

Measurement of the fetal occiput-spine angle during the first stage of labor as predictor of the progress and outcome of labor

ABSTRACT

Background: Fetal head attitude has a substantial impact on labor progress and outcome. Fetal

head deflexion is basically diagnosed by digital vaginal examination during labor. Objectives: To assess the effect of the fetal occiput-spine angle (OSA) measured through transabdominal ultrasound during the first stage of labor on the progress and outcome of labor. Material and methods: A prospective cohort study conducted on 400 women with term uncomplicated singleton pregnancy with occipitoanterior position during active labor. The angle between two tangential lines to occipital bone and the vertebral body of the first cervical spine was measured during active labor. Follow up till delivery was done. The primary outcome parameter was the labor duration. Secondary outcomes included the mode of delivery, occurrence of maternal and fetal complications. Results: There was a significant longer duration of both first and second stage of labor among women with OSA $<126^\circ$ when compared to those with OSA $\geq 126^\circ$ (6.8 ± 2.1 and 1.89 ± 0.85 versus 4.16 ± 1.63 and 0.92 ± 0.43 , respectively). Women with OSA $<126^\circ$ had higher incidence of CS (46.3 versus 5.7%), perineal tears (10.4 versus 5.1%), vaginal tears (22.4 versus 6.3%), need for oxytocin augmentation (47.8 versus 21.3%) when compared to those with OSA $\geq 126^\circ$. OSA at cutoff value of 126° had a sensitivity, specificity, and accuracy of 82.6, 64.6 and 78.4% and 93.7, 92% in prediction of mode of delivery and overall complications, respectively. Conclusions: There was a significantly longer duration of both first and second stages of labor with higher rates of CS and maternal and fetal complications in women with OSA $<126^\circ$.