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I-123 METAIODOBENZYLGUANIDINE LUNG UPTAKE IS INDEPENDENTLY ASSOCIATED WITH ADVERSE CARDIAC EVENTS IN PATIENTS WITH HEART FAILURE

ACC Moderated Poster Contributions
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Authors: *Myron Craig Gerson, Alok K. Dwivedi, Mouhamad Abdallah, Rakesh Shukla, Arnold Jacobson, University of Cincinnati, Cincinnati, OH, USA, GE Healthcare, Princeton, NJ, USA*

Background: Hypoxia and pulmonary hypertension may result in sympathetic nerve activation in the lungs, which would be expected to contribute to adverse events in heart failure (HF) patients. We analyzed I-123 MIBG lung uptake for patients in the AdreView Myocardial Imaging for Risk Evaluation in Heart Failure study to determine if this added incremental prognostic information to that provided by heart I-123 MIBG uptake.

Methods: Data for 951 HF subjects (NYHA class II/III, left ventricular ejection fraction (LVEF) <35%) and 94 age-matched controls were analyzed. Heart-to-mediastinum (H/M) and lung-to-mediastinum (L/M) ratios were determined from anterior planar I-123 MIBG images acquired at 15 and 230 minutes post-injection. Multivariate Cox proportional hazards was used to assess time to occurrence of NYHA functional class progression, potentially life-threatening arrhythmias, and/or cardiac death during a median follow-up of 17 months.

Results: Mean late L/M ratio was 1.67±0.27 in the controls, 1.68±0.30 in 235 HF patients with a cardiac event (p = NS vs. controls), and 1.75±0.31 in 716 patients with no cardiac event (p = 0.007 vs. patients with events). Variables independently associated with the composite event were: NYHA class III (hazard ratio (HR) 1.521, 95% confidence limits 1.095 - 2.112, p = 0.012), LVEF (HR 0.951, 0.930 - 0.972, p < 0.0001), systolic blood pressure (HR 0.990, 0.982-0.997, p = 0.008), B-type natriuretic peptide (HR 1.000, 1.000 - 1.001, p = 0.0002), late H/M ratio ≥ 1.6 (HR 0.400, 0.242 - 0.661, p = 0.0004), and late L/M ratio (HR 0.517, 0.321 - 0.831, p = 0.0065).

Conclusion: Late L/M ratio provided incremental prognostic information for occurrence of adverse events in HF patients. Increased lung uptake of I-123 MIBG was associated with a better prognosis, suggesting a possible beneficial sympathetic nervous system compensation.