



Predictive Value of Brain Arrest Neurological Outcome Scale (BrANOS) on Mortality and Morbidity After Cardiac Arrest

Kardiyak Arrest Hastalarında Brain Arrest Neurological Outcome Scale (BrANOS) ile Mortalite ve Morbidite Tahmini

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Dear Editor,

I read with great interest the article by Sahutoglu et al. (1), in which they investigated the association of the Brain arrest neurological outcome scale (BrANOS) with mortality and morbidity in patients after cardiac arrest (1). They emphasised the relationship of the BrANOS score with patients' neurological outcomes and mortality rates. I thank the authors for conducting such a detailed study, including a considerable number of patients and providing long-term data of the clinical follow-up of these patients. However, I would like to comment on the article to add some new perspectives and provide a better understanding.

First, I would like to remark that there are a large number of analyses investigating the relationship between the clinical output and the clinical findings of patients, which was mentioned in the discussion section of the article. However, most of these analyses were not indicated in the results section, complicating the comprehension. For instance, table 1 reveals that the 24-h Glasgow coma scale (GCS) of patients whose evaluation is much simpler according to BrANOS also predicts the survival rates of patients with a similar accuracy to the BrANOS score ($p < 0.001$). It was also reported that there was a significant association of BrANOS with neurological outcomes [evaluated by the Glasgow outcome score (GOS)] of patients; however, a comparison between the 24-h GCS and GOS is not included in the article. Hence, I wonder if the authors could state the benefit of the evaluation of the BrANOS score in addition to the 24-h GCS in the prediction of the clinical outcomes of these patients. I believe that the authors can add a table summarising the statistical values of the association of every scale (duration of arrest, GCS, Hounsfield unit ratio and BrANOS) with the clinical parameters of patients, including GOS, which may provide a more comprehensive understanding of the results.

Second, data about if sedation was administered during the evaluation of GCS were not mentioned; this is a vital factor in the interpretation of the results. The authors discuss sedation as a factor that might have affected the density of brain tissue; however, the effect of sedation in neurological examinations of patients constitutes a more important aspect for further deliberations that was not discussed in the article.

Another argument may be that the authors stated that mannitol therapy was initiated in patients developing cerebral oedema and also in a group of patients before undergoing CT scans. However, as current evidence does not support the use of anti-oedema treatment in the management of HIE patients (2), the authors should explain their indications for the administration of anti-oedema treatment or otherwise they have to self-criticise their work to avoid misleading conclusions. In addition, while therapeutic hypothermia is a feasible and beneficial method in the neurologic prognosis of cardiac arrest patients (3), the subgroup of patients where hypothermia was applied must be indicated for a more rational interpretation of the study results.

In conclusion, in spite of some limitations mentioned above, I believe that this study constitutes a valuable article illustrating detailed data of a large number of patients after cardiac arrest. Future studies, in light of these comments, are warranted to identify reliable clinical parameters in predicting the prognosis of patients after cardiac arrest.

References

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Author's Reply

Re: Predictive Value of Brain Arrest Neurological Outcome Scale (BrANOS) on Mortality and Morbidity After Cardiac Arrest

Dear Editor,

We thank the author for his commentary and the contributions regarding our article titled "Predictive Value of Brain Arrest Neurological Outcome Scale (BRANOS) on Mortality and Morbidity After Cardiac Arrest" which was published in the Turkish Journal of the Anaesthesiology and Reanimation (1).

Firstly, we aimed to investigate the effectiveness of Brain Arrest Neurological Outcome Scale (BRANOS) defined by Torbey et al. (2). For this reason, it is only focused on this scale. The parameters of this scale (Duration of arrest, Glasgow coma scale, Hounsfield unit ratio) and related outcomes are presented in the results. In addition, there was no need for a table and an analysis between demographic data and parameters forming this scale. Many articles are summarized the relationship between cardiac arrest and clinical outcome in our article's introduction.

The Glasgow Coma Scale score included in BrANOS, the best score in the first 24 hours, which is explained in the methods section. Neurological examination can be performed many

times during the day because sedative and hypnotic agents are not administered as a continuous infusion in our ICU. Like BrANOS, most of the scales used in ICU, are independent of the applied therapies (3). For this reason, the effects of sedation and hypothermia were not discussed in the article.

Cytotoxic edema develops due to hypoxia after cardiac arrest. However, when spontaneous circulation returns, vasogenic edema plays a critical role in post-reperfusion brain edema. The use of mannitol in cardiopulmonary arrest is controversial and more scientific studies are needed (4).

We thank you for your attention and contribution to the article.

Yours sincerely,

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DOI: 10.5152/TJAR.2017.2713612

