JAFIB
Journal Review
Journal of Atrial Fibrillation
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Comments on: Clinical Significance of Early Recurrences of Atrial Tachycardia After Atrial Fibrillation Ablation by Choi JI et al

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Introduction

Atrial fibrillation ablation is an effective and recognized therapy. However this technique is associated with a high rate of arrhythmia recurrences. Indeed the estimated rate of recurrence following paroxysmal AF ablation is up to 30% and up to 50% for persistent AF after one procedure. Arrhythmia recurrences following AF ablation are characterized according to the timing of recurrence and the type of arrhythmia recurrences.

Early arrhythmia recurrences occur within 1 to 3 months following the index procedure where as late recurrences occur after.

Arrhythmia recurrences can be atrial fibrillation or organized atrial tachycardia such as left macro-reentrant or focal tachycardia.

The rate of early arrhythmia recurrences varies from 20-50% following AF ablation.

Numerous studies have demonstrated that patients experiencing early arrhythmia recurrences are at high risk of developing late arrhythmia recurrences. However some patients with early recurrences will not develop late recurrences justifying a "blanking period" before considering redo ablation.

Choi et al [1]specifically focused on the predictive value of early organized atrial tachycardia following AF ablation on late arrhythmia recurrences.

Interestingly patients with early atrial tachycardia recurrences had a significant higher risk of developing late recurrences compared to patients without early atrial tachycardia occurrence.

This study confirms previous studies results including AF and atrial tachycardia in the definition of early arrhythmia recurrences.

However organized atrial tachycardias are usually seen following persistent AF ablation. This rate is estimated to 3-10% following paroxysmal AF ablation and 10-30% after persistent AF ablation. In the present study only 30% of patients experienced persistent AF ablation explaining the rate of 15% of early atrial tachycardia. However it is unclear why the authors included such a low rate of persistent AF patients.
A lot of questions remain to be elucidated about early arrhythmia recurrences following AF ablation:

1) How can we prevent early arrhythmia recurrences?
2) As early recurrence is associated with late ar-

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rhythmia recurrence, is a reduction of early arrhythmia recurrences will decrease late arrhythmia recurrences?
3) When is the best timing for reablation?

The mechanisms underlying early arrhythmia recurrences are unclear. Two mains hypothesis can be advanced: local tissue inflammation and persistence of arrhythmogenic atrial tissue. One could then hypothesize that pro-arrhythmogenicity due purely to inflammation could decrease with time and would explain patients with early arrhythmia recurrences but not late. Conversely patients with persisting arrhythmogenic tissue will experience both early and late arrhythmia recurrences. However very few studies have been published about inflammation and arrhythmia recurrences and are contradictory. The main limitation of these studies is the absence of local inflammation tissue data to correlate with clinical recurrences.
However recently Koyama et al [2] have demonstrated that corticosteroids administered 3 days following paroxysmal AF ablation could reduce very early (3 days after AF ablation) and late arrhythmia recurrences (>1month post-ablation). These results need to be confirmed by other groups and extended to persistent AF ablation.
We also have demonstrated (unpublished personal data) that the prevalence of acute, small and asymptomatic pericardial effusion were frequent following AF ablation (22%) particularly following persistent AF ablation (35%). Moreover these effusions were independently associated with early arrhythmia recurrences but not late recurrences. Non steroids anti-inflammatory could then be proposed in this specific population following AF ablation to reduce early and/or late recurrences.

Additionally Baman et al [3] have recently demonstrated that 50% of patients with early recurrences and experiencing a cardioversion within the first month following AF ablation were in sinus rhythm after one year of follow-up. Randomized studies evaluating the effect of an aggressive strategy for sinus rhythm maintenance immediately after AF ablation are required.

Finally the best timing for re-ablation is not established. International guidelines recommend waiting at least 3 months, during the "blanking period", before performing a redo ablation. However recently Wang et al [4] proposed that the proper timing for re-ablation could be one month. Indeed no difference in late arrhythmia recurrences was found during the mid-term follow-up in patients re-ablated 1 month or 3 months after the index procedure. Conversely Lellouche et al [5] demonstrated that an early re-ablation within the first month post-ablation was associated with a higher number of AF ablation procedures.

More studies need to be performed to elucidate the precise mechanisms and the appropriate treatment for early arrhythmia recurrences following AF ablation.

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