

Intrapartum monitoring of high-risk deliveries with ST analysis of the fetal electrocardiogram: an observational study of 6010 deliveries.

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Objective: To evaluate the clinical use of ST analysis (STAN) for intrapartum monitoring of high-risk pregnancies.

Design: Prospective observational study.

Setting: University hospital, Norway, 2004-2008. Population: Singleton pregnancies with a gestational age above 35(+6) weeks.

Methods: Analysis of maternal and neonatal outcomes for all deliveries according to the method of intrapartum monitoring. Main outcome measures: Prevalence of cord metabolic acidosis ($\text{pH} < 7.05$, base deficit(ecf) > 12 mmol/l).

Results: Of 23 203 deliveries, 6010 (25.9%) were monitored with STAN. Fetal blood sampling was performed in 146 (2.4%) of the 6010 cases. During the study period, the prevalence of cord metabolic acidosis and moderate cord acidosis ($\text{pH} < 7.15$) decreased in STAN monitored deliveries from 1.4% to 0.3% ($p = 0.01$) and from 16.4% to 11.7% ($p = 0.001$), respectively. The prevalence of moderate and severe neonatal encephalopathy was 0.38%. In the birth population the proportion of caesarean deliveries decreased from 10.1 to 8.8%. The risk of emergency cesarean section after STAN monitoring compared to those monitored with auscultation/ cardiotocography was high (odds ratio 5.4, 95% confidence interval = 4.9-6.1), but remained stable during the study period.

Conclusion: STAN is a useful tool for identifying of fetuses at risk of intrapartum hypoxia. Despite the restricted use of fetal blood sampling we found a low proportion of cord metabolic acidosis and newborn morbidity.