Prenatal diagnosis of ventriculomegaly: Agreement between fetal brain ultrasonography and MR imaging

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Objective
Accurate measurement of the lateral ventricles is of paramount importance in prenatal diagnosis. Possible conflicting classifications caused by their measurement in different sectional planes by sonography and MR imaging are frequently encountered. The objective of our study was to evaluate the agreement between ultrasonography and MR imaging, in the measurement of the lateral ventricle diameter in the customary sectional planes for each technique.

Methods
Measurement of both lateral ventricles was performed prospectively in 162 cases from 21 to 40 weeks of gestational age referred for evaluation due to increased risk for cerebral pathology. The mean gestational age for evaluation was 32 weeks. The measurements were performed in the customary plane for each technique: axial plane for sonography and coronal plane for MR imaging.

Results
The 2 techniques yielded results in substantial agreement by using intraclass correlation and κ coefficient score tests. When we assessed the clinical cutoff of 10 mm, the κ score was 0.94 for the narrower ventricle and 0.84 for the wider ventricle, expressing almost perfect agreement. The Bland-Altman plot did not show any trend regarding the actual width of the ventricle, gestational week, or interval between tests. Findings were independent for fetal position, sex, and indication for examination.

Conclusion
Our study indicates excellent agreement between fetal brain ultrasonography and MR imaging as to the diagnosis of fetal ventriculomegaly in the customarily used sectional planes of each technique.