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Details on methods and further thoughts on P-wave indices in stroke Response to the letter "Importance of P-wave indices in stroke", by Chhabra L, regarding "Resting 12-lead electrocardiogram reveals high-risk sources of cardioembolism in young adult ischemic stroke"

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Details on methods and further thoughts on P-wave indices in stroke Response to the letter “Importance of P-wave indices in stroke”, by Chhabra L, regarding “Resting 12-lead electrocardiogram reveals high-risk sources of cardioembolism in young adult ischemic stroke”

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We thank Dr. Chhabra for showing interest in our research. Earlier, Dr. Chhabra's group have found an association between interatrial block and embolic stroke, as well as with mesenteric ischemia [1,2]. In their studies, the method of measuring P-waves was manual and of high accuracy, using a magnifying graticule [1,2,5]. They did, however, only consider the longest P-wave duration in any single lead, not all leads simultaneously. In our study, we relied on measurements performed by the ECG device, which is considering all 12 leads simultaneously [3,4]. Probably the simultaneous method, according to the automated algorithm, starting the P-wave measurement when the deflection is first recognized in any lead and ending it when it ends in the last lead, will produce slightly longer P-wave duration than the manual method used by Chhabra's group [1–5]. The relative differences within one method should, however, be quite consistent.

Our patients with P-terminal force (27 patients) had a mean P-wave duration of 112 ms (95% confidence interval 106–119 ms) while those without PTF had a mean P-wave duration of 107 ms (95% confidence interval 106–109 ms), showing a trend of longer P-wave duration among patients with PTF. The prevalence of P-waves longer than 120 ms was 30% in our patients with PTF and 14% among those without PTF, showing interatrial block (IAB) as defined in the studies by Chhabra and

coworkers (P-wave duration > 120 ms), being associated with PTF in our study population. The study by Spodick et al., which compared the correlation between PTF and IAB (P-wave duration > 120 ms), found IAB being 2.5 times more likely in patients with PTF, than in patients without PTF, which is approximately the same ratio as in our study [6]. We therefore think the difference in populations play a larger role in the differences in prevalence of IAB, than do the differences in methods [1,2].

Regarding COPD, we have no data on our study population, but 44% of the patients with PTF were smokers, a proportion similar to that in patients without PTF. An indirect estimation would therefore be, that COPD was not overrepresented in the patients with PTF. However, we assume that COPD is rare in such a young patient population.

As a whole, we believe that both IAB and PTF are markers of atrial cardiopathy, which is a rising model for explaining atrial embolisms beyond atrial fibrillation (AF) [7]. Of our patients with PTF, only 2 out of 27 had known paroxysmal AF. Ambulatory ECG recording was rarely performed in our young patients during the study inclusion period, which might underestimate the prevalence of paroxysmal AF. However, it seems unlikely that all our patients with cardioembolic stroke and PTF would have suffered from occult AF.

Conflict of interest

The authors report no relationships that could be construed as a conflict of interest.

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