

Wedge Pressure vs Left Ventricular End-Diastolic Pressure for Pulmonary Hypertension Classification and Prognostication in Severe Aortic Stenosis

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Background

Differentiation between precapillary and postcapillary pulmonary hypertension (PH) classically relies on mean pulmonary artery wedge pressure (mPAWP). The left ventricular end-diastolic pressure (LVEDP) is proposed as an equivalent alternative. However, mPAWP and LVEDP may differ substantially. We compared the impact of the choice of using the mPAWP vs the LVEDP on PH classification and mortality prediction in patients with severe aortic stenosis (AS) undergoing valve replacement.

Methods

In 335 patients with severe AS, both mPAWP and LVEDP were measured. A mean pulmonary artery pressure ≥ 25 mm Hg was used to define PH, and either mPAWP or LVEDP was used to differentiate between precapillary and postcapillary PH (≤ 15 vs > 15 mm Hg). Mortality after a median follow-up of 1484 days after aortic valve replacement was assessed.

Results

Overall, mPAWP was lower than LVEDP (16 ± 8 mm Hg vs 21 ± 8 mm Hg; < 0.001). Among 140 patients (42%) with PH, the PAWP-based classification revealed 76 (54% of those with PH) with isolated postcapillary PH, 48 (34%) with combined pre- and postcapillary PH, and 16 (12%) with precapillary PH. When the LVEDP was used, 59 patients (42%) were differently classified. These patients had higher mortality than those who were not differently classified [hazard ratio 2.79 (95% confidence interval, 1.17-6.65); $= 0.02$]. Higher mPAWP was associated with increased mortality [hazard ratio 1.07 (95% confidence interval, 1.03-1.11) per 1 mm Hg; $= 0.001$], whereas higher LVEDP was not.

Conclusions

Use of LVEDP rather than mPAWP results in a divergent PH classification in nearly every second patient with severe AS. These patients have higher mortality after aortic valve replacement. The mPAWP, but not the LVEDP, predicts mortality.

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