Dear Editor

In an experimental study which was conducted by Moghaddasi et al. titled “The effects of Olive Leaf Extract Administration on Cerebral Hypoperfusion-Induced Electrophysiological Alterations in Rat Heart”, the authors have assessed the changes in electrocardiographic parameters as an interesting idea that can increase our knowledge in the field of neurocardiology. The authors have used Bazett’s formula in the methodology of this study to calculate QTc. We have explained the use of this formula and its accompanying challenges in the interpretation of QT interval.

The QT interval refers to the interval between the onset of depolarization and the end of ventricular repolarization (1). Prolonged QT can lead to variants of fatal ventricular arrhythmia such as Torsades de pointes and sudden cardiac death (2). Since the QT interval shows variations with heart rate, QTc must be calculated before QT interval can be interpreted correctly at different heart rates (3). Five formulae have been suggested so far for calculating QTc (4-8):

1. Bazett: QTcB=QT/RR1/2
2. Frederica: QTcFri=QT/RR1/3
3. Framingham: QTcFra=QT+0.154 (1-RR)
4. Rautaharju: QTcR=QT - 0.185 (RR-1)+k (k=+0.006 s for men and 0 for women)
5. Hodges: QTcH= QT+0/00175(HR-60)

Numerous studies have been carried out to show the advantages of each of these formulae, all of which have emphasized the inferiority of Bazett’s formula (9, 10). Indeed, this formula is affected by heart rate, so that in 30% of the cases with normal electrocardiograms (11), it diagnosed a prolonged QT and overestimated (underestimated) the QT interval at high (low) heart rates (3). In Braunwald’s Heart Disease: A Textbook of Cardiovascular Medicine, the authors emphasized ineffectiveness of Bazett’s formula, hence suggested the use of Hodges’ formula in clinical practices (11). In general, the contribution of heart rate into Hodges’ formula is significantly smaller than those into other formulae (12).

Conflict of Interest

The authors declare that they have no conflict of interest.

References

7. Hodges M. Bazett's QT correction reviewed: evidence that a linear QT correction for heart rate is better. J Am Coll Cardiol.
A Brief Perspective on Anti-inflammatory Effects of Thymol and Carvacrol

Alizadeh et al.

1. 1983:1;694.

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