

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

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

Department of Obstetrics and Biomedical Engineering, Plymouth General Hospital, Freedom Fields, UK.

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 cardiocogram with those monitored by ST waveform plus the cardiocogram.

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 cardiocogram arm.

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