2804. Systematic Review of the Role of Prenatal Ultrasound and Amniocentesis in the Diagnosis and Evaluation of Congenital Zika Syndrome

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Session: 282. Zika Virus Infection
Saturday, October 5, 2019: 12:15 PM

Background: To inform recommendations for optimal screening for fetal outcomes of Zika virus infection during pregnancy, we examined the relationship between prenatal diagnostics (ultrasound examination and amniotic fluid Zika virus testing) and postnatal congenital Zika syndrome (CZS) abnormalities.

Methods: Systematic searches were performed in 27 medical and public health databases from inception to March 21, 2018 for articles with the keywords “Zika”, “pregnancy”, “ultrasound”, and “amniocentesis.” A total of 2,281 unique records were identified. Two reviewers independently assessed titles, abstracts, and full texts for content and relevance. Together, the 61 included articles described 307 mother-fetus/infant dyads; 291 were included in the systematic review of prenatal ultrasound and Zika virus, and 38 were included in the systematic review of amniocentesis and Zika virus.

Results: There were 155 fetuses with CZS findings on prenatal ultrasound examination (53.3%); among them, postnatal CZS abnormalities were reported for 114 (73.5%). High proportions of microcephaly (72.4%), cerebral atrophy (85.7%), and ventriculomegaly (80.6%) were confirmed at pregnancy completion. In addition, 20.6% of the 136 fetuses without any CZS findings on prenatal ultrasound had CZS abnormalities identified at pregnancy completion. Structural CZS abnormalities were identified in 65% of pregnant women during pregnancy completion in dyads with and without Zika virus RNA detected in one or more amniotic fluid specimens (53.8% and 58.3%). In 6 pregnancies, Zika virus RNA was detected in amniotic fluid, but no Zika virus RNA was detected in a subsequent amniocentesis specimen.

Conclusion: Prenatal ultrasound and amniocentesis findings associated with Zika virus infection may vary with factors such as timing of infection, timing of ultrasound, technical expertise, and severity of abnormalities. Detection of Zika virus RNA in amniotic fluid did not predict the risk for CZS abnormalities in this review, and clearance of Zika virus RNA from amniotic fluid is not possible after maternal infection. The decision to perform diagnostic testing for Zika remains a shared decision between patients and clinicians, and more data are needed to define clinical predictors that will inform these decisions.

Disclosures. All authors: No reported disclosures.