

Predictors of Cardiac Perforation with Catheter Ablation of Atrial Fibrillation

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We have read with interest the paper published by Friedman D. et al. in a previous issue of this journal entitled “Predictors of Cardiac Perforation with Catheter Ablation of Atrial Fibrillation” (1). Authors analyzed predictors of cardiac perforation in a nation-wide registry of 102,398 patients undergoing atrial fibrillation (AF) ablation. The strongest predictor of cardiac perforation was the non-use of intracardiac echocardiography (ICE). In this registry ICE was used in 73% of patients and absence of ICE use was associated with a significantly higher rate of cardiac perforation (OR: 4.85; 95% CI: 4.11 to 5.71; $p < 0.0001$). In view of these results authors state that intraprocedural ICE use should be considered as a recommendation in the next iteration of the AF ablation guidelines. However, authors acknowledge as a potential limitation of this study that they were unable to evaluate whether intraprocedural transesophageal echocardiography (ITE) might be an alternative to ICE for reducing cardiac perforation. This question should not be disregarded.

Although mechanical trauma of a thin wall and steam pops during radiofrequency delivery are related with cardiac perforation, the most common cause of this complication is inadvertent pericardial entry during transseptal puncture. A direct visualization for the correct positioning in the fossa ovalis during transseptal access potentially prevent the vast majority of complications related with this maneuver, especially when performed by non-highly experienced operators. This assertion is particularly true nowadays, as most of the AF ablation procedures are performed during uninterrupted anticoagulation.

ITE has already shown its utility for guiding transseptal puncture (2,3) yet no direct comparison has been performed between ICE and ITE. ICE can also potentially improve procedural safety by two additional mechanisms: i) identification of left atrial thrombus, and ii) early detection of pericardial effusion. However, ITE is still considered the “gold standard” to rule out left atrial thrombus in AF patients (4) and, when handled by an experienced operator, it can also detect pericardial effusion in the earliest phase. Moreover,

ITE has two clear advantages; first, it is a low-priced, widely available tool; second, it does not require a further vascular access. In fact, one of the main limitations of ICE is the need for an independent venous access, that could minimize its possible benefit at the expense of vascular complications (5). On the other hand, ITE is usually not well tolerated under conscious sedation and commonly requires general anesthesia. However, initial reports suggest better clinical outcomes and cost-effectiveness when the ablation procedure is performed under general anesthesia (6), especially in case of high-frequency and low tidal volume ventilation, as this approach has shown to improve catheter stability (7).

We would like to congratulate authors for its research that will contribute performing safer procedures in a time frame in which the number of AF ablations is steadily increasing worldwide. However, we firmly believe that further prospective research, specifically designed to evaluate the additional safety benefit of aiding tools like ICE or ITE are needed before recommending any of them as the right choice

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Article entitled: Letter regarding article: Predictors of Cardiac Perforation with Catheter Ablation of Atrial Fibrillation

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