Evaluation of right ventricle with echocardiography: Utility of combined techniques

Sir,

We read with great interest the article by Idrees, et al.\(^1\) entitled “Novel approach for the management of sub-massive pulmonary embolism,” which is published in the previous issue of Annals of Thoracic Medicine.

They hypothesized that using inhaled prostacyclin is beneficial in improving right ventricular (RV) functions in patients with sub-massive pulmonary embolism. In this study, RV dysfunction was assessed by quantitative and qualitative criterias, which is based on the increase in RV diameters in a two-dimensional (2D) echocardiography.

Assessing RV morphology and function are of paramount importance in diseases, such as pulmonary embolism, pulmonary hypertension, myocardial infarction involving the RV, and left ventricular dysfunction.

Echocardiography, being non-invasive, widely available, relatively inexpensive, and having no side effects, is the modality of choice for the assessment of morphology and function of the RV in clinical practice. Echocardiographic volume and function assessment of the RV are complicated by the complex geometry of this chamber, the pronounced trabeculation that compromises accurate endocardial delineation, and the anterior position that often limits echo image quality.\(^2\,\,^3\)

Unlike the LV, where biplane methods are accepted and widely used for a global assessment of systolic function, identification of functional abnormalities on the basis of visual echocardiographic assessment solely is inaccurate, frequently resulting in false-positive findings.\(^4\,\,^5\)

In conclusion, owing to the incomplete visualization and evaluation of the RV in a single 2D echocardiographic view as in this study, combined projections such as three-dimensional echocardiography, right ventricular fractional area change (RVFAC), myocardial performance index (MPI, Tei index), RV dP/dt, tricuspid annular plane systolic excursion (TAPSE), doppler myocardial imaging techniques (pulsed, colour and tissue), tricuspid and hepatic flow patterns, and inferior vena caval diameters are needed for a comprehensive evaluation of RV structure and function.

Combinations of these parameters in evaluating RV dysfunction give more accurate information, which could make studies more valuable.

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