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Letters to the Editor

## Corundum of stroke risk in atrial high rate episodes

*Dear Editor,*

We have read with great interest the article by Nakano et al. investigating the impact of atrial high-rate episodes (AHRE) on the risk of embolic stroke [1]. Similar to previous major studies, the authors demonstrated significant increases in embolic stroke rate associated with device-detected AHRE. However, the minimum duration of episodes that increase the thromboembolic risk is variable in all these studies.

According to the recent consensus document of the European Heart Rhythm Association regarding device-detected subclinical atrial tachyarrhythmias, oral anticoagulation is recommended for atrial fibrillation (AF) burden >5.5 h/day for patients with two additional $CHA_2DS_2$-VASc risk factors (i.e. ≥2 in males and ≥3 in females) [2].

In addition to this recommendation, Gorenek et al. underline the challenges of determining definite minimum episode duration to initiate anticoagulation therapy [2,3].

Nakano et al. provide valuable data regarding this association. The authors report that 30 s is the best cut-off time of AHRE detected by cardiac implantable electronic devices for predicting the risk of embolic stroke in a population that had no history of AF. However, the existence of temporal relationship between AHREs and the occurrence of stroke was not evaluated in this study.

Previous studies revealed confounding results. In the majority of patients there was no AHRE in the 30 days prior to the thromboembolic events [2,4]. These findings suggest that the mechanism of stroke may not be related to the AHRE. They may reflect an indirect mechanism related to multiple comorbidities associated with stroke. Nakano et al. have the data supporting this possibility. In this study, patients with AHRE had significantly higher CHADS2 and CHA2DS2-VASc scores than those without episodes of AF ($2.0 \pm 1.5$ vs. $1.6 \pm 1.0$, $p < 0.001$ and $3.3 \pm 1.9$ vs. $2.7 \pm 1.4$, $p < 0.001$).

In conclusion, overlapping stroke-AHRE association can be explained on the basis of atrial cardiomyopathy, which has common risk factors. Absence of a distinct temporal association between device-detected atrial arrhythmias and the occurrence of stroke warrants studies investigating this cause or effect relationship.

### References

[1] Nakano M, Kondo Y, Nakano M, Kajiyama T, Hayashi T, Ito R, et al. Impact of atrial high-rate episodes on the risk of future stroke. J Cardiol 2019. http://dx.doi.org/10.1016/j.jjcc.2019.01.006. pii: S0914-5087(19)30012-7. Feb 3 [Epub ahead of print].

[2] Gorenek B, Bax J, Boriani G, Chen SA, Dagres N, Glotzer TV, et al. Device-detected subclinical atrial tachyarrhythmias: definition, implications and management-an European Heart Rhythm Association (EHRA) consensus document, endorsed by Heart Rhythm Society (HRS), Asia Pacific Heart Rhythm Society (APHRS) and Sociedad Latinoamericana de Estimulación Cardíaca y Electrofisiología (SOLEACE). Europace 2017;19:1556–78.

[3] Özcan EE, Görenek B. What we have learned from the European Heart Rhythm Association consensus document on device-detected subclinical atrial tachyarrhythmias. Anatol J Cardiol 2018;19:137–9.

[4] Brambatti M, Connolly SJ, Gold MR, Morillo CA, Capucci A, Muto C, et al. Temporal relationship between subclinical atrial fibrillation and embolic events. Circulation 2014;129:2094–9.

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## Atrial high-rate episodes and atrial cardiomyopathy on the future stroke

We thank Özcan et al. for their interest in our paper published in the *Journal of Cardiology* [1]. We would like to respond to their valuable comments.

Özcan et al. emphasized that the temporal relationship between device-detected atrial high-rate episodes (AHREs) and the occurrence of stroke was not clear. We demonstrated that atrial fibrillation (AF) episodes detected by cardiac implantable electronic devices (CIEDs) were associated with embolic stroke events in patients who had no prior history of AF and anticoagulant therapy, and that 30 s was the best cut-off time for AHREs for predicting the risk of embolic stroke events in this population [1]. As Özcan et al. mentioned, the time series of AHREs assessed by CIEDs and the onset of embolic stroke events was not evaluated in our study. This is a limitation of our study. However, we believe that AHREs are only one of the markers and may never result in embolic stroke events directly.

In a previous study involving 3464 patients with ischemic stroke, most patients had sinus rhythm on their baseline electrocardiogram (ECG) [2]. As we mentioned in our paper, in a previous study involving 187 patients with acute ischemic stroke, AHREs for 5.5 h within 30 days before stroke events were recorded in only 15% of patients [3]. These findings suggest that AHREs reflect an indirect mechanism related to multiple comorbidities

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