

Comparison of fetal head position assessment between ultrasound based LaborPro system and trans-vaginal digital examination during the active stage of labor.

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Introduction:

Intra-partum assessment of the fetal head position by trans-vaginal digital exam (TVDE) is characterized by a high error rate when compared to ultrasound. The aim of this study was to compare LaborPro system and trans-vaginal digital examination for assessment of the fetal head position.

Materials and methods:

The LaborPro (Trig Medical, Nesher, Israel), uses position sensors to determine the spatial position of maternal pelvis and an abdominal ultrasound calibrated with the positioning system, to assess head position by marking the BPD and OFD, or either fetal orbits or nasal bridge, in relation to the maternal pelvis. Forty one determinations of the fetal head position were performed in 25 patients during active labor (cervical dilation \geq 4 cm). Fetal head position was determined using the LaborPro system immediately before or after digital examination performed by the midwife. Examiners were blinded to each other's findings. The position results were recorded on a circle with 8 divisions (45°). The 41 fetal head position measurements by TVDE were compared to the LaborPro position measurements. Agreement between results was considered when both assessments were in the same division. Statistical analysis was performed by using Chi-square test.

Results:

TVDE matched LaborPro position assessment only in 14 of the 41 cases (34%). Transverse presentation significantly affected the accuracy when compared to anterior (P = 0.02) or posterior (P=0.03) presentations. Head station had no significant effect on the accuracy of TVDE (P=0.65).

Discussion:

This study confirmed a high rate of error (76%) with trans-vaginal digital determination of the fetal head position during active labor. Assessment of the fetal head position using LaborPro had the advantage over abdominal ultrasound which requires additional skills from the operator to convert the ultrasound image into a position.