SUCCESS score for success rate in atrial fibrillation ablation: Does one size fit all?

To the Editor,

With great interest, we read the article written by Jud et al. (1). Atrial fibrillation (AF) is the most commonly encountered arrhythmia in clinical practice, and catheter ablation is used to restore sinus rhythm in highly symptomatic patients that fail to respond to antiarrhythmic drug therapy.

In the study conducted by Jud et al. (1), APPLE score was superior to both well-known thromboembolic risk scores ($CHADS_2$ and CHA_2DS_2-VASc) for predicting AF recurrence rates post catheter ablation. Moreover, the authors devised a new risk score, the SUCCESS score, by adding previous ablations to the APPLE score with a subsequent improvement in c-statics (1). We agree with the authors that there is an urgent need for the better identification of candidates for catheter ablation and that till now, no risk score has included imagistic parameters despite increasing body of evidence linking left atrial (LA) enlargement to both increased thromboembolic risk and poor ablation outcomes (2).

Increased LA diameter has been independently associated with high recurrence risk post catheter ablation (2). However, LA volume (LAV) or indexed LA volume (LAVi) are preferred over the diameter for assessing chamber enlargement (3). Moreover, several studies have shown that LA enlargement is asymmetrical, with a predilection towards superior–inferior and medial–lateral axis (3, 4) and that LAV is associated with increased recurrence post catheter ablation procedures (2). Given its asymmetrical dilatation, relying solely on the diameter, as a mean for defining chamber enlargement, leaves room for error (4). Njoku et al. (2) revealed increased LAV/LAVi as an independent predictor of AF recurrence rates post radiofrequency catheter ablation procedures. The relationship between chamber dimensions and high recurrence rates is emphasized by the 3% augmentation in AF recurrence risk with every LAV/LAVi unit increase (2).

Rather than LA enlargement, a change in LA geometry as an expression of structural remodeling also predicts post-ablation recurrences. Increased LA sphericity index is an independent predictor of AF recurrences, with a c-statistics of 0.72 (5). This is in agreement with both the asymmetric dilatation model and the fact that alterations in LA geometry may even precede overt chamber enlargement.

Therefore, despite the increased predictive values of both APPLE and the novel SUCCESS risk scores, we wonder whether their accuracy may be enhanced by considering LAV/LAVi as a mean of LA enlargement assessment instead of the LA diameter. AF leads to and is promoted by a degree of atrial structural remodeling with a subsequent increased fibrosis degree, which, in turn, influences ablation outcomes and recurrence rates. As such, identifying and quantifying LA structural remodeling as chamber enlargement, altered geometry, and fibrosis degree could help us better select the candidates for catheter ablation and even influence ablation strategies and long-term patient management.

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Author`s Reply

To the Editor,

We really appreciate the interest in and comments for our article "A novel score in the prediction of rhythm outcome after

ablation of atrial fibrillation: The SUCCESS score" (1). Firstly, we agree with the colleague's opinion that remodeling of the left atrium (LA) is assessed more precisely using volume instead of diameter values. Even though the anteroposterior measurement is the most commonly used parameter in size assessment of LA, it does not consider the geometry. The recommendations of the American Society of Echocardiography (ASE) and the European Association of Cardiovascular Imaging (EACVI) state: "[…] this measurement has been used extensively in clinical practice and research, it has become clear that frequently it may not represent an accurate picture of LA size" (2). However, LA volume is not always routinely obtained in all patients, and it was unfortunately also the case in our retrospective study (1). EACVI furthermore states that 3D echocardiography, which is the most accurate form of volume measurement, "is poorly applied in the clinical practice because of the lack of standardized methodology and limited normative data. Although several studies demonstrated the incremental prognostic value of LA strain in diseases such as atrial fibrillation and mitral valve disease, the lack of a dedicated software and standardized methodology prevent its inclusion in a routine echocardiographic report" (3).

We fully agree with the colleague's comment that the LA volume is superior for the risk assessment than the LA diameter; however, the latter is still used more commonly in clinical practice. The main goal of our study (1) was to create a simple scoring system using routinely obtained parameters, and therefore, it included diameter rather than volume. Further, it seems promising to apply a volume-based assessment of the LA size if this data is obtained more routinely in the future as recommended by both ASE and EACVI.

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Acute fulminant eosinophilic myocarditis due to Giardia lamblia infection

To the Editor,

We read the publication on "Acute fulminant eosinophilic myocarditis due to Giardia lamblia infection presented with cardiogenic shock in a young patient" with a great interest (1). Avsar et al. (1) mentioned that "To the best of our knowledge, this is the first case report of acute fulminant eosinophilic myocarditis due to Giardia lamblia infection presented with cardiogenic shock". In fact, acute fulminant eosinophilic cardiac involvement is a possible rare clinical complication in giardiasis (2). However, it should be noted that the present study is not the first clinical case report as mentioned by Avsar et al. (1). There is at least one case reported previously by Dzierwa et al. (3), in which a patient presented with acute fulminant eosinophilic myocarditis due to giardiasis. In that case, the patient also presented with chest pain, dyspnea, and cardiogenic shock (3).

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