

Removing nerves connecting kidney to the brain shown to reduce high blood pressure

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A new technique that involves removing the nerves connecting the kidney to the brain has shown to significantly reduce blood pressure and help lower the risk of stroke, heart and renal disease in patients. The procedure, which has very few side effects, has already shown promising results in hard-to-treat cases of high blood pressure.

The technique, published in the journal *Hypertension*, was performed by a team led by Professor Julian Paton at the University of Bristol who found that in an [animal model](#) of hypertension removing nerves connecting the kidney to the brain reduced blood pressure and improved its long-term stability.

Inspired by these results, cardiologists Dr Angus Nightingale and Dr Andreas Baumbach from the Bristol Heart Institute (BHI) adopted the technique called "renal denervation" to remove the nerves to the kidney in patients with high blood pressure.

The procedure, which has been successfully trialled on 19 patients at the BHI, is performed using a fine tube that is inserted in an artery in the patient's leg and positioned in the artery feeding blood to the patient's kidneys. The nerves to the kidney are around the artery and ablated by radio-frequency energy that is emitted from the tube.

The breakthrough is due to a new collaboration involving scientists at the University of Bristol and cardiologists at the BHI, who have joined forces to form the CardioNomics high blood pressure team. Together,

they hope to tackle this major health problem by taking findings from the laboratory and translating them into clinical practice. The CardioNomics team have just been awarded £100,000 grant from Medtronic to further improve the technique and expand patient trials.

Dr Nightingale, who runs the Specialist Hypertension Clinic at the BHI, said: "We have used renal [denervation](#) in patients who have hard-to-treat blood pressure. Similar to the results from the basic [science experiments](#), we have also seen reductions in blood pressure which has been essential for reducing the risk of heart and [renal disease](#), and stroke in our patients. This is an exciting new treatment for these patients who have struggled with high blood pressure which tablets are not controlling."

Dr Baumbach, an interventional cardiologist who performed the treatment, added: "The technique is very straight forward, performed as a day case and there are no side-effects. It is becoming a popular technique for patients with both resistance and poor tolerability to high blood pressure medication."

Professor Julian Paton, who led the research at the University's School of Physiology and Pharmacology, said: "The problem with high [blood pressure](#) is that patients develop resistance to their tablets or unpleasant side effects. Our new interventional approaches are based on studies where we have found causative mechanisms generating [high blood pressure](#) so we think that they will be most efficacious in [patients](#). And, with luck, they will also mean less pill taking too."

More information: This study is published in the journal *Hypertension* and is entitled 'Translational examination of changes in baroreceptor reflex function after bilateral renal denervation in hypertensive rats and humans'.

Provided by University of Bristol

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