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**“Understanding Neurodevelopmental Outcomes in Pregnancies Impacted by Congenital Central Nervous System Anomalies”**

**Introduction:** Learning that your baby has a central nervous system (CNS) anomaly during pregnancy can be an incredibly stressful and jarring experience for families. Although today's imaging tools, like high-resolution ultrasound and fetal MRI, make identification of these fetal CNS anomalies easier, perinatologists still face many challenges in accurately characterizing these conditions.

**Objective:** This study aims to determine the diagnostic accuracy of typical prenatal neuroimaging protocols for the identification of isolated fetal CNS anomalies and to assess whether specific perinatal variables are associated with discrepancies between prenatal and postnatal CNS diagnoses.

**Methods:** We conducted a retrospective chart review of pregnancies diagnosed with fetal CNS anomalies between 2019 and 2025 using the LCMC perinatal-neonatology database. Of 106 identified cases, 37 met study criteria after excluding those with prenatal diagnoses of genetic syndromes or complex multi-system conditions. For each case, we collected prenatal imaging data (including initial and final CNS diagnoses, imaging modality, and gestational age), maternal demographics (including BMI and maternal age), and postnatal diagnostic data. Postnatal outcomes within 14 days of birth were categorized as “confirmed,” “redefined,” or “insignificant” based on comparison with the final fetal CNS diagnosis.

**Results:** Out of the 37 cases analyzed, only 29.7% of diagnoses were confirmed after birth. The remaining 70.3% of cases were reclassified after birth, with 37.8% being considered clinically insignificant and 32.4% being redefined. Fetal MRI use, maternal obesity, advanced maternal age, gestational age at diagnosis, and region of fetal CNS anomaly did not show significant association to the accuracy of the prenatal diagnosis ( $p = 0.69, 0.79, 0.28, 0.36, \text{ and } 0.21$ , respectively).

**Conclusion:** These findings demonstrate that standard prenatal neuroimaging protocols may have limitations in accurately characterizing isolated fetal CNS anomalies. Understanding when and why these discrepancies occur may help improve the clinical utility of fetal CNS imaging and support perinatologists in providing more accurate prognoses to families impacted by these diagnoses.