Advanced interatrial block as a predictor of atrial fibrillation following catheter ablation in the left atrium

Dear Editor,

We read with great interest the excellent paper by Wu et al. [1] recently published in the Journal. The authors presented a very well-designed work on the role of advanced interatrial block (IAB) predicting atrial fibrillation (AF) recurrence following catheter ablation in the left atrium (LA). The main findings were that advanced IAB and left atrial size were independent predictors of recurrence of AF after ablation.

The authors properly cited our work on the value of identifying advanced IAB as a predictor of AF recurrence in many different clinical scenarios, including new-onset AF after cavo-tricuspid isthmus ablation [2,3]; however, they failed to cite and discuss the most relevant work from our group on the role of IAB and more specifically, P-wave duration as a predictor of AF recurrence after pulmonary vein isolation (PVI) [4]. In this work, we showed that the presence of pre-existent prolonged P-wave duration (PWD) is associated with an increased risk of AF recurrence after catheter ablation. Some commonalities and discrepancies between studies should be noted:

1. In terms of study design, Wu et al.’s study is prospective, enrolled a larger population of paroxysmal AF making their results stronger than Caldwell et al.’s study. Mean follow-up was 13.9 ± 6.2 months. Caldwell and colleagues’ study was retrospective and included half the patients with paroxysmal AF, but with a larger follow-up at 32 ± 14 months.
2. Main variable in Wu et al.’s study was presence of advanced IAB, which was defined as a P-wave duration >120 ms accompanied by a biphasic P-wave morphology in the inferior leads [5]. However, Caldwell et al. investigated PWD as a predictor of AF recurrence. PWD ≥ 140 ms presented moderate sensitivity but very high specificity for the detection of post-PVI AF recurrence. Increasing PWD to 160 ms resulted in poor sensitivity with almost 100% specificity.
3. The recurrence rate was higher in patients with advanced IAB than those without (46.3% vs. 26.4%, p = 0.006) and advanced IAB was independent predictor of AF recurrence after catheter ablation. In the study performed by Caldwell et al., PWD ≥ 140 ms was associated with higher risk of AF recurrence compared to those without prolonged PWD (63% vs 38, p < 0.05). However, PWD was not a predictor of AF recurrence. The discrepancy could be explained by a smaller sample included in the Canadian study.
4. Wu et al. measured the ECGs manually, while Caldwell et al. used semi-automatic calipers which is considered a more sophisticated way to determine PWD.
5. Both of these studies were performed on paroxysmal AF patients undergoing PVI. Interestingly, both studies mentioned on the necessity of more extensive substrate ablation in patients with prolonged PWD. Caldwell et al. showed that pulmonary vein (PV) reconnection was lower in the group with larger PWD indicating a different mechanism than PV reconnection as the cause of AF recurrence. Re-do PVI alone may be insufficient in this group of patients to control AF because atrial remodeling has already occurred.

In conclusion, prolonged PWD as well as advanced IAB are strong markers of AF recurrence after catheter ablation of the LA. May be it is time to change our ablation strategy in AF patients with advanced IAB or prolonged PWD.

Conflict of interest

None declared.

References


Enes E. Gul (MD)
Division of Cardiology, Department of Medicine, Kingston General Hospital, Queen’s University, Kingston, ON, Canada

*Corresponding author at: Division of Cardiology, Department of Medicine, Kingston General Hospital, Queen’s University, 76 Stuart Street, Kingston, ON, Canada K7L 2V7
E-mail address: baranchuk@kgh.kari.net (A. Baranchuk).

Received 11 January 2016
Available online 22 February 2016
http://dx.doi.org/10.1016/j.jjcc.2016.01.011