

FETAL PULSE OXIMETRY DURING LABOR AND MATERNAL POSITION

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Background: To study the effect of maternal position on fetal oxygen saturation (FSpO₂) measured by pulse oximetry during the first stage of labor.

Methods: Oxygen saturation was monitored by fetal pulse oximetry during first stage of labor in forty singleton pregnancies at term, with vertex presentation. Criteria for exclusion were multiple gestations, gestational age <37 weeks, placenta previa, chorioamnionitis, vaginal bleeding of unknown origin, uterine anomalies, sexually transmitted diseases, and birth weight <2500 gm. All fetuses showed SpO₂ >30% during the whole first stage of labor. The patients adopted successively the left lateral, right lateral, and supine positions for 10 minutes each in a randomly determined order. A continuous recording time of least 5 minutes of each 10-minute time interval was required for analysis. There were no additional epidural injections, no supplemental oxygen to the mother, and no infusion rate of oxitocyn. The FS-14B fetal oxygen sensor (Nelcor Puritan Bennett Inc, Pleasanton, CA) and a Corometrics Medical Systems Inc. fetal monitor, 129F model, were used.

Results: A significant difference in FSpO₂ was found between different maternal positions. The supine position was associated with a significantly lower FSpO₂ (48.2%±6.3%) when compared with the right (51.6%±7.4%) and left (55.8%±6.5%) lateral positions. FSpO₂ in maternal right lateral position is significantly lower than in left lateral position.

Conclusion: Fetal oxygen saturation measured by pulse oximetry showed a significant association with maternal position during the first stage of labor; FSpO₂ in supine maternal position showed significant lower values when compared with the left and right lateral positions.