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## Renal denervation a treatment for hypertension?

Renal nerve catheter ablation (cbDNX) has been shown to be a safe treatment for human hypertension and was until recently considered one of the most promising advances for the treatment of hypertension. However, there is now considerable debate regarding the efficacy of this procedure. In part large, this debate has centred on methodological issues and lack of appropriate controls groups. We examined the effect of cbDNX in a sheep model of hypertensive chronic kidney disease (hCKD). Arterial pressure and renal function was measured in conscious sheep before and after ablation of the renal nerves or sham operation, in both normotensive and hCKD sheep. The increase in arterial pressure in the hCKD sheep was completely normalised by cbDNX. It remains to be seen if this decrease in arterial pressure is sustained and these studies are ongoing. In separate studies in spontaneously hypertensive rats we have demonstrated a sustained decrease in arterial pressure up to 12 weeks following surgical renal denervation. Examination of the renal innervation clearly demonstrates that the renal nerves have regrown to the kidney in these rats. However, interrogation of the response to perivascular nerve stimulation in isolated vessels shows that the vascular contraction to any given level of nerve stimulation is significantly attenuated. Electrophysiological recording of cell membrane potential suggests that the nerve terminals do not re-form close neuro-effector junctions. Thus, our data examining renal denervation in animal models, suggest that whilst the nerves regrow function does not fully return and this contributes a sustained decrease in hypertension.

## Biography

Kate Denton (PhD) is a Senior Research Fellow of the National Health and Medical Research Council of Australia and Head, Cardiovascular and Renal Physiology, Monash University, Melbourne, Australia. Prof. Denton's goal is to improve cardiovascular health for men and women across their lifespan by building a strong interdisciplinary and translational research program around the Integrative Control of Arterial Pressure, with a strong emphasis on the contribution of the kidney. Current research focuses upon sex-differences in the role of the renin-angiotensin system in the regulation of blood pressure, the impact of a congenital reduction in renal mass on adult cardiovascular and renal health and the effect of radio-frequency catheter ablation of the renal nerves on renal neurovascular function and arterial pressure in sheep models of chronic renal failure.

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