Reviewer’s report

Title: Value of dual Doppler echocardiography for prediction of atrial fibrillation recurrence after radiofrequency catheter ablation

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Reviewer: Valentina Puntmann

Reviewer's report:

Fengjiao Chen et al assessed the Value of dual Doppler echocardiography for prediction of atrial fibrillation recurrence after radiofrequency catheter ablation. Dual Doppler echocardiography was performed in 67 patients with AF before ablation and in 47 patients with sinus rhythm (control group). The parameters measured included, the TE-e', the Tei index, the ratio E/e'(S) and the ratio E/e' (L). AF patients were divided into two groups based on the presence or absence of AF recurrence (one year follow up after ablation). Authors concluded that, all the above indexes were significantly increased in AF patients as compared with the control group (p < 0.001). They also report that, TE-e' and the Tei index within the recurrence group were significantly increased as compared to the group without recurrence of AF one year after ablation. After multivariate analysis it was revealed that TE-e' can provide an independent predictor for AF recurrence (p =0.001).

Major comments:

1) The evaluation of LV diastolic function, in patients with AF, according to ASE/EACVI recommendations for the evaluation of Left Ventricular diastolic function by echocardiography (J Am Soc Echocardiogr 2016; 29:277-314), is based on the following 5 measurements: Peak acceleration rate of mitral E velocity (≥ 1,900 cm/sec2), IVRT (≤65 msec), DT of pulmonary venous diastolic velocity (≤220 msec), E/Vp ratio (≥1.4) and Septal E/e' ratio (≥11). According to Authors, the parameters which were measured within identical cardiac cycles are: the TE-e', the Tei index, the ratio E/e'(S) and the ratio E/e' (L). As is evident, the Authors omitted to mention some of the classic parameters that help to classify patients with AF into those with and without LV diastolic dysfunction.

2) In Table 3, which demonstrates the characteristics of patients with and without AF recurrence after ablation, there is a difference in the incidence of preexisting Long Persistent AF, between those patients with AF recurrence (9.52%) and those with no AF recurrence (4.3%). In the text there is no clear comment of this difference or the statistical significance of it.

3) According to the Authors, follow-up of patients included, detailed inquiries regarding arrhythmia-related symptoms (dizziness, chest distress or cardiopalmus), an echocardiography
examination and a 24-hour Holter which was performed at 3, 6 and 12 months after the ablation to confirm the presence or absence of AF recurrence. Even though 24-hour Holter is the standard method to detect AF, continuous Holter for up 72 hours or implantable loop recorder can improve the diagnostic accuracy and reveal some patients with rare episodes of paroxysmal AF. There is also no information, if there were patients with arrhythmia-related symptoms and no Holter confirmation of AF recurrence 1 year after ablation.

Minor comments:

1) According to Authors, it was detected the late recurrence of AF (up to one year) after ablation without any information about the very-late recurrence which is the incidence of AF beyond one year after ablation and one of the major causes of re-ablation.

2) It is written in the text that all 67 patients with AF underwent successful pulmonary vein isolation or elimination by RFCA, but two patients in this study were subjected to repeated ablation. There is no information about the cause of why these two patients were subjected to repeat ablation and if this cause can act as a confounding variable.

3) In this study it was measured the LA diameter instead of LA maximum volume index which is suggested by ASE/EACVI recommendation and it is more reproducible parameter for statistical outcomes.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

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