Catheter-Guided Renal Denervation Use for the Treatment of Heart Failure with Reduced Ejection Fraction: a Meta-Analysis

Mohammad M. Ansari MD 1, Daniel C. Garcia MD 2

1 Texas Tech University Health Science Center
Division of Cardiology
Lubbock, TX

2 John Ochsner Heart and Vascular Institute
Ochsner Medical Center
New Orleans, LA

Introduction
Chronic sympathetic system hyperstimulation is one of the cornerstones of heart failure with reduced ejection fraction (HFrEF) pathophysiology.

Catheter-guided renal artery denervation (RDN) works on sympathetic system deactivation and it demonstrated significant reduction of blood pressure for resistant hypertension.

We aimed to investigate the clinical use of RDN for HFrEF patients.

Methods
We searched Pub Med and Cochrane for all clinical studies that directly compared RDN to guideline-directed medical therapy (GDMT) for patients with HFrEF.

Primary outcome was LVEF reduction.

Secondary outcomes were LVEDD and heart failure hospitalizations.

We used Fixed or Random Effect analysis using the Cochrane Handbook of Systematic Reviews and RevMan 5.2 for statistical analysis.

Results
A total of 3 studies (two RCT’s and one prospective) provided a total of 131 patients, 66 in the RDN group and 65 in the control.

Mean follow up was 8±3.5 months.

LVEF was significantly 7.7% (4.16-11.37) higher in the RDN group compared to the control (p<0.01).

Secondary outcomes analysis disclosed significantly 6.29 mm (SD: 4.78-7.79) smaller LVEDD in RDN group (p<0.01).

Heart failure hospitalizations were significantly less in the RDN group (27% vs. 74%, p < 0.01).

Conclusions
Our analysis suggests that RDN treatment for HFrEF can be safe and feasible therapy.

It can lead to improved outcomes including LVEF, LVEDD and hospitalizations compared to GDMT only.

Overall data is scarce and lacks of mortality analysis.

Further randomized clinical studies should be pursued.

Disclosures
All the authors have no disclosure.