RENAL SYMPATHETIC DENERVATION FOR RESISTANT HYPERTENSION

John Ormiston

MBChB, FRACP, FRACR, FCSANZ, FAPSIC, FRCP (Lond), FACC, ONZM

Mercy Angiography
Auckland Heart Group

1600 - 1630
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The kidney as origin of sympathetic drive carried centrally via renal afferent sympathetic nerves generating central sympathetic drive.

- Vasoconstriction
- Atherosclerosis
- Insulin Resistance
- Sleep Disturbances
- Hypertrophy
- Arrhythmia
- Oxygen Consumption
- Heart failure

Decreased renal blood flow
↑ Renin release → RAAS activation
sodium retention
Ardian point-by-point
Symplicity HTN-1

First-in-man, non-randomized

45 patients with resistant HTN (SBP ≥160 mmHg ≥3 anti-HTN drugs, including a diuretic)

Expanded cohort of patients (n=153)

36-month follow-up

Lancet. 2009;373:1275
Symplicity I Trial
Sustained office BP reduction at 36 months

P < .001 for systolic and diastolic BP changes from baseline

Krum ACC abs 2012
Responder rate increased over time in Symplicity I

Responder rate was defined as a systolic BP reduction ≥ 10 mm Hg

Krum ACC abstract 2012
Randomized trial: Renal sympathetic denervation and ongoing medical treatment vs medical treatment

Inclusion Criteria: Office SBP ≥ 160 mmHg (≥ 150 mmHg with type II diabetes mellitus) Stable drug regimen of 3+ more anti-HTN medications

Patients: 106 patients randomized 1:1 to renal denervation vs. control

Simplicity HTN-2 Investigators. Lancet. 2010;376:1903
Primary Endpoint Symplicity HT-2: 6-Month Office BP

\[ \Delta \text{ from Baseline to 6 Months (mmHg)} \]

-32 Systolic
-12 Diastolic

RDN (n=49)
Control (n=51)

Systolic
Diastolic

difference between RDN and Control

Renal denervation in a randomised trial caused significant reductions in office SBP in patients with resistant HT

The BP reduction is predicted to affect hypertension-related diseases and mortality

No major complications

RF based technology Maya “OneShot” System
Ballooon and spiral electrode
(FIH study Mercy Angiography)

- Helical electrode on a balloon
- Single 2 min ablation to each side so quick and less pain vs than first generation device with 5-7 two min treatments /side
Catheter based renal sympathetic ablation

• Lowers BP in 90% of patients with HT resistant to 3 drugs or more
• Sustained at 3 yrs
• % responders increases over time
• Favourable effect on glucose tolerance and other conditions
• Minimal complications
• NZ’s first cases performed at Mercy Angiography late August 2011
Patients with hypertension resistant to treatment can be referred to me for assessment of suitability for renal denervation

1. Commercially available Ardian Symplicity (Medtronic) ($17500)

2. RAPID trial
   Office SBP>160 despite 3 antihypertensive meds one of which is a diuretic and suitable anatomy (CT)
   No procedural cost to patient

3. NEW
   Expanded indications with minimal restrictions e.g.
   intolerable side effects from medications but must have suitable anatomy
   No procedural cost to patient