17th World Congress in Fetal Medicine

Reversed blood flow in the intrapulmonary artery Doppler in fetuses with congenital diaphragmatic hernia predicts neonatal survival

Cruz-Martinez R, Martinez-Rodriguez M, Nieto-Castro B, Gamez-Varela A, Cruz-Lemini M, Luna-Garcia J, Juarez-Martinez I
Children's and Women's Specialty Hospital of Queretaro, Mexico, Queretaro, Mexico

Objective

To evaluate longitudinal changes in lung size and intrapulmonary artery (IPa) Doppler in fetuses with congenital diaphragmatic hernia (CDH) and assess their contribution in predicting neonatal survival.

Methods

The observed/expected lung-to-head ratio (O/E-LHR), IPa-Pulsatility Index (PI) and Peak Early Diastolic Reversed Flow (PEDRF) were evaluated in a cohort of fetuses with expectantly managed left-sided CDH. Qualitative evaluation describing the presence or absence of IPa end-diastolic velocity (EDV) was evaluated. Longitudinal changes were analyzed by multilevel analysis, and their value to predict survival using multiple logistic regression and decision-tree analysis was assessed.

Results

A total of 232 scans were performed on 69 CDH fetuses. The O/E-LHR values remained unchanged during fetal monitoring, whereas IPa-PI and PEDRF showed a progressive increase throughout follow-up, becoming abnormal on average at 30 weeks of gestation. Absent/reversed EDV in the IPa was observed in 20. 3%. O/E-LHR and IPa Doppler indices were significantly associated with probability of survival (O/E-LHR ≥26%, odds ratio [OR] 19. 0; IPa-PI <+2. 0 Z-score, OR 3. 0; and positive EDV, OR 7. 4. All cases with IPa reversed EDV died after birth.

Conclusion

While lung size remains stable during pregnancy, CDH fetuses show progressive deterioration in intrapulmonary blood flow. IPa Doppler evaluation may aid in predicting survival of CDH fetuses managed expectantly during pregnancy.