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Is frontal QRS-T angle a valid predictor of COVID-19 severity?



Dear editor,

We read with interest the article titled “A new predictor for indicating clinical severity and prognosis in COVID-19 patients: Frontal QRS-T angle” published in your journal by Ocak et al. [1]. In this article, the value of frontal QRS-T angle in predicting the prognosis of COVID-19 patients was investigated and it was concluded that this variable is a very good predictor [1]. We think that the results of this study are debatable since there are very serious methodological and statistical problems.

The study was planned as a case-control study but presented as a diagnostic accuracy study. If the aim of the study was to test the usability of the frontal QRS-T angle in predicting the COVID-19 prognosis, the control patient group was unnecessary. Instead, all patients should have been selected from COVID-19 patients, and these patients should have been grouped as good and poor clinical outcomes. In this way, the diagnostic test performance of the frontal QRS-T angle could be calculated if the variable of interest predicted this outcome. In this context, we think that there is an inconsistency between the aim and the methodology in the current study.

In this case-control study in which patient and control groups were compared, an adequate explanation of how the control group was determined is not available in the methodology section of the study. Except for the age variable, the question of whether the two groups were equivalent in terms of descriptive variables was left unanswered. We know that many comorbid diseases (coronary artery disease, heart failure, chronic obstructive pulmonary disease, etc.) can affect the frontal QRS-T angle [2,3]. In this study, the rates of diabetes mellitus, chronic obstructive pulmonary disease, and heart failure of the patient group were given, but not of the control group. It was understood that only cardiac arrhythmias were excluded in the study, and it was not stated whether other heart diseases were excluded or not. We do not know whether the people in the control group were comparable to the patient group, not only in terms of comorbid diseases but also in terms of other potential variables that could affect the outcome. We think that the current results carry a high risk of bias due to these serious methodological shortcomings. It is also noteworthy that there was no cardiac disease variable in the multivariate logistic regression analysis. The fact that a variable that could potentially affect the outcome (e.g., coronary artery disease in this situation) was not included in the logistic regression model is also an important problem for the reliability of this model. Considering that the odds ratio of the QRS-T angle variable is relatively low, together with all these statistical and methodological problems, the inference that QRS-T angle is an effective predictor of prognosis in COVID-19 patients, which is stated in the conclusion part of the study, is quite exaggerated in our opinion.

In addition to these, we think that the usability of the outcome determined in the study in our clinical practice is not sufficient. In the study, a CURB-65 score of 2 and above was taken as a poor prognosis criterion. Instead, groupings could have been made according to a more objective criterion such as PaO₂/FiO₂ ratio, or the mortality outcome could be determined directly, at least as secondary outcomes.

Author contributions

All authors are responsible for conception, design of the study, data collection, data analysis, and assembly. The manuscript was written and approved by all authors.

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Credit authorship contribution statement

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Declaration of Competing Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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