

# Response to “Delay in AF ablation costs lives”

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February 20, 2023

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**Short Title:** Impact of delays in catheter ablation

**Funding :** None

**Conflict of Interest Statement**

Andrew J. Sessions: None

Heidi T. May: None

Brian G. Crandall: None

John D. Day: Consulting – Abbott Medical, Boston Scientific

Michael J. Cutler: none

Christopher A. Groh : None

Leenapong Navaravong: None

Ravi Ranjan: research grants: Biosense Webster, Medtronic

Benjamin A. Steinberg” National Heart, Lung, And Blood Institute of the National Institutes of Health (#K23HL143156), and reports research support from Abbott, Boston Scientific, and Janssen; and consulting to Janssen, AltaThera, Merit Medical, and Bayer; and speaking for NACCME (funded by Sanofi).

T. Jared Bunch: Research grants: Altathera, Boehringer Ingelheim, Boston Scientific, Heartline Study Steering Committee for Janssen Scientific Affairs/Johnson & Johnson.

**Funding :** None

We read with interest the commentary about our article from Leung and colleagues.<sup>1</sup> We agree with their conclusion that ablation for atrial fibrillation (AF) should be viewed by all healthcare providers that manage patients with AF as a more effective long-term strategy than antiarrhythmic drug therapy. We also believe that based upon the CABANA trial results, that we have adequately powered randomized prospective trial data to support ablation as a first line rhythm control therapy compared to usual care for AF.<sup>2</sup> Trial data also support the use of ablation and a more cost-effective treatment approach for AF.<sup>3</sup> However, ablation must be performed in specialized centers which limits availability and broad use and its benefits are optimized when treatment is founded on risk factor modification, medication compliance, and long-term adherence to a healthier life.

The authors highlight that in patients with structural heart disease that the AF subtype is of often more advanced and as such the outcomes with ablation are less favorable. Although not reported in our manuscript of interest, we have previously reported the AF subtypes in patients with heart failure (ejection fraction <35%) that received an ablation for AF in the Intermountain Healthcare system (AF was paroxysmal in 30%, persistent in 30%, and longstanding persistent in 40%).<sup>4</sup> In comparison, the AF subtypes of the general ablation population were paroxysmal in 55%, persistent in 27%, and longstanding persistent in 18%.<sup>5</sup> The report of the subtypes in our prior studies was not precise in the studies as they are derived from a large database, however the trends support the concept that the outcomes of ablation in patients with heart failure will likely improve with earlier referral and treatment when relatively more patients are characterized as paroxysmal and progressive atrial myopathy has not developed.

Next, the authors comment on the role of ablation approach and how this can impact observed outcomes. Unfortunately, we did not have consistent data on the ablation approach across multiple hospitals performed by many electrophysiologists in the database. Throughout the healthcare system, pulmonary vein isolation was a goal of therapy, and most ablations were performed with radiofrequency energy. Randomized control data support pulmonary vein isolation alone as a strategy in patients with favorable substrate and arrhythmia subtypes including for persistent AF.<sup>6</sup> Additional linear ablation or targeting of arrhythmogenic substrate is often performed with severe atrial myopathies and more advanced AF subtypes which can create iatrogenic arrhythmias, and even without these arrhythmias, recurrences rates are still higher compared to those observed in patients with paroxysmal atrial fibrillation.

We agree with the authors that evidence is mounting not only for first line ablation but also earlier rhythm control in general. The EAST-AF Net trial supports early rhythm control (both with ablation and antiarrhythmic medications) to impact the natural history of AF lowering risk of cardiovascular death, stroke, or hospitalization with worsening of heart failure, acute coronary syndrome, and days spent in the hospital in both symptomatic and asymptomatic patients with AF when performed in the context of comprehensive management of coexistent diseases and comorbidities.<sup>7</sup> However, extrapolation of published data to sicker and different populations will require our community of electrophysiologists to perform the needed studies to support it use, in a way that is convincing to the physicians that refer patients to us, and advance the science of AF management beyond industry interests alone that often define many of the current prospective ablation trials.

## References

1. Zhuo C, Ji F, Lin X, et al. Depression and recurrence of atrial fibrillation after catheter ablation: a meta-analysis of cohort studies. *J Affect Disord* 2020;271:27-32. DOI: 10.1016/j.jad.2020.03.118.
2. Packer DL, Mark DB, Robb RA, et al. Effect of Catheter Ablation vs Antiarrhythmic Drug Therapy on Mortality, Stroke, Bleeding, and Cardiac Arrest Among Patients With Atrial Fibrillation: The CABANA Randomized Clinical Trial. *JAMA* 2019;321(13):1261-1274. (In eng). DOI: 10.1001/jama.2019.0693.
3. Chew DS, Li Y, Cowper PA, et al. Cost-Effectiveness of Catheter Ablation Versus Antiarrhythmic Drug Therapy in Atrial Fibrillation: The CABANA Randomized Clinical Trial. *Circulation* 2022;146(7):535-547. DOI: 10.1161/CIRCULATIONAHA.122.058575.
4. Bunch TJ, May HT, Bair TL, et al. Five-year outcomes of catheter ablation in patients with atrial fibrillation and left ventricular systolic dysfunction. *J Cardiovasc Electrophysiol* 2015;26(4):363-370. DOI: 10.1111/jce.12602.
5. Bunch TJ, May HT, Bair TL, et al. The Impact of Age on 5-Year Outcomes After Atrial Fibrillation Catheter Ablation. *J Cardiovasc Electrophysiol* 2016;27(2):141-6. DOI: 10.1111/jce.12849.
6. Verma A, Jiang CY, Betts TR, et al. Approaches to catheter ablation for persistent atrial fibrillation. *N Engl J Med* 2015;372(19):1812-22. DOI: 10.1056/NEJMoa1408288.
7. Kirchhof P, Camm AJ, Goette A, et al. Early Rhythm-Control Therapy in Patients with Atrial Fibrillation. *N Engl J Med* 2020;383(14):1305-1316. (In eng). DOI: 10.1056/NEJMoa2019422.