

Radio waves to kidneys lower persistent high blood pressure

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Directing short bursts of radio waves at nerves surrounding the kidneys lowered blood pressure for at least six months and up to one year among patients with hypertension that persists regardless of taking multiple medications to control it, according to a new study published in the American Heart Association journal, *Circulation*.

The findings could have significant public health implications in the treatment of resistant hypertension, a major risk factor for heart attack and stroke, said Murray Esler, M.B.B.S., Ph.D., Professor and Senior Director of the Baker IDI Heart and Diabetes Institute in Melbourne, Australia.

Hypertension, which is blood pressure higher than 140/90 mm Hg, affects more than 78 million adults in the United States. Among adults with [high blood pressure](#) in the United States, about 9 percent have resistant hypertension – meaning they take four or more medications to control their blood pressure, or blood pressure is still higher than 140/90 mm Hg while taking three different blood pressure medicines.

"Studies will soon determine whether this procedure can cure mild hypertension, producing permanent drug-free normalization of blood pressure," Esler said. "Based on the blood pressure declines achieved, reduction in heart attack and stroke rates of more than 40 percent is anticipated."

Catheter-based renal [denervation](#) is a minimally-[invasive procedure](#) in which doctors use a catheter, inserted through the [femoral artery](#) in the groin, to send radio waves that burn away [nerve tissue](#) around the kidney arteries. The goal is to destroy the nerves around the kidneys, which help control and filter salt through the body and may be overactive among patients with hypertension.

The results come from Symplicity HTN-2, an ongoing, multicenter, international study evaluating renal denervation for the [treatment of hypertension](#). These findings build on results released in 2010, which showed that six months of treating the nerves around the kidney arteries with [radio waves](#) lowered drug-resistant high blood pressure.

Participants who began in the control group of the initial study, and did not have the procedure, were invited to "cross over" and receive renal denervation based on the positive outcomes of the patients who had already received the treatment.

A total of 35 control patients from the earlier study chose to receive renal denervation and were compared with 47 patients who had been among the first wave of patients to have it. Study participants had drug-resistant hypertension at 160 mm Hg or higher, had taken three or more anti-hypertension drugs, and some had other conditions including diabetes. All had undergone renal artery imaging to ensure the arteries around the kidney could withstand the procedure.

In the new study, Esler and his team found that more than 83 percent of the initial renal denervation treatment group experienced a drop in systolic blood pressure of at least 10 mm Hg at six months and nearly 79 percent of the group maintained such reductions at 12 months. The crossover group showed similar results with almost 63 percent reducing systolic blood pressure of 10 mm Hg or more six months after starting the treatment.

"Participants' kidneys were not damaged or functionally impaired," Esler said. "We also found no ill effects on long-term health from the procedure."

Provided by American Heart Association

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