
Usefulness of left atrial speckle-tracking echocardiography in patients with atrial fibrillation

To the Editor,

We read the article entitled "Association between left atrial function assessed by speckle-tracking echocardiography and the presence of left atrial appendage thrombus in patients with

atrial fibrillation" published in *Anatol J Cardiol* 2017;18:15-22, by Kupczynska et al. (1) with great earnest and wish to commend the authors for their interesting work on this new and potentially impactful subject. The study investigated the link between trans-thoracic echocardiographic markers of left atrial function, including novel ones obtained through speckle-tracking echocardiography, and the presence of left atrial appendage thrombus on transoesophageal echocardiography.

Speckle-tracking echocardiography is a novel technique, which uses dedicated software that analyses the motion of specific segments of the myocardium to determine their fractional shortening, but it is fraught with technical issues. One of them is related to heart rate variability because strain and strain rate values are directly influenced by the length of diastole, and as such, this technique is designed for patients with regular heart rhythms (2). In this regard, the authors' approach of using speckle-tracking echocardiography in patients with atrial fibrillation is brave and their solution of using an indexed beat with the smallest R-R variability compared with previous beats could be a very practical solution.

A specific limitation of atrial strain is the dependence of atrial function on left ventricular function, and in this regard, the study groups are markedly different. The patients with left atrial appendage thrombi had a reduced left ventricular ejection fraction compared with those without a thrombus, with 53% of them having a severely reduced ejection fraction, perhaps owing to the increased prevalence of coronary artery disease. Although this is somewhat expected, it translates into increased ventricular filling pressures and increased atrial filling pressures, a fact demonstrated by the significantly increased mean indexed left atrial area and volume of the thrombus group compared with those in the no thrombus group (12 vs. 14 cm²/m² and 28 vs. 34 mL/m², respectively). For evaluating this interdependence, the evaluation of left ventricular diastolic function would be useful, but the authors did not present this data.

However, the results of the study are very interesting because they identify left atrial longitudinal strain rate as a better predictor of left atrial appendage thrombus than the CH2ADS2-VASc score in this study population. Although this score is not used for predicting a left atrial appendage thrombus, it uses clinical variables known to be associated with thrombus formation and can be a good indicator of its presence (3). In this sense, speckle-tracking echocardiography cannot replace clinical evaluation, but it can provide additional information to improve risk assessment, as demonstrated by the improvement in predictive power of the model that uses both the score and atrial strain developed by the authors.

The added value of atrial longitudinal strain measurements brought to the CH2ADS2-VASc score in thrombus prediction proves that it is a valuable tool, and this study lays the groundwork for future prospective studies that can provide more proof of its usefulness in these patients.

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