Plymouth randomized trial of cardiotocogram only versus ST waveform plus cardiotocogram for intrapartum monitoring in 2400 cases.

Westgate J, Harris M, Curnow JS, Greene KR.

Department of Obstetrics, Postgraduate Medical School, Plymouth General Hospital, England.

OBJECTIVE: The physiology of changes in the ST waveform of the fetal electrocardiogram has been elucidated in extensive animal and human observational studies. A combination of heart rate and ST waveform analysis might improve the predictive value of intrapartum monitoring. Our purpose was to compare operative intervention and neonatal outcome in labors monitored by the conventional cardiotocogram with those monitored by ST waveform plus the cardiotocogram.

STUDY DESIGN: A prospective, randomized clinical trial was performed on 2434 high-risk labors in a district general hospital in Plymouth, England. Statistical analysis was performed by Student t test and chi 2 analysis.

RESULTS: There was a 46% reduction (p < 0.001, odds ratio 1.85 [1.35-2.66]) in operative deliveries for "fetal distress" and a trend to less metabolic acidosis (p = 0.09, odds ratio 0.38 [0.13-1.07]) and fewer low 5-minute Apgar scores (p = 0.12, odds ratio 0.62 [0.35-1.08]) in the ST waveform plus cardiotocogram arm.

CONCLUSIONS: ST waveform analysis discriminates cardiotocogram changes in labor, and the protocol for interpretation is safe. Further randomized studies are warranted.