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Letter to the Editor

Reply to: The need for comprehensive NIRS-measurement from on-scene treatment to post-ROSC phase



To the Editor,

We appreciate your great interest in and comments on our paper. Our argument relates to knowledge on the trend of cerebral regional oxygen saturation (rSO₂) values still being insufficient.¹

In their review article of 26 studies, Schnaubelt et al. showed delta rSO₂ levels during cardiopulmonary resuscitation (CPR) for the prediction of the return of spontaneous circulation (ROSC).² However, these delta rSO₂ values were not calculated from the change in respective patient data but from mean values among all subjects reported in each study. We think that the amount of change or the ratio of change should be calculated separately within each patient. Near-infrared-spectroscopy (NIRS) measures the rSO₂ value as the oxygen saturation of the entire capillary bed including arteries, veins and capillary vessels. This means that we need to compare this within-patient change because the number of arteries, veins and capillary vessels beneath the rSO₂ sensor should affect the rSO₂ value. Results of our research has its novelty by using this new aspect to the existing body of the literature. We further evaluated the impact of the change separately for the varying baseline rSO₂ values as our regression analysis considers the interaction between the two variables.

As we wrote in the limitations paragraph, we could not include data on no-flow time or the duration of CPR because it was difficult to accurately collect this data. Furthermore, a definite onset time of cardiac arrest was available only for a limited number of patients. Generally speaking, CPR time of the non-ROSC group could be longer than that of the ROSC group. However, what we hope to emphasize is that it requires a larger amount of rise in rSO₂ if a baseline rSO₂ is lower, thus the probability of ROSC should be estimated based not only on the amount of rise in rSO₂ but also its baseline values.

Finally, we just wanted to suggest that with the use of NIRS there is a potential for creating a new CPR protocol that avoids unnecessary rhythm checks as Schnaubelt wrote. Thus we are grateful for Schnaubelt suggesting us to look into neurological

outcomes and a possible association between cerebral function and adrenaline for our future research.

Conflict of interest

None.

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