

Acidemia at birth, related to obstetric characteristics and to oxytocin use, during the last two hours of labor.

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OBJECTIVE: Evaluate obstetric characteristics during the last two hours of labor in neonates born with acidemia.

DESIGN: Case-control study.

SETTING: Delivery units at two university hospitals in Sweden.

STUDY POPULATION: Out of 28,486 deliveries during 1994-2004, 305 neonates had an umbilical artery pH value <7.05 at birth. **METHODS:** Cases: neonates with an umbilical artery pH < 7.05. Controls were neonates with pH > or = 7.05 and an Apgar score > or =7 at 5 minutes. Obstetric characteristics, cardiotocographic patterns and oxytocin treatment during the last two hours of labor were recorded.

RESULTS: In the univariate analysis, > or =6 contractions/10 minutes (odds ratio (OR) 4.94, 95% confidence interval (CI) 3.25-7.49), oxytocin use (OR 2.20, 95% CI 1.66-2.92), bearing down > or =45 minutes (OR 1.77, 95% CI 1.31-2.38) and occipito-posterior position (OR 2.18, 95% CI 1.19-3.98) were associated with acidemia at birth. In the multivariate analysis, only > or =6 contractions/10 minutes (OR 5.36, 95% CI 3.32-8.65) and oxytocin use (OR 1.89, 95% CI 1.21-2.97) were associated with acidemia at birth. Among cases with > or =6 contractions/10 minutes, 75% had been treated with oxytocin. Pathological cardiotocographic patterns occurred in 68.8% of cases and in 26.1% of controls (p<0.001).

CONCLUSION: A hyperactive uterine contraction pattern and oxytocin use are the most important risk factors for acidemia at birth. The increased uterine activity was related to overstimulation in the majority of cases. The duration of bearing down is less important when uterine contraction frequency has been considered.