In Hypertension

Blood Pressure Reduction With Renal Denervation: Are the Benefits Sustained Long Term?

Below are some key learning points to help reinforce the impact of this activity.

Elevated blood pressure is an important risk factor for many diseases, including coronary artery disease, stroke, heart failure, dementia, and chronic kidney disease, and despite the availability of antihypertensive drugs, blood pressure control in the global population remains poor.

It is important to optimize the patient's diet, exercise, and combination drug therapy, but in cases of resistant hypertension the blood pressure remains elevated despite optimization. Additionally, patient nonadherence to medications is a significant problem, so renal denervation could serve as a potential adjunct treatment for uncontrolled hypertension.

Renal denervation targets the sympathetic nervous system by interrupting the activity of sympathetic nerves in the perivascular space of the renal arteries, thus reducing sympathetic influence on renal vascular resistance, renin release, and sodium reabsorption, resulting in a reduction in blood pressure.

Second-generation renal denervation sham-controlled trials have also utilized the bias-free tool of 24-hour ambulatory blood pressure measuring, and these trials have demonstrated efficacy and safety in patients with and without medications. The SPYRAL HTN-OFF Med Pivotal trial (without medications) showed effective blood pressure reduction at 3 months post-procedure vs sham, and the SPYRAL HTN-ON MED trial (with combination drug therapy) showed significant blood pressure reduction out to 3 years.

Recent follow-up data from the Global SYMPLICITY Registry (GSR) demonstrated that renal denervation resulted in significant lowering of blood pressure that was sustained for at least 3 years, as measured by both office blood pressure and 24-hour ambulatory blood pressure assessment. Renal function was also maintained over time, and no signs of reinnervation were observed.

Dr. V. Balachandran
MD, MNAMS, FRCP, FACC