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Fetal monitoring with computerised ST analysis during labor: a systematic review and meta-analysis.

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BACKGRUOND: Computerised ST analysis of fetal electrocardiography (ECG) combined with cardiotochography (CTG) has been introduced for intrapartum monitoring and is the prevailing method when ST analysis (STAN®) is used.

OBJECTIVES: To assess the evidence that computerised ST analysis during labor reduces the incidence of fetal metabolic acidosis, hypoxic ischemic encephalopathy, cesarean section, instrumental vaginal delivery or the number of instances where fetal scalp blood sampling is used as compared with CTG only.

SEARCH STRATEGY: Search of PubMed, Cochrane Library, EMBASE, Web of Science, CINAHL and CRD databases. Selection criteria: CTG only compared with CTG + computerised ST analysis.

DATA COLLECTIONAND ANALYSIS: Studies were assessed using pre-designed templates. Meta-analyses of included randomized controlled trials were performed using a random effects model. Main results: Risk ratio for cord metabolic acidosis with STAN® was 0.96 (95% confidence interval (CI) 0.49-1.88). Risk ratio for cesarean sections or instrumental vaginal deliveries for fetal distress was 0.93 (95%CI 0.80-1.08) and for fetal scalp blood sampling 0.55 (95%CI 0.40-0.76). Encephalopathy cases were not assessed due to their low incidence.

CONCLUSIONS: There is not enough scientific evidence to conclude that computerised ST analysis reduces the incidence of metabolic acidosis. Cesarean sections and instrumental vaginal deliveries due to fetal distress or other indications are the same regardless of method, but STAN® reduces the number of instances where scalp blood sampling is required.