Pulmonary Hypertension

THE ASSOCIATION OF RIGHT VENTRICULAR FUNCTION AND PULMONARY ARTERIAL COMPLIANCE IN PATIENTS WITH IDIOPATHIC PULMONARY ARTERIAL HYPERTENSION

ACC Moderated Poster Contributions
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Session Title: Highlighting Right Ventricular Structure, Function, and Physiology in Pulmonary Hypertension
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Background: Pulmonary arterial compliance (PAC) is associated with mortality in patients with idiopathic pulmonary hypertension (IPAH). Right ventricular failure is the most common cause of death in IPAH; however, the association between PAC and right ventricular ejection fraction (RVEF) has not been well-described. We hypothesize that PAC is associated with RVEF in IPAH.

Methods: Data was retrospectively collected on 29 IPAH patients followed at a tertiary care academic medical center who had cardiac magnetic resonance (cMRI) and right heart catheterization (RHC) performed within 1 month of each other. RHC-derived PAC was calculated as RV stroke volume divided by pulmonary pulse pressure and indexed to body surface area. RVEF was calculated as the difference between c-MRI derived RV end-diastolic and end-systolic volumes divided by end-diastolic volume.

Results: PAC was significantly correlated with RVEF (Spearman rho=0.53, p=0.003). In a multivariate linear regression model adjusted for age, gender, right atrial pressure, mean pulmonary pressure, pulmonary venous resistance, pulmonary artery size, and left ventricular ejection fraction, PAC and right atrial pressure remained independently associated with RVEF (adjusted R²=0.66, p<0.001). PAC accounted for the majority of this association (standardized β=0.66 for PAC and -0.34 for right atrial pressure).

Conclusions: PAC is the primary hemodynamic correlate of RVEF in patients with IPAH.