

# ST WAVEFORM ANALYSIS VS. CARDIOTOCOGRAPHY ALONE FOR INTRAPARTUM FETAL MONITORING: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED TRIALS.

---

Blix E, Brurberg KG, Reierth E, Reinar LM, Øian P.

**INTRODUCTION:** ST waveform analysis (STAN) was introduced to reduce metabolic acidosis at birth and avoid unnecessary operative deliveries relative to conventional cardiotocography (CTG). Our objective was to quantify the efficacy of STAN vs. CTG and assess the quality of the evidence by using the GRADE tool.

**MATERIAL AND METHODS:** We identified randomized controlled trials through systematic literature searches and assessed included studies for risk of bias. Meta-analyses were performed, calculating pooled risk ratio (RR) or peto odds ratio (OR). We performed post hoc trial sequential analyses for selected outcomes to assess the risk of false-positive results and the need for additional studies.

**RESULTS:** Six randomized controlled trials were included in the meta-analysis. STAN was not associated with a reduction in operative deliveries due to fetal distress, but we observed a significantly lower rate of metabolic acidosis (peto OR 0.64; 95% confidence interval [CI] 0.46-0.88). Accordingly, 401 women need to be monitored with STAN to prevent one case of metabolic acidosis. No statistically significant effects were observed in other fetal or neonatal outcomes, except from fetal blood sampling (RR 0.59; 95% CI 0.45-0.79) and a minor reduction in the number of operative vaginal deliveries for all indications (RR 0.92; 95% CI 0.86-0.99). The quality of the evidence was high to moderate.

**CONCLUSION:** Absolute effects of STAN were minor, and the clinical significance of the observed reduction in metabolic acidosis is questioned. There is not enough evidence to justify the use of STAN in contemporary obstetrics.