Letter to Editor

Remarks on Postnatal Brain Color Doppler Ultrasound

Dear Editor,

We read one of your valuable recently published articles entitled "A study of reversal of diastolic blood flow in the middle cerebral artery using Doppler ultrasound in the prognostication in sick neonates" and found it with interesting idea.[1]

In this study, the authors selected a prospective cohort of 22 sick neonates who were admitted to their tertiary care center and assessed with color Doppler ultrasound (CDU). Their results show that reverse diastolic wave of middle cerebral artery (MCA) has a significant relationship with survival, but there are some queries that should be considered to make a better conclusion.

First, there are no specific and defined exclusion/inclusion criteria. It should be fully defined which sick neonate were included and moreover the exclusion criteria are even more important in this case. If cases with the following situations are included, they have already possible abnormal changes in CDU: intrauterine growth restriction, twin-to-twin transfusion syndrome, anemia, complicated pregnancy, patent ductus arteriosus, left ventricular dysfunction, respiratory distress syndromes, and maturity.[2]

Therefore, these and other confusing factors (such as underlying disorders, APGAR score, hypoxic injuries, hydrocephaly, and other intra/extra cranial pathologies) should be considered and their possible effects should be eliminated with regression test.[3]

Although they mentioned that "Higher RI had an adverse outcome which was similar to Argollo *et al.*," there is no data about resistive index (RI) of cases and its relation with the outcome. Furthermore, CDU indexes are not fully assessed, with some of them such as RI, pulsatility index, peak systolic velocity, and time averaged mean flow velocity having critical role on general and cerebral neonate health assessment.[4] As Krishnamurthy *et al.* reveal, "Significant differences in MCA resistive and pulsatility indices were noted in the first few days of life of fetal growth restriction neonates with abnormal antenatal Doppler as compared with appropriately grown neonates."[5]

Similarly, Rumack *et al.* acknowledged in their authoritative reference book that RI is a weak index to assess cerebral blood flow and mean blood flow velocity is more accurate index, which should be considered for further study.

On the other hand, the person performing the ultrasound (radiologist or radiographer) must be the same and experienced. In addition, the protocol of CDU is important that should be applied such as the same sample volume angle and segment of MCA to assess.

Finally, it seems that a single CDU index may not be a good predictor of clinical outcome for all patients with various physical conditions, and a prospective large sample size stratified study is needed.

Regards.

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Conflicts of interest

There are no conflicts of interest.

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