

Misidentification of maternal heart rate as fetal on cardiotocography (CTG) during the second stage of labor: the role of the fetal ECG

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OBJECTIVE: To identify the incidence of fetal heart rate (FHR) accelerations in the second stage of labor and the role of fetal electrocardiograph (ECG) in avoiding misidentification of maternal heart rate (MHR) as FHR.

DESIGN: Retrospective observational study.

SETTING: University hospital labor ward, London, UK. Sample: Cardiotocograph (CTG) tracings of 100 fetuses monitored using external transducers and internal scalp electrodes.

METHODS: CTG traces which fulfilling inclusion criteria were selected from an electronic FHR monitoring database.

MAIN OUTCOME MEASURES: Rate of accelerations during external and internal monitoring as well as decelerations for a period of 60 minutes prior to delivery were determined. The role of fetal ECG in differentiating between MHR and FHR trace was explored.

RESULTS: Decelerations occurred in 89% of CTG Traces during second stage of labor. Accelerations indicating possible recording of FHR or MHR were found in 28.1% and 10.9% of cases recorded by an external ultrasound transducer as well as internal scalp electrode, respectively. Accelerations coinciding with uterine contractions occurred only in 11.7% and 4% of external and internal recording of FHR, respectively. Absence of 'p-wave' of the ECG waveform was associated with MHR trace.

CONCLUSION: Decelerations were the commonest CTG feature during second stage of labor. The incidence of accelerations coinciding with uterine contractions was less than half in fetuses monitored using a fetal scalp electrode. Analysing the ECG waveform for the absence of 'p-wave' helps in differentiating MHR from FHR.