THIN AND THICK MECONIUM-STAINED AMNIOTIC FLUID: EFFECT ON FETAL PULSE OXIMETRY.

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Objective: To study fetal arterial oxygen saturation values ($FSpO_2$) during labor, in cases of clear amniotic fluid (CAF), thin meconium-stained amniotic fluid (MSAF), and thick MSAF.

Material and Methods: $FSpO_2$ was monitored by pulse oximetry in 110 singleton pregnancies at term, with vertex presentation. Exclusion criteria were multiple gestations, gestational age <37 weeks, placenta previa, chorioamnionitis, vaginal bleeding of unknown origin, sexually transmitted diseases, and birth weight <2500 gm. $FSpO_2$ and pH of umbilical cord artery were compared between fetuses with CAF (n=57) and MSAF (n=53). MSAF group was subdivided in thin MSAF (n=38) and thick MSAF (n=15). $FSpO_2$ values were compared between stages of labor. Stage 1 was subdivided into early (≤4 cm), middle (5 to 7 cm), and late (8 to 9 cm) phases. The FS-14B fetal oxygen sensor and a fetal monitor were used.

Results: Significant differences were observed in $FSpO_2$ in CAF or MSAF groups during first stage. A significant fall of mean $FSpO_2$ occurred between the first and second stage in both groups [54.2%±7.5% vs. 46.6%±6.8% respectively (CAF), and 50.7%±7.3% vs. 43.2% respectively (MSAF)]. A significant difference was found between thick MSAF and CAF, but not between thin MSAF and CAF, during phases of stage 1 and first and second stage of labor. Umbilical artery pH shown no differences between CAF and thin MSAF groups; but a significant difference was observed between CAF and thick MSAF groups.

Conclusion: Fetal oxygen saturation decreases significantly during labor in fetuses with and without meconium stained amniotic fluid; when thick meconium is present $FSpO_2$ values are lower than clear amniotic fluid during labor.