

Effectiveness of pulse oximetry versus fetal electrocardiography for the intrapartum evaluation of nonreassuring fetal heart rate.

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OBJECTIVES: To compare the effectiveness of pulse oximetry and fetal electrocardiography in the management of labor with nonreassuring fetal heart rate (NRFHR).

STUDY DESIGN: This randomized experimental study consisted of two arms. In group 1 we used pulse oximetry and in group 2 we used STAN[®] technology. The participants in each group were 90 pregnant women with a full-term singleton fetus in cephalic presentation and cardiotocographic tracings compatible with NRFHR. We compared the following variables: rate of cesarean delivery, indications for operative delivery due to NRFHR, and repercussions on the newborn's acid-base status.

RESULTS: The two groups differed significantly in the mode of delivery, with a cesarean delivery rate of 47.6% in group 1 vs. 30% in group 2 ($p=0.032$). The groups did not differ in the indications for ending labor due to NRFHR (62% vs. 61%, NS). In terms of neonatal outcomes, the 1-min Apgar score was 6 or lower in 17.8% of the group 1 neonates vs. 4.44% of the group 2 neonates ($p<0.001$). The groups also differed significantly in umbilical cord vein pH (7.23 vs. 7.27) and $p\text{CO}_2$ (57.27 vs. 46.86) at birth.

CONCLUSIONS: Fetal electrocardiography with the STAN[®] 21 system was more effective in detecting good fetal status and thus in identifying cases in which labor could proceed safely. Intrapartum surveillance with the STAN[®] 21 system reduced the rate of emergency cesarean delivery.