

The relevance of blood gases levels in newborns: the sampling matters

Joanna M. Jassem-Bobowicz¹, Katarzyna Stefanska²

¹Division of Neonatology, Medical University of Gdansk, Poland

²Department of Obstetrics, Medical University of Gdansk, Poland

Dear Editor,

We have read with interest the article entitled “Relationship between Apgar score and umbilical cord blood acid-base balance in full-term and late preterm newborns born in medium and severe conditions” by Marta Młodawska et al. [1]. The authors should be commended for addressing this important question, but the article requires some comments.

The authors question the correlation between clinical assessment with Apgar score and umbilical cord blood gases levels. This is a substantial question for informing the care of neonates, particularly on the use of therapeutic hypothermia, and communicating prognosis to newborn's parents. However, umbilical vein sampling, used in the abovementioned study even in most severe cases, is inferior to arterial blood sampling. Puncture of the umbilical vein is less complicated due to its size, thinner wall, and easier identification, and is practiced in many hospitals. On the other hand, this technique provides insufficient information on the fetus health status and prognosis [2]. Cord vein compression may constrict blood flow from the placenta, while the arteries still carry blood rich in carbon dioxide from the fetus back to the placenta. In consequence, higher production of carbon dioxide by the fetus will only be detectable in the umbilical arteries and not in the umbilical vein. Ideally, both umbilical and arterial cord blood samples should be used for the evaluation of the placental and fetal status [3]. Another important aspect is the timing of umbilical cord sampling, which should be captured due to ongoing metabolic changes in the placenta even after birth. To avoid bias caused by further metabolic changes after birth, arterial and venous samples

should preferably be taken from a double-end clamped piece of the umbilical cord [3, 4]. Nevertheless, the method of umbilical cord sampling for other purposes, including stem cells acquisition or blood group phenotyping for the neonatal risk assessment, requires further investigation [5, 6].

The topic addressed in this study is clinically relevant and warrants a prospective study with a well-designed blood sampling technique.

Conflict of interest

The authors declare no conflict of interest.

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Corresponding author:

Joanna M. Jassem-Bobowicz
 Division of Neonatology, Medical University of Gdansk, Poland
 e-mail: jmjassem@gmail.com

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