Letter to Editor

Applying the "Novosel Formula": Comment on "Studding the Relation Between Sum Cretin Variables of Hemodynamic and Circulatory System After Aerobic Effort for Long Distance Runners"

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In a recent publication, Mohamed Twfeq Othman Alhusaen and Yaseen Alhajar [1] analyzed various parameters, including the mean electrical axis of the heart (EA). On page 10 of their paper [1], they refer to our earlier publication [2], which addresses the fundamental aspects of calculating the heart's mean electrical axis in the frontal plane. These aspects were independently assessed in other studies [3-5] and further discussed in our subsequent publications [6,7].

In their recent publication [1], the authors report the following equation:

$$EA = \pm\arctan\left(\frac{aVF}{(\sqrt{(3)} * (I - aVF))}\right)$$

However, our original formula is as follows [2]:

$$EA = \pm\arctan\left(\frac{2 * aVF}{(\sqrt{(3)} * I)}\right)$$

We were not able to delineate the formula used in the publication by Mohamed Twfeq Othman Alhusaen Aga and Yaseen Alhajar [1] and have concerns that there can be some misunderstandings.

As reported previously [5], the topic of the estimation of the electrical axis of the heart is still a challenging one [7]. Among others, Dahl R and Berg R. [5] analyse our approach and found it grounded what we discussed elsewhere [6].

We believe that this subject requires careful consideration from a methodological perspective. As we recently reported [8], the estimation of the electrical axis in most cases can be easily performed using leads I and aVF. When applying this method [8], let us consider a simple case in which the amplitudes of lead I and aVF are both positive and equal.

As we have previously reported [2,6,8], in this case, the EA is considered to be within the normal range, between 0° and 90° [8]. Without applying the correction [2,5,6], the value of the heart's EA would be approximately 45°, which is sufficient for the daily routine work. The exact value of the EA is however 49° and can be derived from our earlier reports [2,6]. When applying the formula mentioned in the paper by Mohamed Twfeq Othman Alhusaen Aga and Yaseen Alhajar [1], the value of the EA would incorrectly be calculated as ± 90° (arctan of ∞), a result we consider inaccurate and believe warrants serious consideration.

Summarizing our findings, we conclude that despite extensive and in-depth discussion, as well as accumulated knowledge about calculating the electrical axis of the heart, this subject remains challenging.

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