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Prevention

RENAL SYMPATHETIC DENERVATION FOR TREATMENT OF RESISTANT HYPERTENSION: ONE YEAR RESULTS FROM THE SYMPLICITY HTN-2 RANDOMIZED CONTROLLED TRIAL

ACC Oral Contributions
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Session Title: Prevention: Renal Sympathetic Denervation - A Novel Therapy for Hypertension?
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Background: Activation of renal sympathetic nerves contributes to the pathogenesis of hypertension. Catheter-based renal sympathetic denervation (RDN) may reduce blood pressure (BP) in patients with treatment-resistant hypertension.

Methods: Patients with systolic BP ≥160 mm Hg despite optimal treatment with 3 or more antihypertensive drugs were randomized to treatment by RDN or to a control group maintained on previous treatment alone. At 6 months control patients were eligible to crossover to RDN. The primary endpoint was change in systolic BP at 6 months. All patients were followed for 1 year to assess long-term effectiveness and safety of RDN.

Results: There were 106 patients randomized to immediate RDN (n=52; 49 treated) or control (n=54; 46 crossed over to RDN). At 12 months data for 47 RDN patients and 35 crossover patients is available. At baseline, 32.7% of patients in the RDN and 60.0% of patients in the crossover group were female and type II diabetes mellitus was present in 42.9% and 28.6% of patients in the RDN and crossover groups, respectively. One patient in the crossover group had a right renal artery dissection. No other serious procedure-related adverse events and no radiofrequency-related renal artery stenosis or aneurysm occurred in either treatment group. Post-procedure BP changes for each group are shown below.

Conclusions: Patients crossed over to RDN at 6 months had a similar significant drop in BP as patients receiving immediate RDN. RDN provides safe and durable reduction of BP to 1 year.

Office BP Measurement Mean±SD (mm Hg)	RDN (n=49)	P-value	Crossover to RDN (n=35)	P-value
Pre-procedure* SBP DBP	178.3±18.2 96.1±15.5		190.0±19.6 99.9±15.1	
6-Month post-RDN SBP DBP	146.7±23.3 84.4±17.0		166.3±24.7 91.5±14.6	
12-Month post-RDN SBP DBP	150.7±21.9 87.0±16.1		N/A N/A	
6-Month BP difference SBP DBP	-31.7±23.1 -11.7±11.2	<0.001 <0.001	-23.7±27.5 -8.4±12.1	<0.001 <0.001
12-Month BP difference SBP DBP	-28.1±24.9 -9.7±10.6	<0.001 <0.001	N/A N/A	
*6-mo post randomization for crossover group				