Abstract: P1272

Echocardiographic evaluation of left ventricular filling pressure in patients with heart failure with preserved ejection fraction: usefulness of inferior vena cava measurement

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Context
Echocardiography is an essential tool for evaluation of left ventricular filling pressure (LVFP). We aimed to assess the usefulness of inferior vena cava (IVC) measurement and the 2016 ESC recommendations in patients with suspected heart failure with preserved ejection fraction (HFpEF).

Methods
Invasive hemodynamics and echocardiographic measurements were documented in 132 consecutive patients referred to our centre with dyspnea, left ventricular ejection fraction (LVEF) =50%, and suspected pulmonary hypertension on a previous echocardiogram. Echocardiographic measurements of mitral flow (E and A wave velocities), the E/e’ ratio, indexed left atrial volume (LAV), tricuspid regurgitation velocity (TRV) and the IVC size and collapsibility were obtained. Increased LVFP was defined by an invasive pulmonary artery wedge pressure (PAWP) > 15 mmHg.

Results
In sinus rhythm patients, the sum of the criteria (E/e’ ratio > 14, TRV > 2.8 m/s and indexed LAV > 34 ml/m²) = 2 had a positive predictive value (PPV) of 63% for PAWP > 15 mmHg, whereas a dilated (> 2.1 cm) and/or non collapsible (= 50%) IVC had a PPV of 83%. In atrial fibrillation (AF), a dilated and/or non collapsible IVC had an 86% PPV for increased LVFP. We found that 16% of patients with elevated LVFP were more accurately classified using IVC evaluation than using the current guidelines criteria (net reclassification improvement = 0.25, p <0.05).

Conclusion
Echocardiographic measurements of the IVC size and collapsibility outperformed the classic 2016 recommendations algorithm to evaluate LVFP in sinus rhythm patients with suspected HFpEF. The IVC study was also valuable in patients with atrial fibrillation.