

Fetal Adrenal Gland Zone Predicted Preterm Birth

BY PATRICE WENDLING

CHICAGO — A simple two-dimensional ultrasound measurement of the depth of the fetal adrenal gland zone enlargement is a better predictor of preterm birth than cervical length, and is able to predict preterm birth within 7 days, according to Dr. Ozhan Turan.

The 2-D measurement is also as accurate as 3-D ultrasonography, which is less widely available, more complex, and more time consuming, Dr. Turan reported at the annual meeting of the Society for Maternal-Fetal Medicine. "It is plausible that these observations are due to the fact that ultrasound measurement of the fetal zone provides a noninvasive tool to study an essential component of the physiology that initiates the preterm birth process," he said. "If this can be confirmed, it holds great promise in the study and the management of preterm birth."

VITALS

Major Finding: Depth of fetal zone enlargement was 58% in the 21 women who gave birth within 7 days of initial assessment, compared with 40% in the 41 women who were delivered more than 7 days after assessment, a significant difference.

Data Source: A prospective study of 62 women presenting with preterm labor symptoms at 23-37 weeks' gestation.

Disclosures: The University of Maryland and Yale University provided support for the study. Dr. Turan disclosed no relevant conflicts of interest.

The researchers previously showed that fetal adrenal gland volume using 3-D ultrasound was able to predict preterm birth within 5 days of assessment (*Obstet. Gynecol.* 2007;109:855-62). The fetal zone makes up the majority of the adrenal cortex in fetuses, but begins to disappear the first few days after birth.

In the current analysis, 3-D ultrasound with virtual organ computer-aided analysis technology was used to determine corrected adrenal gland volume, and 2-D ultrasound was used to measure the whole gland and fetal zone in singleton pregnancies, in 62 women presenting with preterm labor symptoms at 23-37 weeks' gestation. The fetal zone to whole gland ratio was calculated as an index of the depth of fetal zone enlargement.

In the whole population, mean depth of fetal zone enlargement was 46%, mean corrected adrenal gland volume was 400 mm³/kg, and mean cervical length was 17 mm. The depth of fetal zone enlargement and the corrected adrenal gland volume were significantly correlated with time to delivery, whereas cervical length was not, said Dr. Turan of the University of Maryland in Baltimore.

Twenty-one women gave birth within 7 days of initial assessment and 41, more than 7 days after assessment. The depth of fetal zone enlargement was 58% in the group who were delivered within 7 days of

initial assessment, compared with 40% in the group who were delivered more than 7 days after assessment. Adrenal gland volume was 553.5 mm³/kg in the group who gave birth within 7 days and 321.6 mm³/kg in the group who were delivered later. Cervical length was 16.7 mm vs. 17.0 mm in the earlier and later delivery groups.

In receiver operating characteristic area under the curve analyses, the sensitivity and

specificity of fetal zone depth was 100% and 88% in the earlier and later delivery groups, compared with 85% and 90% for adrenal gland volume and 56% and 57% for cervical length. For comparison, he noted that assuming a false-positive rate of 10%, the ability to predict preterm birth in clinical practice is just 18% for uterine contractions, 60% for cervical length, 50% for fetal fibronectin testing, 71% for combined cervical length and fetal fibronectin,

and 82% for interleukin-6.

During a discussion of the study, attendees asked what impact steroids had on adrenal measurements and how much time 2-D ultrasound adds to an evaluation. Dr. Turan responded that there was no significant difference in adrenal volume 24 hours after second steroid administration, and that the method adds only a few minutes to an evaluation once the clinician is trained. ■



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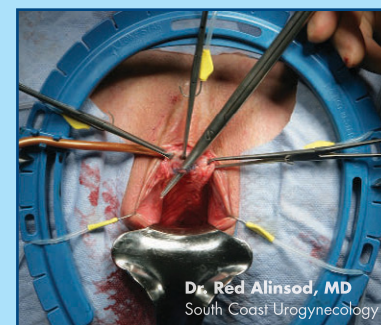
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