Circulation

LETTER TO THE EDITOR

Letter by Reiffel Regarding Article, "Treatment of Subclinical Atrial Fibrillation: Does One Plus One Always Equal Two?"

James A. Reiffel, MD

To the Editor:

I read with great interest Dr Michael Gold's[1] article regarding treatment of subclinical atrial fibrillation (AF). His comments were balanced, timely, and appropriately conservative, given our current state of trial data. However, I am not as certain as he that follow-up studies of subclinical AF "raise even more confusion regarding optimal care" with respect to (1) the lack of a clear temporal association between AF and embolic stroke events or (2) how to best use the duration of device-detected AF with respect to anticoagulation decisions. Although several reports have suggested that stroke/systemic embolism is not temporally associated with the presence of AF in patients with intermittent AF,[1] underlying atrial pathology caused by AF and superimposed on that of comorbidities, including size, contractility, and endothelial dysfunction, do not develop and resolve synchronously with the presence or absence of AF. The atrial cardiomyopathy underlying the AF can still be present between AF episodes as the atrial myopathy caused by AF, and clot, are not resolved instantly if at all. Post cardioversion studies have shown persistence of atrial size and myopathic abnormalities, especially with longer lasting AF, as have postablation studies, which have also shown further reduction in left atrial function in those with paroxysmal atrial fibrillation, older age, and preserved left atrial ejection fraction at baseline.[2,3] Thus, AF may contribute to causation, though not temporally present at the time of embolism. With respect to what duration of subclinical AF is significant: I strongly doubt that there is a single critical duration. AF without associated disorders has minimal risk of stroke—so the story is not AF in and of itself. Also, many frequently coexisting associated disorders, such as hypertension, diabetes mellitus, and atherosclerosis, have a stroke risk independent of AF—so strokes in patients with AF plus these disorders are not necessarily consequent to the AF. However, comorbidities can produce atrial pathophysiological alterations that promote thrombus formation in the left atrial/left atrial appendage, which is additive to the prothrombotic abnormalities consequent to the AF itself. Thus, in AF, the stroke risk should increase as the AF burden increases and as the comorbidities increase in number and magnitude. Accordingly, the risk of left atrial thrombus formation from AF and comorbidities should have magnitude synergism, rather than simply being present or absent or of a specific AF length. Data from Framingham, from Botto et al,[4] and others exemplify this as I detailed in an editorial in 2016.[5] Greater AF burden should have increased risk and greater CHA_2DS_2-VASc score (congestive heart failure, hypertension, age, diabetes mellitus, prior stroke or embolism, vascular disease, sex category) should have increased risk for any given AF burden. Thus, although the data Dr Gold noted of "at least 24 hours" which was critical in ASSERT (Asymptomatic Atrial Fibrillation and Stroke Evaluation in Pacemaker Patients and the Atrial Fibrillation Reduction Atrial Pacing Trial) is important, the CHA_2DS_2-VASc score in ASSERT was only 2.2. In most other device-detected AF reports with shorter critical sub-

clinical AF, CHA_2DS_2-VASc scores were not reported. Going forward, to best understand this field, these scores need to be reported and duration, in a vacuum, is not sufficient to report—nor is a list of comorbidities without quantifying data. Subclinical AF is more important and more complex than often considered.

ARTICLE INFORMATION

Affiliation

Department of Medicine, Division of Cardiology, Columbia University Medical Center, New York.

Disclosures

Dr Reiffel is the principal investigator of the REVEAL AF Trial, which is supported by Medtronic Inc.

REFERENCES

1. Gold MR. Treatment of subclinical atrial fibrillation: does one plus one always equal two? *Circulation*. 2018;137:217–218. doi: 10.1161/CIRCULATIONAHA.117.030096.
2. Masuda M, Inoue K; Iwakura K, Okamura A, Koyama Y, Kimura R, Toyoshima Y, Ito N, Kumaro I, Fujii K. The impact of atrial fibrillation ablation on left atrial function: association with baseline left atrial function. *PACE*. 2012; 35:327–34. doi: 10.1111/j.1540-8159.2011.03284.x.
3. Wijesurendra RS, Liu A, Eichhorn C, Ariga R, Levelt E, Clarke WT, Rodgers CT, Karamitsos TD, Bashir Y, Ginks M, Rajappan K, Betts T, Ferreira VM, Neubauer S, Casadei B. Lone atrial fibrillation is associated with impaired left ventricular energetics that persists despite successful catheter ablation. *Circulation*. 2016;134:1068–1081. doi: 10.1161/CIRCULATIONAHA.116.022931.
4. Botto G, PadelettiL, Santini M, Capucci A, Gulizia M, Zolezzi F, Favale S, Molon G, Ricci R, Bifi M, Russo G, Vimercati M, Corbucci G, Boriani G. Presence and duration of atrial fibrillation detected by continuous monitoring: crucial implications for the risk of thromboembolic events. *J Cardiovasc Electrophysiol*. 2009;20:241–248. doi: 10.1111/j.1540-8167.2008.01320.x.
5. Reiffel JA. If it were only that simple. *Eur Heart J*. 2016;37:1603–1605. doi: 10.1093/eurheartj/ehw014.

Letter by Reiffel Regarding Article, "Treatment of Subclinical Atrial Fibrillation: Does One Plus One Always Equal Two?"

James A. Reiffel

Circulation. 2018;138:122-123
doi: 10.1161/CIRCULATIONAHA.118.034261
Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231

Print ISSN: 0009-7322. Online ISSN: 1524-4539