

Delay in intervention increases neonatal morbidity in births monitored with cardiotocography and ST-waveform analysis.

Kessler J, Moster D, Albrechtsen S.

Department of Obstetrics and Gynecology, Haukeland University Hospital, Bergen, Norway;
Department of Clinical Science, Clinical Fetal Physiology Research Group, University of Bergen,
Bergen, Norway.

OBJECTIVE: To assess the effect of the time interval from indication of hypoxia to delivery on neonatal outcome in high-risk pregnancies monitored with cardiotocography (CTG) and ST-waveform analysis.

DESIGN: Prospective observational study.

SETTING: University hospital, Norway, 2004-08.

POPULATION: Singleton high-risk births with a gestational age above 35⁺⁶ weeks, monitored with CTG and ST-waveform analysis.

METHODS: Logistic regression analysis and Kaplan-Meier survival plots.

MAIN OUTCOME MEASURE: Neonatal morbidity in relation to the rapidity of intervention.

RESULTS: Of 6010 deliveries monitored with ST-waveform analysis, 1131 (19%) had an indication to intervene for fetal distress according to clinical guidelines. Those fetuses were at increased risk of an adverse neonatal outcome, and if delivered later than 20 min after the indication of hypoxia their risk increased further; i.e. transfer to the neonatal intensive care unit (NICU) from an odds ratio of 1.6 (95% confidence interval 1.2-2.2) to an odds ratio of 3.3 (95% confidence interval 2.5-4.3). The indication-to-delivery interval was longer for neonates with a 5-min Apgar score of <7, transfer to NICU and neonatal encephalopathy than for those without adverse outcome.

CONCLUSION: In deliveries monitored with CTG and ST-waveform analysis, the risk of an adverse neonatal outcome was dependent on the time between indication of hypoxia and delivery. Nonadherence to the specific clinical guidelines increased the risk of neonatal morbidity.