Is TEE a useful monitor in pulmonary hypertension?

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Learning objectives:
1. Describe the echocardiographic features of pulmonary hypertension
2. Describe TEE assessment of right ventricular function
3. Understand the effects of pulmonary hypertension on left & right ventricular function

Disclosures: none

Pulmonary hypertension (PHT) encompasses a group of diseases, characterised by a mean pulmonary artery pressure greater than 25 mmHg. Echocardiography is important in evaluating right ventricular (RV) function and can aid in differentiating between RV dysfunction due to lung disease and that secondary to left ventricular (LV) dysfunction.

Typical echocardiographic features of PHT include RV and right atrial (RA) dilatation, tricuspid regurgitation, RV hypertrophy, flattening of the interventricular septum, pulmonary artery dilatation and RV hypokinesia.

Evaluation of RV systolic function involves assessment of RV geometry and the measurement of a variety of parameters, including:
- RV fractional area change (RVFAC)
- Tricuspid annular plane systolic excursion (TAPSE)
- Tissue Doppler imaging of tricuspid annular velocities
- RV myocardial performance index (RIMP)

There may be a role for evaluation of RV diastolic function to optimise RV preload management.

Due to interventricular interdependence, changes in RV geometry will affect LV filling dynamics, causing impairment of early diastolic filling and a greater reliance on atrial contraction. Severe RV dysfunction & dilatation may result in LV systolic dysfunction with a reduction in LV ejection fraction.

Intraoperative TEE in patients with PHT assists in the haemodynamic management of both RV and LV function, and assessing the response to therapeutic intervention.
References


