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Estimated incidence of previously undetected atrial fibrillation on a 14-day continuous electrocardiographic monitor and associated risk of stroke: comment—Authors' reply

This is a response to the Letter to the Editor, 'Estimated incidence of previously undetected atrial fibrillation on a 14-day continuous electrocardiographic monitor and associated risk of stroke: comment' by Adithya Sreeniva and Mahmood Ahmad https://doi.org/10.1093/europace/euac206, about the article, 'Estimated incidence of previously undetected atrial fibrillation on a 14-day continuous electrocardiographic monitor and associated risk of stroke' by William F. McIntyre *et al.* https://doi.org/10.1093/europace/euab324.

We thank Sreenivas and Ahmad for their interest in our work.

We used pacemaker data from participants in asymptomatic atrial fibrillation and stroke evaluation in pacemaker patients and the atrial fibrillation reduction atrial pacing trial (ASSERT) to simulate 14-day Holter monitors used for atrial fibrillation (AF) screening in patients aged ≤65 with hypertension.[1] The proportion of patients who would have a total duration of AF ≥6 min was estimated at 3.1%. This finding was associated with a tripling of the hazard for stroke.

The readers request exploration of the relationship between CHA_2DS_2-VASc and stroke/systemic emboli in ASSERT patients without any AF. A previous analysis of ASSERT reported that among patients with no subclinical AF during follow-up, 19 strokes or systemic emboli occurred in 1811 patients, corresponding to an event rate of 0.54%/year.[2] With so few clinical events, we would not have the power to appropriately investigate this relationship. Moreover, we would have no ability to test whether such events in high CHA_2DS_2-VASc patients without AF would be sensitive to oral anticoagulation (OAC). Larger, observational data sets with contemporary monitoring are better suited to answer the question of baseline risk and appropriately designed randomized trials would be required to assess the role of OAC in this population. Two large randomized trials have already failed to show that OAC was superior to aspirin for the prevention of recurrent stroke in patients with a prior history of embolic stroke of undetermined source (ESUS). Among these, rivaroxaban versus aspirin in secondary prevention of stroke and prevention of systemic embolism in patients with recent embolic stroke of undetermined source (NAVIGATE-ESUS) showed that OAC increased bleeding.[3] The readers also asked about the relationship between the burden of premature atrial contractions (PACs) and the risk of stroke/systemic embolism. The pacemakers used in ASSERT did not collect these data. Interestingly, a sub-study of NAVIGATE-ESUS showed that high PAC counts did not predict response to OAC in patients with ESUS but without AF[4]

The readers wonder about the relationship between AF episodes that lasted <6 min and stroke. ASSERT began in 2000, when device-based AF detection algorithms were less sophisticated compared with today's technology. In ASSERT, physicians reviewed all device-detected AF lasting ≥6 min, and 50% of shorter episodes.[5] Of the more than 10 000 adjudicated episodes lasting <6 min, only 50% were actually AF; these episodes were totally impractical for clinical or research use. As a result, ASSERT focused on device-detected AF episodes that lasted ≥6 min, where the positive predictive value was 83%, although physician review was still necessary. Although the readers are concerned about the risk associated with short AF episodes, it was uncommon for individuals with device-detected AF to have only short episodes. The average and median AF burdens over 14 days of simulated monitoring were 55.3 ± 104.7 h and 6.1 (interquartile range 1.1–38.3) hours, respectively.

Each data set has its strengths and weaknesses. Ten years after the original publication, the strengths of ASSERT remain the completeness of monitoring and the very low rate of OAC use. Unfortunately, it cannot tell us about AF events that were shorter than 6 min and the relatively small number of events makes subgroup analyses challenging. We believe the questions raised by Sreenivas and Ahmad are interesting and important but are best left to other studies.

Conflict of interest: The authors have no conflicts of interest to declare.

References

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Arrhythmic risk assessment of mitral valve prolapse pre- and post-mitral surgery—Authors' reply

This is a response to the Letter to the Editor, 'New-onset ventricular arrhythmias after surgery for mitral valve prolapse: how to classify and manage?' by Konstantinos Tampakis *et al.* https://doi.org/10.1093/europace/euac207, about the article, 'EHRA expert consensus statement on arrhythmic mitral valve prolapse and mitral annular disjunction complex in collaboration with the ESC council on valvular heart disease and the European Association of Cardiovascular Imaging endorsed by the Heart Rhythm Society, by the Asia Pacific Heart Rhythm Society, and by the Latin American Heart Rhythm Society', by A. Sabbag *et al.*, https://doi.org/10.1093/europace/euac125.

We appreciate the interest of Tampakis *et al.* in our consensus document and the reemphasis on well-known knowledge gaps.[1,2] The precise mechanism leading to ventricular arrhythmia (VA) in patients with arrhythmic mitral valve prolapse (AMVP) remains a matter of speculation. There is significant heterogeneity in the arrhythmic burden observed in patients with AMVP, ranging from frequent monofocal premature ventricular contractions (PVCs), through nonsustained ventricular tachycardia, sustained monomorphic ventricular tachycardia (SMVT), multifocal PVCs and ending with PVC triggered ventricular fibrillation (VF), and polymorphic ventricular tachycardia/VF. This wide spectrum may not be explained by any single all-encompassing mechanism, particularly considering the frequent discrepancies between imaging data and arrhythmic events.

SMVT consistent with classical reentry was infrequently reported in AMVP.[3,4] Yet, there are not enough published data detailing the type of arrhythmia leading to sudden cardiac death in this newly defined subpopulation. Therefore, it would be premature to disregard reentry as an important mechanism of malignant VA, even if it accounts for only a minority of cases.