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Blood Pressure Results Following Crossover to Endovascular Ultrasound Renal Denervation in Patients in the Sham Arm of the RADIANCE-HTN SOLO Trial

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Potential conflicts of interest

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Speaker's name : Ajay J. Kirtane

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Clinical need

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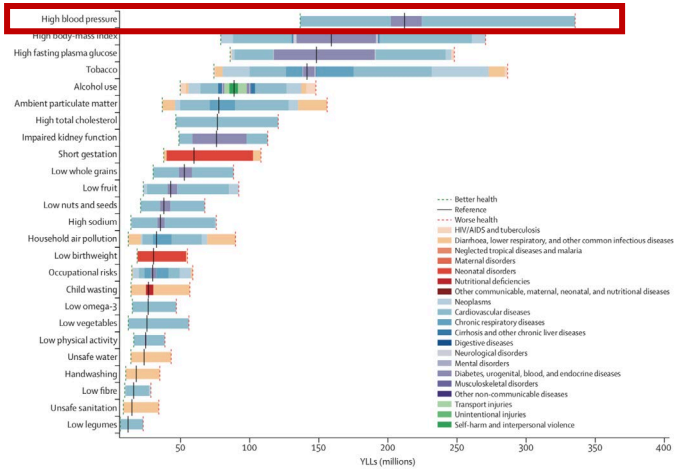
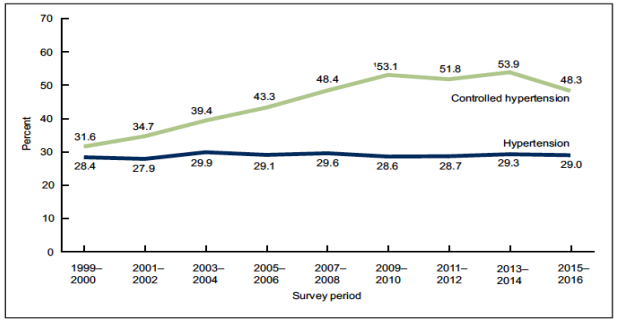
Hypertension is the #1 Cause of Global Disease Burden and Projected to Remain Top Cause in 2040



BP Control Rates Have Plateaued

Healthy People 2020 Goal = 61.2%



Renal Denervation (RDN) Does Not Require Daily Adherence to Achieve An Effect

Foreman et al. Lancet 2018; 392: 2052–90

Fryar cd, NCHS Data Brief, No 289, October 2017, cdc.gov/nchs/data/databriefs/db289.pdg

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Results from RADIANCE-HTN SOLO RCT at 2M & 6M

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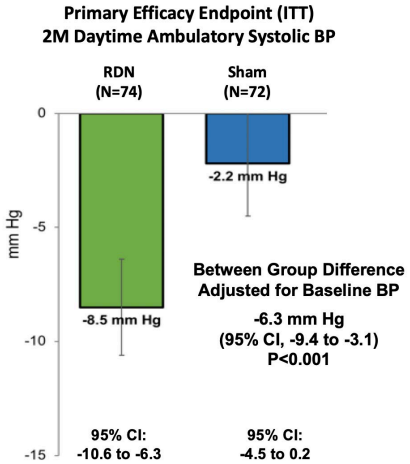
- Endovascular Ultrasound Renal Denervation (ReCor Medical, Paradise System) vs. Sham Control
- Primary Endpoint: between-group comparison of change in 2M daytime ambulatory systolic BP (was met)
- After programmed drug escalation during 2-5M, there were less medications used with RDN and lower BP adjusted for meds
- No major adverse events in either RDN or Sham groups through 6M

2 Months



6 Months

Med Burden at 6M	RDN (n=69)	Sham (n=71)	P Value
# Anti-HTN Meds	0.9 ± 0.9	1.3 ± 0.9	0.010
Defined Daily Dose	1.4 ± 1.5	2.0 ± 1.8	0.018
Anti-HTN Med Load Index	0.5 ± 0.5	0.7 ± 0.6	0.014

Azizi et al. *Lancet*. 2018 Jun 9;391(10137):2335-2345.
Azizi et al. *Circulation*. 2019;139:2542–2553.

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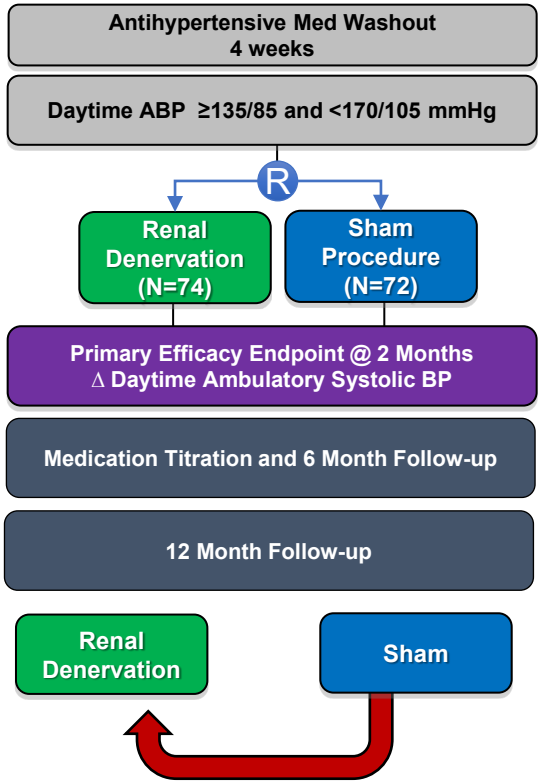
RADIANCE-HTN SOLO crossover analysis



- **Sham patients after 12M with follow-up daytime systolic ABP ≥135 or daytime diastolic ABP ≥85 were permitted to crossover**
- **This analysis represents data on the cohort of N=31 patients that had crossed-over as of January 2020.**
  - **Complete 2M ABP data available on N=31**
  - **Complete 6M ABP data available on N=25**

Accounting of Sham Patients	N = 72
Crossover Completed*	N=33
Crossover Still Pending	N=7
Did Not Crossover	
Did not meet criteria	N=10
Patient or Physician Decision	N=16
Patient no longer in Study	N=6
*2 patients crossed-over after cut-off date for this analysis	

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Crossover cohort: baseline characteristics & BP

Clinical Characteristics (at time of consent)	Overall Sham Group (N=72)	Crossover Population (N=31)
Age (years)	54 ± 10	54 ± 11
Female sex (%)	46%	39% (12/31)
Race (%)		
White	72%	77% (24/31)
Black	18%	13% (4/31)
Other	10%	10% (3/31)
Body mass index (kg/m^2)	29.0 ± 5.0	28.1 ± 4.8
eGFR (ml/min/1.73m^2)	83 ± 16	80 ± 16

Blood Pressure, Medications, and Timing at Crossover	Crossover Population (N=31)
Daytime ABP (mm Hg)	145/90 ± 10/9
24h ABP (mm Hg)	138/85 ± 11/9
Office BP (mm Hg)	146/95 ± 18/10
Average # of Antihypertensive Medications at Crossover	1.2 ± 0.7
Mean Time From Randomization to Crossover (months) [range]	23 ± 5 [15, 31]

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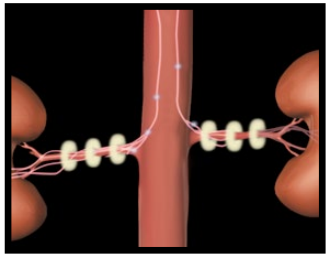
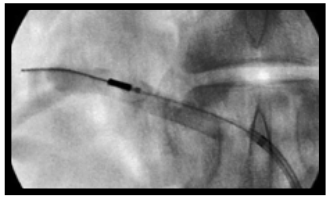
Procedural results and safety

Procedural Results	Crossover Procedure (N = 31)
Treatment successfully delivered (2+ emissions bilaterally) (%)	100% (31/31)
Mean Total Number of Emissions ± SD	5.7 ± 0.7
Mean Total Ablation Time (seconds) ± SD	40 ± 5
Procedure time (arterial sheath insertion to removal) (min)	75 ± 33
Contrast volume (cm^3)	146 ± 62



Safety	Crossover Cohort (N=31)
Death from any cause	0
End-stage renal disease	0
Embolic event resulting in end-organ damage	0
Renal-artery or other vascular complications requiring intervention	0
Hypertensive crisis	0
New renal-artery stenosis > 70%*	0



Safety data available on N=31 through 2M, N=25 through 6M
* 90% (28/31) had 2M and 100% (25/25) had 6M duplex ultrasound conducted

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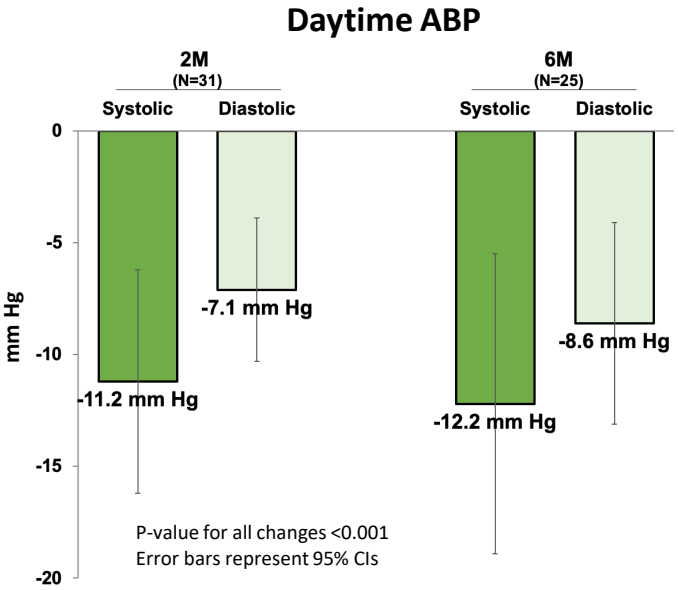
Results: daytime ambulatory BP & medications



Med Burden	Crossover Baseline (N=31)	Crossover 2M (N=31)	Crossover 6M (N=25)
# Anti-HTN Meds	1.2 ± 0.7	1.1 ± 0.7	1.2 ± 0.9
Defined Daily Dose[1]	1.7 ± 1.6	1.6 ± 1.6	1.7 ± 1.8
Anti-HTN Med Load Index[2]	0.6 ± 0.5	0.6 ± 0.5	0.6 ± 0.6

71% of subjects at 2M and 68% of subjects at 6M had decrease of ≥ *5 mm Hg in daytime ASBP*

Among responders at 2M and 6M, the average dASBP reduction was 17.7 and 20.6 mmHg, respectively

[1] WHO Collaborating Centre for Drug Statistics Methodology: https://www.whocc.no/ddd/definition_and_general_considera/
[2] Wan et al. Hypertension. 2009 Nov;54(5):e135-6.

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The essentials to remember

- Control of hypertension represents an unmet need globally, and RDN is an “adherence-independent” adjunctive therapy to medications
- We analyzed ambulatory BP and safety data from N=31 patients from the sham arm of the RADIANCE-HTN SOLO trial who crossed over and received RDN after 12 months of observation due to elevated ABP
- Limitations: Crossover subjects and physicians were unblinded, so these data are subject to behavioral and/or medication-related effects that contribute to the observed results
- **This cohort demonstrated a daytime ambulatory systolic BP change of -11.2 mm Hg at 2M and -12.2 mm Hg at 6M (P<0.001 in comparison to 12M baseline for both) without an increase in medication burden; through 6M, there were no major adverse events following crossover**
- **These results are consistent with the primary SOLO results; however, there was no drug titration protocol between 2-6M for crossover patients, so this may provide some added insight into 6M durability after RDN**

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