Fetal heart rate patterns and ECG ST segment changes preceding metabolic acidaemia at birth.

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OBJECTIVES: To compare the rates of abnormal ST segment patterns of the ECG and cardiotocographic (CTG) abnormalities in fetuses with metabolic acidaemia at birth and controls. To evaluate the inter-observer agreement in interpretation of ST analysis and CTG. DESIGN: Case-control study. SETTING: Three University hospitals in southern Sweden. POPULATION: Cases and controls were selected from the Swedish randomised controlled trial on intrapartum monitoring, including 4966 fetuses monitored with a scalp electrode. METHODS: Two obstetricians independently assessed the CTG and ST traces of 41 fetuses with metabolic acidaemia at birth and 101 controls, blinded to group, outcome and all clinical data. They classified each CTG trace and ST analysis as abnormal or not abnormal, and whether there was indication to intervene according to the CTG or to the CTG + ST guidelines. If their classification differed, assessment by a third obstetrician determined the final classification. MAIN OUTCOME MEASURES: Rates of CTG and ST abnormalities and decisions to intervene. Rates of inter-observer agreement. RESULTS: CTG was classified as abnormal in 50% and ST in 63% of cases with acidaemia, and in 20% and 34% of controls, respectively. CTG abnormalities were judged to be indication for intervention in 45% and CTG + ST abnormalities in 56% of cases with acidaemia, and in 15% and 8% of controls, respectively. The proportion of agreement between the two initial observers was significantly higher for ST abnormalities (94%) than for CTG abnormalities (73%), and for indication to intervene according to CTG + ST (89%) than according to CTG alone (76%). CONCLUSIONS: The inter-observer agreement rate was higher for a decision to intervene based on CTG + ST than on CTG alone.