

185 ALL NON-REACTIVE FETAL HEART RATE TRACINGS ARE NOT EQUAL RICHARD LEE¹, MEAGAN MOORE¹, WENDY BREWSTER², POONEH HENDI¹, CAROL PATTILLO¹, A ZIOGAS³, MARK LENSKY¹, THOMAS GARITE¹; ¹University of California, Irvine, Obstetrics & Gynecology, Orange, CA; ²University of California, Irvine, Obstetrics & Gynecology, Irvine, CA; ³University of California, Irvine, Biostatistics, Irvine, CA

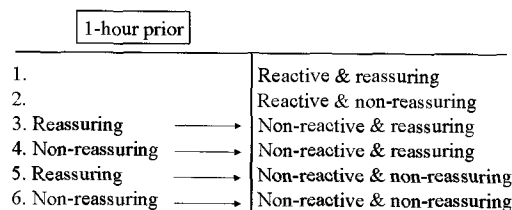
OBJECTIVE: To determine which types of non-reactive (NR) fetal heart rate (FHR) tracings are most predictive of fetal hypoxia using fetal pulse oximetry (FPO).

STUDY DESIGN: FHR tracings with fetal oxygenation saturation (FSpO₂) from the US RCT of FPO (AJOG 2000;183:1049-58) were analyzed. Each FHR tracing was divided into 2-hour epochs, in which the worst 40 minutes was evaluated. Each epoch was categorized based on reactivity and whether it was associated with reassuring (RA) or non-reassuring (NRA) decelerations. NRA was defined as late decelerations >50% of contractions and/or severe variables with drop >70 beats/min or drop <70 beats/min × >60 sec. NR tracings were further categorized if the hour prior was RA or NRA. Six FHR groups were defined as in the Figure. Using regression analysis, these six categories were correlated with the frequency of FSpO₂ <30%.

RESULTS: 493 epochs from 261 FHR tracings with >50% registration time of FPO recorded were reviewed. The six groups were ranked from least predictive of fetal hypoxia (frequency of oxygen saturation <30%) to most predictive as follows: 1, 3, 2, 5, 4, 6. While groups 1 & 3 did not differ in terms of predicting fetal hypoxia, groups 2, 4, 5, & 6 were more predictive of fetal hypoxia compared to group 1 (*P* < .03).

CONCLUSION: NR FHR tracings in the absence of NRA decelerations is not predictive of fetal hypoxia. NR FHR tracings significantly predicts fetal hypoxia when there are NRA decelerations such as repetitive late decelerations or severe variables or when preceded by a NRA FHR tracing. Therefore, loss of reactivity in a FHR tracing is only predictive of fetal hypoxia when associated with NRA features.

Figure
FHR tracing groups



186 THE EFFECT OF MATERNAL AGE ON STANDARDIZED CESAREAN SECTION RATES RICHARD LEE¹, DAVID LAGREW², WENDY BREWSTER³, ANNA MCKEOWN-LUGARO¹, KATHLEEN BERKOWITZ⁴; ¹University of California, Irvine, Obstetrics and Gynecology, Orange, CA; ²Saddleback Memorial Medical Center, Maternal Fetal Medicine, Laguna Hills, CA; ³University of California, Irvine, Obstetrics & Gynecology, Irvine, CA; ⁴Long Beach Memorial Medical Center, Maternal Fetal Medicine, Long Beach, CA

OBJECTIVE: To evaluate if maternal age should be included as a variable in determining standardized cesarean section rates (CSR).

STUDY DESIGN: Using a prospectively collected perinatal database, consisting of four community hospitals, we analyzed delivery statistics from 1/98 to 6/01. The CSR were determined for all patients and low risk primigravidas (LRP) by age groups in five-year increments. These were compared to the 1999 US National data. CSR for the entire system and each individual hospital were then adjusted for maternal age using the national data as the standard. Chi-square analysis was performed to compare the original CSR and the adjusted CSR.

RESULTS: Data on 33,170 deliveries confirmed national trends of increasing CSR with advancing maternal age (15.6% for the <20 age group to 32.1% for the >35 age group). The age distributions in the entire system were significantly skewed towards older patients compared to national standards (*P* < .0001). After adjustments for maternal age, system-wide total CSR & LRP-CSR's were significantly reduced (See Table). Also, none of the baseline hospital LRP-CSR's were below the national average of 18.8% (range 18.9-22.0%). Following an age adjustment, 3 of 4 hospitals fell below the national average (range 13.8-20.3).

CONCLUSION: Advancing maternal age is a known risk factor for cesarean section. Various hospitals have different age group distributions. Age adjustment produces significant changes in total CSR and LRP-CSR. Given these findings, CSR should be corrected for age distribution to allow a fair comparison of performance.

Table
CSR's and age-adjusted CSR's

	CSR	AGE ADJUSTED CSR	P VALUE
All patients	24.2%	22.4%	<i>P</i> < .0001
LRP	20.5%	18.1%	<i>P</i> < .0001

187 FETAL PULSE OXIMETRY: DEFINING WHICH VARIABLE DECELERATIONS WITH SLOW RETURN TO BASELINE ARE ASSOCIATED WITH HYPOXIA STACY HENIGSMAN¹, THOMAS GARITE², CAROL PATTILLO², WENDY BREWSTER¹; ¹University of California, Irvine, Obstetrics and Gynecology, Orange, CA; ²University of California, Irvine, Obstetrics & Gynecology, Orange, CA

OBJECTIVE: One aspect which causes a variable deceleration (VD) of the FHR to be classified as non-reassuring is a slow return to baseline (SRBL). However, these patterns are most often associated with the birth of a vigorous baby with no evidence of hypoxia. We hypothesized that VD with SRBL which are preceded by severe VD, or persistent late decelerations (LD), would be associated with hypoxia while others would not.

STUDY DESIGN: We reviewed FHR patterns from the Multicenter RCT of Fetal Pulse Oximetry (FPO) (AJOG 2000;183:1049-58). We identified patients monitored with both FHR and continuous FPO who developed VD with SRBL within 30 min. of delivery. These patients were further subdivided into 3 groups: those preceded by persistent LD, those preceded by severe VD (<70bpm × >60s) and those with neither. A control group of 61 patients with mild VD, without SRBL, within 30 min. of delivery also was identified. These 4 groups were compared for the frequency of normal fetal oxygenation (saturation [FSpO₂] >30%) or any fetal hypoxia (FSpO₂ <30% at any time) occurring within 30 min. of delivery.

RESULTS: Of the 508 patients in the group, 75 demonstrated VD with SRBL within 30 min. of delivery. Of the 75, 20 were preceded by persistent LD, 12 by severe VD and 43 by neither. There was no significant difference in the frequency of hypoxia between the 4 groups. However, in combining patients with persistent LD and patients with severe VD, preceding the SRBL, there were significantly more instances of hypoxia (*P* = .01) and a lower mean oxygen saturation (*P* = .05) than in patients having VD with SRBL demonstrating no preceding pattern. Patients in the latter group also had no significantly greater risk for hypoxia than those with mild VD (*P* = .2).

CONCLUSION: VD with SRBL are considered non-reassuring FHR patterns. However, based on FPO, VD with SRBL are not associated with an increase in the frequency of hypoxia over mild VD unless preceded by persistent LD or severe VD.

188 PERINATAL OUTCOME AND FETAL SURVEILLANCE—DATA FROM SWEDISH RCT OF CTG VERSUS CTG PLUS ANALYSIS OF THE ST WAVEFORM OF THE FETAL ECG KARL ROSEN¹, INGEMAR KJELLMER², KAREL MARSAL³; ¹Neovanta Medical, Gothenburg; ²Dept Paediatrics, Dept Paediatrics, Gothenburg; ³Dept Obstet Gynec, Dept Obstet Gynec, Lund

OBJECTIVE: The aim of intrapartum fetal surveillance is to identify fetuses of an adverse outcome based on our understanding of the pathophysiology involved. ST waveform of the fetal ECG provides continuous information on the ability of the myocardium to respond. Strict clinical guidelines have been tested in two large RCTs. The Swedish RCT was designed with a power to assess potential improvements in neonatal outcome.

STUDY DESIGN: At three Swedish labor wards, 4966 women with term fetuses in cephalic presentation entered the trial during labor after a clinical decision had been made to apply a fetal scalp electrode for internal CTG recording. The current analysis focuses on the findings that were associated with the 351 babies that were admitted to the Special Care Baby Unit (SCBU). The trial design allowed to test for the effects of growing experience with the new STAN® technology.

RESULTS: An interim analysis after 1800 cases showed that six cases in the CTG+ST arm had been exposed to hypoxia and ST events were ignored. This observation stimulated an interest in conducting the trial according to the protocol. After retraining, two babies of 1186 in the CTG+ST arm had an adverse/complicated neonatal outcome. The corresponding figure in the CTG arm was 12 of 1197, OR 0.17, *P* = .01. When the STAN® technology was used adequately during the second phase, Apgar <4 1' was reduced from 2.19 to 0.76%, no neonate in the CTG+ST arm had Apgar<4 5', the cord art met acid (pH<7.05 and BDec>12 mmol/l) rate was reduced from 1.54 to 0.44% and the number of babies admitted to SCBU was reduced from 7.44 to 5.12%. (*P* < .05).

CONCLUSION: The STAN® methodology provides significant improvements in perinatal care. The study also demonstrates the need for a structured dissemination of the knowledge and experience behind.