

Hemodynamics Prior to Valve Replacement for Severe Aortic Stenosis and Pulmonary Hypertension during Long-Term Follow-Up

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(1) Background: Pulmonary hypertension after aortic valve replacement (AVR; post-AVR PH) carries a poor prognosis. We assessed the pre-AVR hemodynamic characteristics of patients with versus without post-AVR PH. (2) Methods: We studied 205 patients (mean age 75 ± 10 years) with severe AS (indexed aortic valve area 0.42 ± 0.12 cm/m, left ventricular ejection fraction $58 \pm 11\%$) undergoing right heart catheterization (RHC) prior to surgical (70%) or transcatheter (30%) AVR. Echocardiography to assess post-AVR PH, defined as estimated systolic pulmonary artery pressure > 45 mmHg, was performed after a median follow-up of 15 months. (3) Results: There were 83/205 (40%) patients with pre-AVR PH (defined as mean pulmonary artery pressure (mPAP) ≥ 25 mmHg by RHC), and 24/205 patients (12%) had post-AVR PH (by echocardiography). Among the patients with post-AVR PH, 21/24 (88%) had already had pre-AVR PH. Despite similar indexed aortic valve area, patients with post-AVR PH had higher mPAP, mean pulmonary artery wedge pressure (mPAWP) and pulmonary vascular resistance (PVR), and lower pulmonary artery capacitance (PAC) than patients without. (4) Conclusions: Patients presenting with PH roughly one year post-AVR already had worse hemodynamic profiles in the pre-AVR RHC compared to those without, being characterized by higher mPAP, mPAWP, and PVR, and lower PAC despite similar AS severity.

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