

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 (CHADS₂ and CHA₂DS₂-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-statistics (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.

 Mariana Floria^{1,2},  Smaranda Radu^{2,3},  Sînziana Al Shurbaji^{1,2},
 Anca Ouatu^{1,2},  Daniela Maria Tanase^{1,2}

¹Sf. Spiridon Emergency Hospital, ²Grigore T. Popa University of Medicine and Pharmacy, and ³Cardiovascular Disease Institute; Iași-România

References

1. Jud FN, Obeid S, Duru F, Haegeli LM. A novel score in the prediction of rhythm outcome after ablation of atrial fibrillation: The SUCCESS score. *Anatol J Cardiol* 2019; 21: 142-9.
2. Njoku A, Kannabhiran M, Arora R, Reddy P, Gopinathannair R, Lakireddy D, et al. Left atrial volume predicts atrial fibrillation recurrence after radiofrequency ablation: a meta-analysis. *Europace* 2018; 20: 33-42.
3. Lang RM, Badano LP, Mor-Avi V, Afialo J, Armstrong A, Ernande L, et al. Recommendations for cardiac chamber quantification by echocardiography in adults: an update from the American Society of Echocardiography and the European Association of Cardiovascular Imaging. *J Am Soc Echocardiogr* 2015; 28: 1-39.e14.
4. Floria M, Blommaert D, Lacrosse M, Ambarus V, Dormal F, Dabiri Abkenari L, et al. Assessment of left atrial shape and volume in structural remodeling secondary to atrial fibrillation. *J Interv Card Electrophysiol* 2009; 25: 167-70.
5. Nakamori S, Ngo LH, Tugal D, Manning WJ, Nezafat R. Incremental Value of Left Atrial Geometric Remodeling in Predicting Late Atrial Fibrillation Recurrence After Pulmonary Vein Isolation: A Cardiovascular Magnetic Resonance Study. *J Am Heart Assoc* 2018; 7: e009793.

Address for Correspondence: Smaranda Radu, MD,

Department of Cardiology,
Cardiovascular Disease Institute;
16 University Street,
Iași-România

Phone: +40 232 301 600

E-mail: radu.smaranda@gmail.com

©Copyright 2019 by Turkish Society of Cardiology - Available online
at www.anatoljcardiol.com

DOI:10.14744/AnatolJCardiol.2019.89957

