

Cardiotocography patterns and risk of intrapartum fetal acidemia.

Holzmann M, Wretler S, Cnattingius S, Nordström L.

Abstract

AIM: To identify cardiotocography (CTG) patterns associated with increased risk of intrapartum fetal acidemia.

METHODS: A prospective observational cohort study of 1070 women with fetal scalp blood sampling (FBS) during labor was conducted at Karolinska University Hospital, Stockholm, Sweden. Women with a nonreassuring CTG pattern underwent FBS, and lactate concentration was measured at the bedside. Lactate concentrations >4.8 mmol/L were defined as fetal acidemia. A senior obstetrician, blinded to the lactate concentration at FBS, visually interpreted the CTG tracings that had prompted FBS.

RESULTS: There were 2134 FBSs performed on 1070 laboring women, constituting 11% of all deliveries at this labor ward. The CTG patterns with the highest frequency of lactacidemia at FBS were late or severe variable decelerations combined with tachycardia (20%-25% at first FBS and 33%-49% at last FBS). With a normal baseline fetal heart rate, normal variability, and absence of serious decelerations, the fetal scalp blood lactate concentration at the first FBS was normal in 97.5% of cases. The group with isolated reduced variability had no increased prevalence of acidemia and median lactate concentration did not differ from the normal group.

CONCLUSION: Isolated reduced variability is in most cases not a sign of hypoxia. If development of hypoxia is ruled out with one FBS, this pattern does not require monitoring with repetitive FBSs throughout labor. Late decelerations and severe variable decelerations increase the risk for intrapartum fetal metabolic acidemia to the same extent. The combination of these decelerations and tachycardia was associated with the highest rate of fetal metabolic acidemia.