclavian flap repair at the age of 10 followed by second open-heart surgery including partial replacement of the descending aorta and conduit insertion to the left subclavian artery 6 years later. Additionally, coiling of an intracranial aneurysm was performed at the age of 30. Ambulatory blood pressure measurements revealed inadequate blood pressure control (Panel, lower left) despite treatment with five different antihypertensive drugs including diuretics. Magnetic resonance imaging confirmed an anatomically satisfying repair with no evidence for recurrent coarctation (Panel, upper left). Haemodynamic assessment demonstrated a gradient across the site of previous repair of 5 mmHg. We, therefore, proceeded with renal sympathetic denervation using the Simplicity™ catheter (Medtronic, MN, USA). Six ablations were performed in the right and seven in the left renal artery (Panel, upper mid and right). During the follow-up, antihypertensive medication remained unchanged. At 3-month follow-up, ambulatory blood pressure measurements showed marked improvements in daytime and nighttime blood pressure control (Panel, lower left and mid). Also, magnetic resonance angiography excluded any stenosis of the renal arteries (Panel, lower right).

The observed positive effects of renal denervation in this specific type of secondary hypertension bare the hope that this innovative technique might extend the currently very limited armoury against hypertension in young adults with previous repair of aortic coarctation.

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