

The ductus venosus, a poor predictor of adverse perinatal outcome in preterm pregnancy



TO THE EDITOR: Vasudeva et al¹ present an interesting comparison of the accuracy of different Doppler indices for the prediction of adverse perinatal outcomes (APOs) in early-onset small for gestational age neonates. The cerebroplacental ratio (CPR), a parameter thought to be a key determinant of APO in late pregnancy, showed by far the best prediction ability when compared with the performance of the ductus venosus pulsatility index (DV PI), previously thought to be key for the prediction of APO early in pregnancy based on the Trial of Randomized Umbilical and Fetal Flow in Europe study results. This conclusion is consistent with our recent finding of similar differences in favor of the CPR when we compared the performance of these 2 parameters before 34 weeks' gestation by means of multivariable regression.²

Previous studies have demonstrated that the onset of abnormalities in the DV PI tends to represent the last stage of hemodynamic progression in pregnancies complicated by early-onset intrauterine growth restriction.³ It is tempting to consider that the final anomaly to appear should be the one with the strongest correlation with APO. However, this assumption is not true, and the association with APO might be stronger in vessels in which abnormalities debut earlier, particularly in the case of the CPR, a parameter that combines information from the umbilical and cerebral flows.

Consistent with our findings, the results of Vasudeva et al¹ study showed that cerebral vasodilation is also a key determinant of preterm APO and that DV PI changes might not be as accurate as previously thought for the identification of fetal compromise. Further investigation is needed to clarify the most reliable parameter to predict preterm APO. ■

José Morales-Roselló, MD
Servicio de Obstetricia
Hospital Universitario y Politécnico La Fe
Avenida Fernando Abril Martorell 106
Valencia 46026, Spain

Department of Pediatrics
Obstetrics and Gynecology
Universidad de Valencia
Valencia, Spain
jose.morales@uv.es

Martínez-Varea Alicia, MD
Servicio de Obstetricia
Hospital Universitario y Politécnico La Fe
Valencia, Spain

Asma Khalil, MD
Vascular Biology Research Centre
Molecular and Clinical Sciences Research Institute
St George's University of London
London, United Kingdom
Fetal Medicine Unit
St George's Hospital
St George's University of London
London, United Kingdom
University of Liverpool
Liverpool, United Kingdom

The authors report no conflict of interest.
Patient consent was not required because no personal information or details were included.

REFERENCES

1. Vasudeva A, Padavagodu Shivananda R, Shashidar DSB, et al. Clinical utility of aortic isthmus Doppler in the prediction of perinatal outcomes. *AJOG Glob Rep* 2022;2:100102.
2. Morales-Roselló J, Bhate R, Eitaweel N, Khalil A. Comparison of ductus venosus Doppler and cerebroplacental ratio for the prediction of adverse perinatal outcome in high-risk pregnancies before and after 34 weeks. *Acta Obstet Gynecol Scand* 2023. [Epub ahead of print].
3. Morales-Roselló J, Khalil A, Fornés-Ferrer V, et al. Progression of Doppler changes in early-onset small for gestational age fetuses. How frequent are the different progression sequences? *J Matern Fetal Neonatal Med* 2018;31:1000–8.

© 2023 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>) <https://doi.org/10.1016/j.xagr.2023.100229>