

HYPERTENSION

RF ablation of renal nerves

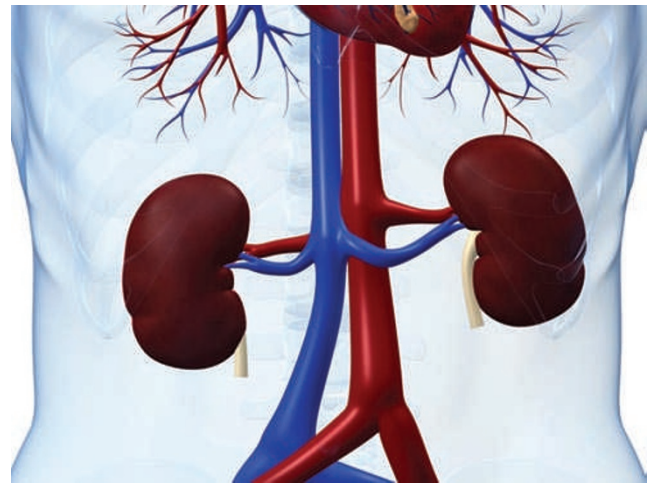
Percutaneous radiofrequency ablation of the renal sympathetic nerves is a novel approach to the treatment of resistant hypertension, and animal studies of this technique have yielded promising results. Krum *et al.* have now published a report in the *Lancet* confirming that the procedure is safe, and can effectively reduce a patient's blood pressure in the clinical setting.

Medical therapy for hypertension often involves the use of multiple antihypertensive drugs, the doses of which may require frequent adjustment to maintain target blood pressure. Treatment can fail if the patient is not closely monitored or if they do not adhere to the prescribed regimen. Removal of renal sympathetic nerve tissue has been proposed as a permanent solution to the problem of refractory hypertension, and could reduce the need for life-long drug therapy and its associated complications.

Krum and colleagues treated 45 patients from five centers in Australia and Europe. All participants had an office-based systolic blood pressure of 160 mmHg or higher despite therapy with at least three antihypertensive agents. The mean age of treated patients was 58 years and there was a high incidence of concomitant illness (hyperlipidemia, type 2 diabetes, and coronary artery disease). Individuals with anatomical abnormalities of the renal vasculature and those with type 1 diabetes, implanted cardiac devices, or valvular

disease were not eligible for inclusion in the study. The investigators used the Symplicity® (Ardian, Inc., Palo Alto, CA) catheter system to apply up to six separate radiofrequency ablations to each renal artery. Initially, ablation was performed in stages, with follow-up angiography to assess safety between treatments. Once safety had been established, patients underwent ablation to both renal arteries in a single procedure.

Ablation was associated with significant reductions in mean systolic and diastolic blood pressure from baseline at each follow-up assessment (1, 3, 6, 9, and 12 months after the procedure). Six (13%) of the treated patients, however, experienced little or no blood pressure reduction and were deemed to be nonresponsive. Treatment was performed without adverse events or long-term complications in 96% of patients. There was one case of renal artery dissection associated with catheter insertion, and one patient experienced pseudoaneurysm at the catheter access site. Both were treated successfully and discharged from hospital without further complication.



© HAAP Media Ltd, a subsidiary of Jupiterimages

Procedure-related pain was temporary and well controlled with narcotic and sedative agents.

Although their study involved only a small cohort of patients, Krum *et al.* believe that this research supports the safety and therapeutic promise of percutaneous renal sympathetic denervation. Randomized, controlled trials will help to establish whether this technique will be suitable for widespread clinical use among patients with resistant hypertension.

Alexandra King

Original article Krum, H. *et al.* Catheter-based renal sympathetic denervation for resistant hypertension: a multicentre safety and proof-of-principle study. *Lancet* 373, 1275-1281 (2009).