

Editorial to “Improvement in quality of life and cardiac function after catheter ablation for asymptomatic persistent atrial fibrillation”

Apart from prevention of stroke and thromboembolism, symptom amelioration is the most important management aspect of atrial fibrillation (AF).¹ AF is often detected incidentally and clinical AF burden comprises a large percent of asymptomatic episodes. However, asymptomatic AF carries the same thromboembolic risk, and increases the risk of future heart failure, and impairs quality of life and cognitive performance. Progression of AF from paroxysmal to persistent (and permanent) is associated with irreversible pathophysiological changes, making restoring, and maintaining sinus rhythm more difficult. The apparent lack of symptoms may be because of patient adjustment and perception, slow AF rate, early phase of AF, minimal underlying structural heart disease, and low AF burden, or a combination of these.

The CABANA trial² showed that compared to medical therapy, catheter ablation for symptomatic AF improved the quality of life and a Mayo AF-specific symptom score. In a population with 57% in persistent AF, catheter ablation was also superior in preventing AF recurrence (24.7% vs 35.0%). It is difficult to improve symptoms of patients who are apparently “asymptomatic”. The requirements include: (1) appropriate selection of patients who are likely to respond favorably to the strategy of restoring and maintaining sinus rhythm (2) lack of significant comorbidities that may affect AF symptom perception (3) an ablation service with low complications and yet both effective and durable in maintaining sinus rhythm and (4) a sensitive tool to detect differences in symptoms after ablation.

In this issue of the *Journal*, Onishi³ have explored the use of catheter ablation in a single center, retrospective cohort study to address some of these confounding variables. In 45 patients with asymptomatic persistent AF detected incidentally, they showed that AF ablation improved symptom frequency, activity limits, and mental anxiety after catheter ablation using a validated disease-specific AF quality of life measure for Japanese patients. While symptom severity was not affected, there was a beneficial impact on atrial size and left ventricular function and plasma brain-type natriuretic peptide level after 3 months. These changes were durable over 5 years. Their patient group has a mean age of 62.9 ± 8.6 years and most have persistent AF <1 year (71.1%), and only borderline increase in left atrial size and comorbidities as defined by a CHADS₂ score of 1. The quality of their AF ablation was very high, with zero acute complication, and 85.7% of patients remaining in sinus rhythm up to 5 years (with 24%

of patients agreed for a repeat ablation). These results compared favorably with the generally accepted results for catheter ablation success¹ Importantly, no patients developed permanent AF.

Catheter AF ablation is a class I indication for symptomatic patients refractory to at least one oral antiarrhythmic drug, and a class IIa for those without prior drug failure¹ It may be considered in asymptomatic patients with depressed left ventricular function. The role of ablation for asymptomatic patient found incidentally and with normal left ventricular function is unknown. However, in patients with paroxysmal AF, AF ablation success remains high. But development into permanent or long-term persistent AF is associated with a lower success rate, so delaying ablation may be a missed opportunity.

An observation not sufficiently discussed in Onishi et al's article³ was the prevention of AF progression. In the RECORD AF study⁴ among 5171 patients with the majority presenting with recent onset non-permanent AF, progression to permanent AF occurred in 31% of patients by the second visit (13% assigned to rhythm control vs 54% to rate control). Risk factors for AF progression include initial persistent AF, duration of AF > 3 months, heart failure, and age > 75 years and when only rate control was used. AF progression is associated with increased risk of heart failure and adverse cardiovascular outcomes.⁵ It is remarkable that in this cohort of patients with persistent AF > 3 months, RF ablation resulted in no patients progressing to permanent AF over a period of 5 years. This suggests that early effective AF intervention promotes reverse remodeling and avoids heart failure. A recent randomized trial⁶ revisited the strategy for patients with recently discovered AF (<1 year). In 2789 patients in European centers, early initiation of rhythm control strategy (predominantly medical, with AF ablation in 8% by 1 year) was associated with a reduction of primary adverse cardiovascular endpoint versus usual rate control care (3.9 vs 5.0 per 100 person-year). There was no significant increase in hospital stay nor safety concerns in the rhythm control strategy arm. Notably, a majority of the patients had no or minimal AF symptoms as assessed by European Heart Rhythm Association score, and rhythm control therapy was started within a mean of 36 days. The present study gives support for early rhythm control by catheter ablation for incidentally identified asymptomatic AF.

As the authors have pointed out, this is a small retrospective single-center study. Additional limitations include the percentage

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.



© 2020 The Authors. *Journal of Arrhythmia* published by John Wiley & Sons Australia, Ltd on behalf of the Japanese Heart Rhythm Society.

of asymptomatic AF patients detected who ultimately received AF ablation, why ablation was the chosen strategy, and the vigorosity of assessing true lack of symptoms. Additionally, the ascertainment of sinus rhythm and details of antiarrhythmic medications used after ablation were not available. It would be useful to have objective exercise data for comparison. A placebo effect of ablation on quality of life cannot be excluded in the absence of a control group. Thus, the article can only be considered a hypothesis-generating study.

What are the implications of these data? Taken together, there appears to be a role in early maintaining of sinus rhythm by ablation in incidentally discovered persistent AF. The changes appear to be durable over 5 years. Quality of life can be improved despite the lack of or only minimal symptoms at baseline. Whether AF ablation in these patients was superior to rhythm therapy with medications needs to be studied in a larger population, and in a prospective randomized manner. This study also has implications for the role of AF screening to detect early AF patients, and suggests that asymptomatic persistent AF may not be too late for ablation. Of course, a safe, effective and durable AF ablation procedure is the cornerstone for this strategy.

CONFLICT OF INTEREST

Authors declare no conflict of interests for this article.

Chu-Pak Lau MD¹ 
 Kathy Lai-Fun Lee MBBS¹
 Chung-Wah Siu MD¹ 
 Hung-Fat Tse MD, PhD^{1,2,3}

¹Cardiology Division, Department of Medicine, Queen Mary Hospital, The University of Hong Kong, Hong Kong SAR, China

²Division of Cardiology, Department of Medicine, The University of Hong Kong Shenzhen Hospital, Shenzhen, China

³Shenzhen Institute of Research and Innovation, University of Hong Kong, Shenzhen, China

Correspondence

Chu-Pak Lau, MD, Honorary Clinical Professor, The University of Hong Kong, Director, Cardiac Health Heart Centre, Suite 1303, Central Building, 1 Pedder Street, Central, Hong Kong.
 Email: cplau@hku.hk

ORCID

Chu-Pak Lau  <https://orcid.org/0000-0002-3526-8950>

Chung-Wah Siu  <https://orcid.org/0000-0002-2666-3086>

REFERENCES

- Hindricks G, Potpara T, Dagres N, Arbelo E, Bax JJ, Blomström-Lundqvist C, et al. 2020 ESC guidelines for the diagnosis and management of atrial fibrillation developed in collaboration with the European Association of Cardio-Thoracic Surgery (EACTS): the Task Force for the diagnosis and management of atrial fibrillation of the European Society of Cardiology (ESC) Developed with the special contribution of the European Heart Rhythm Association (EHRA) of the ESC. *Eur. Heart J.* 2020. <https://doi.org/10.1093/eurheartj/ehaa612>
- Mark DB, Anstrom KJ, Sheng S, Piccini JP, Baloch KN, Monahan KH, et al. Effect of catheter ablation vs medical therapy on quality of life among patients with atrial fibrillation: the CABANA randomized clinical trial. *JAMA*. 2019;321:1275–85.
- Onishi N, Oi M, Kyo S, Jinnai T, Kueoda M, Shimizu Y, et al. Improvement in quality of life and cardiac function after catheter ablation for asymptomatic persistent atrial fibrillation. *J Arrhythmia*. 2021;37:11–19. <https://doi.org/10.1002/joa3.12457>
- Camm AJ, Breithardt G, Crijns H, Dorian P, Kowey P, Le Heuzey JY, et al. Real-life observations of clinical outcomes with rhythm- and rate-control therapies for atrial fibrillation RECORDAF (Registry on Cardiac Rhythm Disorders Assessing the Control of Atrial Fibrillation). *J Am Coll Cardiol*. 2011;58:493–501.
- Wong JA, Conen D, Van Gelder IC, McIntyre WF, Crijns HJ, Wang J, et al. Progression of device-detected subclinical atrial fibrillation and the risk of heart failure. *J Am Coll Cardiol*. 2018;71:2603–11.
- Kirchhof P, Camm AJ, Goette A, Brandes A, Eckardt L, Elvan A, et al. 4 Trial investigators. Early rhythm-control therapy in patients with atrial fibrillation. *N Engl J Med*. 2020;383:1305–16.