Renal sympathetic activation in human hypertension has multiple origins, obesity,22 sedentary life,60 and chronic mental stress61,62 being three, which explains its high prevalence. Obesity is proven to activate the renal sympathetic outflow.22 Aerobic exercise training preferentially causes renal sympathetic inhibition,60 an influence absent in sedentary people. Mental stress activates the renal and cardiac sympathetic outflows.61,62

In the presence of high dietary sodium intake, all too common in developed societies, this activation of the renal sympathetic outflow provides ‘neural’, ‘renal’, and ‘sodium’ mechanisms of hypertension development, through excessive renal tubular reabsorption of sodium, and rightwards shift in the renal pressure natriuresis curve.23 Endovascular renal denervation breaks the nexus between salt and the nervous system.

Footnote

On January 9th 2014, Medtronic, the sponsor of the US pivotal Symplicity HTN-3 trial of renal denervation in drug-resistant hypertension, complying with US securities law, issued a press release informing that the primary efficacy endpoint had not been reached in the trial. The safety endpoint was achieved. No information beyond this was made available.

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References

The list of references is available in the online version of this paper.

A curious case of cardiac dextroposition

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A 13-year-old female presented to our facility for episodic apnoea since early childhood. Her physical and mental development was normal, and physical examination revealed no cyanosis or pathological cardiac murmur. An electrocardiogram showed counterclockwise rotation (Panel A) and chest X-ray revealed dextropositioning of the heart (Panel B). Multi-slice computed tomography and 3D reconstruction clearly demonstrated that an anomalous left pulmonary artery (LPA) originated from the right pulmonary artery (RPA) (Panel C), circumferenced around the trachea from the posterior (Panels D and E), and ran in front of the oesophagus towards the left hilum (Panel F). The supposed right main bronchus supplying right upper lobe was absent, while the right middle and lower lobes were supplied by a narrowed ‘bridging bronchus’ that arose from the left main bronchus at the vertebral level T5-6 (Panels G and H). A diagnosis of type 2b LPA sling was made according to Well’s classification, and the underdeveloped right lung explained her cardiac dextroposition. Multi-slice computed tomography played a crucial role in the diagnostic panel of this rare disease entity, which always accompanied by complex bronchial malformation and required early surgical interventions to restore normal pulmonary development. According to her current performance status and operational hazards, surgical options were withheld under informed consent.

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