

Letter to the Editor

Arrhythmic risk evaluation in familial mediterranean fever: the role of electrocardiographic and echocardiographic parameters

Dear Editor,

We have read with great interest the recent article by Kirbas et al¹ entitled "*P wave and QT dispersion in familial mediterranean fever*". The authors showed no differences in P-wave dispersion (PD) and corrected QT dispersion (QTd) values in 37 pregnancy patients affected by familial mediterranean fever (FMF) on colchicine treatment compared with sex and age-matches healthy, uncomplicated pregnant controls. Also, no correlation was found between PD, QTd with any of the evaluated biochemical markers of inflammation. Since all of their patients were on regular colchicine therapy on admission, the authors concluded that colchicine had a cardio-protective effect beyond the effect mediated through suppression of inflammation.

P-wave dispersion is considered to reflect the discontinuous and inhomogeneous propagation of sinus impulses and the prolongation of atrial conduction time and it has been shown to be an independent risk factor for atrial fibrillation development². QT dispersion has been proposed as a non-invasive electrocardiographic parameter to measure inhomogeneity of ventricular repolarization, expression of the electrophysiological substrate for malignant arrhythmias³. Over many years, our research group studies the electrocardiographic indexes of arrhythmic risk in some other clinical conditions such as obesity^{4,5}, beta-thalassemia major⁶⁻⁹, congenital heart diseases^{10,11} and muscular dystrophies¹²⁻¹⁵ showing that electrocardiogram may be a feasible and low-cost method to early detect the presence of arrhythmogenic substrate.

Furthermore, it should be noted that in other clinical scenarios, P-wave parameters, other than P-wave dispersion, are risk predictors of supraventricular arrhythmias and notably of stroke¹⁶⁻¹⁸, as reported in the literature. Specifically, we refer to interatrial block (IAB) that is defined as prolonged conduction time between right and left atrium due to impulse delay or blockage, in Bachmann bundle, resulting in prolonged P-wave duration (≥ 120 ms) often with a bifid notch representing the electrical gap between the two atrium activation. We suggest the authors to detect the IAB taking the opportunity to firstly report the prevalence of IAB in FMF pregnant women study population on colchicine treatment.

Moreover, it would be useful to analyze some electrocardiographic parameters, other than QT-D, such as JT dispersion (JT-D) and T peak-end interval dispersion (TDR), which reflect the regional and transmural ventricular repolarization heterogeneity better than QT-D in cases of conduction abnormalities such as bundle branch block and they may be clinically useful in assessing sudden cardiac death risk, as we showed in other clinical conditions^{5,6,10,11,14}.

The authors performed all electrocardiographic measurements manually using a caliper and a magnifying lens by two independent observers. In our experience, the manual measurement on standard paper-printed electrocardiograms (ECGs) is of limited accuracy and reproducibility. To achieve a greater precision, we suggest the authors to scan and digitize the ECGs from paper records in order to display and magnify them to 400% on a high-resolution computer screen. This measurement method allows measuring P-wave and QT interval duration with the use of computer software from all 12 ECG leads with not significant intra and inter-observer coefficients of variation.

In order to integrate and complete the echocardiographic evaluation of FMF patients, we suggest the authors to assess the atrial electromechanical delay (AEMD), a novel echocardiographic parameter, which expresses the intra-atrial and inter-atrial conduction heterogeneity¹⁹.

AEMD duration is the sum of impulse propagation from the sinus node to the atria and atrial electromechanical coupling duration²⁰, obtained placing tissue Doppler (TDI) sample volume on lat-

eral mitral annulus (named lateral PA), the septal mitral annulus (septal PA) and right ventricular tricuspid annulus (RV PA). Time intervals from the onset of P-wave on surface-ECG to the beginning of A-wave (PA) representing atrial-electromechanical delay were obtained from the lateral mitral annulus, septal mitral annulus, right ventricular (RV) tricuspid annulus named as lateral PA, septal PA and RV PA, respectively. The difference between septal PA and RV PA was defined as *intra-right atrial AEMD*, the difference between lateral PA and septal PA was defined as *intra-left atrial AEMD*, and the difference between lateral PA and RV PA was defined as *inter-atrial AEMD*. Intra-left AEMD was shown to have a predictive role in paroxysmal atrial fibrillation recurrence in many clinical conditions²¹⁻²³. Finally, it might be interesting to detect the occurrence of supraventricular arrhythmias in FMF pregnant women study population through 30-day external loop recorder (ELR) monitoring and to evaluate a possible correlation between non-invasive risk parameters and arrhythmias. Thus, it might strengthen the data obtained in this valuable study.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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