

## Positive T Wave in aVR: Is it just a mirror reflection or real?

Dear Editor,

We read the article by İçen et al.<sup>[1]</sup> reporting the association of ischemic changes in the aVR lead and left ventricular (LV) thrombus in patients with acute anterior myocardial infarction with great interest. The authors indicated that ischemic changes, such as T wave polarity and an ST-segment deviation in the aVR lead, seemed to be predictors of LV thrombus or high-grade spontaneous echo contrast in anterior myocardial infarction patients. In recent years, abnormalities in the aVR lead have drawn particular attention. As a marker of repolarization abnormality, a positive T wave observed on the aVR has emerged as a predictor of mortality and arrhythmic events in the general population<sup>[2,3]</sup> and in several diseases, including acute coronary syndromes and cardiomyopathies.<sup>[4-6]</sup>

We want to mention an important point. Repolarization is impaired and delayed in damaged myocardial cells, leading to changes in the direction of the T-wave vector toward to the injured myocardial regions, which may be observed as a positive T wave in the aVR lead.<sup>[7]</sup> When accompanied by a positive T wave in the aVR lead, the injured anterior of the LV myocardium also yields T-wave inversions in the inferolateral leads.<sup>[8]</sup> In the sample electrocardiograms (ECGs) with ischemic changes, all of the patients had T-wave inversions in the inferolateral leads.<sup>[1]</sup> The positive T wave seen in the lead aVR may be a mirror image of negative T waves in inferolateral leads. An evaluation of the predictive effect of T-wave inversions in the inferolateral leads may strengthen the results and yield a more comprehensive perspective.

In addition, the presence of a fragmented QRS, not only a marker of cardiovascular mortality and arrhythmic events, but also of left systolic dysfunction and fibrosis, should be evaluated.<sup>[9-13]</sup> The evaluation of these ECG parameters and an ECG-based risk score would empower and upgrade the study results. Accurately categorizing patients who are at high risk for thromboembolic events is critical.

We thank the researchers for addressing the importance of the 12-lead and the orphan lead aVR in ST-elevated myocardial infarction (STEMI) patients and

presenting a simple and valuable ECG parameter as a predictor of poor prognosis. More individualized therapy using this novel ECG parameter to identify those at risk for thrombosis may improve the prognosis in STEMI cases.

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