

Intrapartum ultrasonography: prediction mode of delivery

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Objective

To investigate the clinical usability of intrapartum ultrasonographic measurement of the obstetric conjugate/fetal head circumference (OC/HC) ratio to predict mode of delivery in nulliparous pregnant women with vertex presentation.

Methods

Pregnant women who are in active labour with term, singleton, vertex positioned and live fetus were included prospectively into the study. Fetal biometric measurements and obstetric conjugate measurement were performed by intrapartum ultrasonography and the obstetric conjugate / fetal head circumference (OC/HC) ratio was calculated for all participants. For obstetric conjugate measurement; distance between the midpoint of the symphysis pubis and the promontory in the sagittal plane was measured three times repetitively and the average of the three measurements was noted. All sonographic measurements were taken by the same physician when there was no uterine contraction and the patient was not straining. The type of delivery of all patients was recorded afterwards. Pregnants who delivered vaginally and who delivered by cesarean section because of non-progressive labor or cephalopelvic disproportion were included in the statistical analysis.

Results

156 pregnant women who met the inclusion criteria were included in the study and intrapartum ultrasonographic measurements were performed. 29 pregnant women who had cesarean section due to reasons other than non-progressive labor and cephalopelvic disproportion were excluded and the results of the remaining 127 patients were analyzed. The OC/HC value of 40 (31,5%) pregnant women who delivered by cesarean section (0.35 ± 0.03) was found to be statistically significantly lower than 87 (68,5%) pregnant women who had vaginal delivery (0.36 ± 0.02) ($p=0.012$). The optimal OC/HC ratio for the prediction of vaginal delivery in the ROC curve was found to be 0.3625 (AUC 0,64; 95%CI 0,53-0,75) with 56% sensitivity, 75% specificity, 83% positive predictive value, 44% negative predictive value.

Conclusion

Obstetric conjugate / fetal head circumference (OC/HC) ratio measured by intrapartum ultrasonography in nulliparous pregnant women with vertex presentation is an objective and easily measurable parameter and can be used clinically for prediction of delivery mode.