

Role of Echocardiography in Assessment of Patients with Suspected Ph: Beyond the Peak Tricuspid Regurgitant Velocity

Papel da Ecocardiografia na Avaliação de Pacientes com Suspeita de Hipertensão Pulmonar: Além da Velocidade de Pico do Jato de Insuficiência Tricúspide

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Pulmonary hypertension (PH) causes great clinical and functional limitations and significantly impacts quality of life and survival.^{1,2} Current pharmacological treatment options for PH include phosphodiesterase-5 inhibitors, endothelin receptor antagonists, and prostanoids. However, an early diagnosis and etiological definition are essential to improve prognosis.³

Transthoracic echocardiography (TTE) is the first-line test for suspected PH, as it is widely available, noninvasive, relatively low cost, does not involve radiation exposure, and carries minimal risk to patients. However, TTE can only suggest the diagnosis of PH since the definitive diagnosis requires invasive hemodynamic measurements via right heart catheterization.⁴

In addition to measuring pulmonary artery systolic pressure by analyzing the peak tricuspid regurgitant velocity, TTE evaluates diagnostic and prognostic variables.^{4,5}

Brito et al. correlated parameters evaluated by TTE and invasive hemodynamic analysis, considered the diagnostic gold standard.⁶ Despite the limited sample size, the study had adequate methodology and analyzed parameters such as right atrial area, mean pulmonary artery pressure, and right atrial strain in addition to conventional quantitative variables and free wall strain to analyze right ventricular systolic function.

Studies correlating right atrial deformations using invasive measurements are quite scarce in the literature, which makes the study by Brito et al. original and interesting. The analysis of atrial myocardial deformation may detect early signs of

diastolic dysfunction; however, unlike left atrial strain analysis, which has an increasing role in several clinical scenarios, the value of right atrial strain analysis in clinical practice remains uncertain. The Brito et al. study presented a relevant proposal by incorporating new echocardiographic variables such as right atrial strain and right ventricular free wall strain associated with conventional measurements such as right atrial area, with a moderate correlation with invasive data. The analysis of the indexed volume of the right atrium and/or the association of variables in a study with a larger number of patients may improve the efficiency of TTE in the initial evaluation of patients with suspected PH.

Thus, although the definitive diagnosis of PH requires invasive right heart catheterization, new echocardiographic variables such as atrial and right ventricular strain analysis in addition to traditional right heart indices have a promising role in refining PH diagnosis, refining classification as well as improving prognosis.

Author contributions

Research conception and design: VTH; manuscript writing: VTH; Critical review of the manuscript for important intellectual content.

Conflict of interest

The author declares that he has no conflict of interest

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Keywords

Pulmonary Hypertension; Echocardiography; Right Atrium; Right Ventricle.

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