Beat-to-beat QT Interval Variability in the 12 Lead ECG
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Beat-to-beat QT interval variability (QTV) is a marker of lability in ventricular repolarization. Increased QTV is a danger constituent for heart arrhythmic events, including sudden cardiac death (SCD) or sudden cardiac arrest (SCA). However, the systematic investigation and analysis of QTV in the 12-lead ECG with age effect is little known. The aim of this paper was to investigate QTV in the 12-lead ECG and the potential effect of age. Short-term ECGs (2 mins) of 48 healthy males were studied. Beat-to-beat QTV was measured in each lead by using Bergers template-stretching algorithm. We observed significant differences in QTV of different leads (ANOVA test: p < 0.0001). In addition, we investigated age effect by dichotomizing the data set based on the median age. Two-way ANOVA showed no significant differences in QTV of older males compared to younger males (p > 0.05). In conclusion, the amount of QTV measured depends on the lead selected for measurement. Finally, this research will open a way for the other researchers to excel the related work for the assessment of beat-to-beat QTV in physiological and clinical studies.