Letter to the Editor

In reply to "A Risk Score for Predicting the Incidence of Hemorrhage in Critically Ill Neonates: Development and Validation Study"

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In reply to "A Risk Score for Predicting the Incidence of Hemorrhage in Critically Ill Neonates: Development and Validation Study"

We read with interest the study by Sokou et al. (1) and would like to make comments. The authors proposed a risk score for predicting hemorrhage of any grade in critically ill neonates within 24 hours of ROTEM testing, using the NeoBAT score. The analysis included 167 newborns with perinatal hypoxia (16 with hypoxic-ischemic encephalopathy and 151 with fetal distress), 121 neonates with sepsis, and 46 with suspected sepsis. The study was carried out between 2014 and 2019, and all consecutive patients were evaluated for enrolment. The incidence of intraventricular hemorrhage (IVH) was approximately 29% across the entire population with a gestational age between 32 and 39 weeks. More than one-third of the cohort experienced at least one bleeding episode.

The first observation pertains to the characteristics of the study population.

The same authors recently published another study focusing on thromboelastometry variables in neonates with perinatal hypoxia (2). The authors provided results from 164 newborns with perinatal hypoxia (16 with hypoxic-ischemic encephalopathy and 148 with fetal distress), enrolled between 2016 and 2019. The mean gestational age of the 53 preterm and 111 term newborns was 33.6 and 38.7 weeks, respectively. In this population, no cases of IVH were recorded and the authors did not apply the NeoBAT score as a tool to predict bleeding.

Interestingly, in the two different studies (1, 2), the authors enrolled approximately the same number of patients with perinatal hypoxia, but they applied the NeoBAT score for bleeding evaluation only in the more recently published study. The second observation relates to the abnormal (and unexplained) incidence of bleeding events observed, particularly IVH. Large

observational studies have determined the incidence of IVH to be approximately 1% in neonates greater than 30 weeks gestational age (3-5).

As the authors did not observe any intracranial hemorrhage in their previous study on newborns with perinatal hypoxia (2), we can assume that most IVH observed in the present study occurred in patients with sepsis, which would equate to more than 90 episodes for 167 newborns. If this is indeed true, the percentage of IVH exceeds fifty percent in this latter population, which is extra-ordinarily high for the population included in the most recent study (1).

Third, the authors did not provide clinical data (i.e., Apgar score, need for mechanical ventilation and inotropes, SNAPPE score, mortality) to better characterise the severity of illness for the patients enrolled that could justify such a high incidence of IVH observed in their cohort.

For these reasons, we consider the risk score for the prediction of bleeding in critically ill neonates proposed by the authors not applicable to the preterm and term newborns admitted to NICUs from high-income countries.

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