



Uterocervical angle as a predictor for spontaneous preterm birth: Potentialities and drawbacks

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Objective

To measure in vivo the uterocervical angle (UCA) in the second trimester and evaluate its potential to predict spontaneous preterm birth (sPTB).

Methods

Prospective study with 1596 women. Pregnant women between 19 and 22.6 weeks of gestation that were scheduled for the second trimester ultrasound (anomaly scan) in our center were eligible to participate. Written informed consent was obtained from all patients. UCA and cervical length (CL) were measured with transvaginal ultrasound. Maternal and fetal characteristics were recorded at the time of inclusion and delivery data was subsequently collected.

Results

From the 1596 women included in the study, 81 patients were lost to follow-up, 6 had a termination of pregnancy and 3 an intrauterine death. In 20 cases UCA was not reported and in one case it could not be measured. The final analysis included 1455 singleton pregnancies and 30 twin pregnancies. Preterm delivery under 37 weeks occurred in 7.5% of patients (n=111), out of which 59 had spontaneous onset of labor. Term delivery occurred in 92.5% of patients (n=1374). Mean UCA in the second trimester was 111.3° [CI: 103.4-119.2] in the spontaneous preterm deliveries and 103.5° [CI: 102.0-105.0] in the deliveries at term. UCA over 105° was found in 64.6% of the spontaneous preterm deliveries and in 45.9% of the deliveries at term (p = 0.007). CL under 25mm was found in 5.1% of preterm deliveries and in 0.6% of deliveries at term (p = 0.009). Correlations between UCA and other maternal characteristics were found. A wider UCA correlates with a longer CL (p < 0.01) and a higher body mass index (BMI) (p < 0.01). Women with a history of cesarean section have a wider UCA 113.1° [CI: 108.9-117.3] compared to women with no previous cesarean section 102.4° [CI: 102.4-103.8] (p < 0.001). Measurement of UCA was achieved with few difficulties (only in one case could it not be measured) and no differences between operators were found. However, lower uterine segment contractions were found to change the measurement significantly and special attention should be paid in order to avoid this pitfall.

Conclusion

Measurement of the uterocervical angle has been suggested as a predictor of sPTB in different retrospective studies. However, it should be mentioned that mean UCA in both preterm and term groups differ between studies as well as the proposed cut-offs to separate low and high risk pregnancies. Differences in maternal characteristics, gestational age at ultrasound scan and the fact that every study had a number of patients whose UCA could not be measured due to a suboptimal cervical image could explain the differences. We present the first prospective study with ultrasound examinations aimed at measuring the UCA in vivo. This study proves that a wider UCA is related to a higher risk of preterm birth and also that maternal characteristics influence UCA significantly. Careful analysis of these results is needed in order to determine the optimum formula to improve the detection of pregnancies at high risk of spontaneous preterm birth.