Comparison of the Correlation between abnormal intrapartum cardiotocogram findings and cord blood pH in term and preterm labours

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Objective: To compare the correlation between abnormal intrapartum cardiotocogram findings and cord blood pH values in high-risk labours that occurred before and after 34 weeks gestation.

Methods: Retrospective analysis of the labour records of 54 preterm labours at or before 34 weeks (preterm group) over a 12 month period, and 108 age and parity matched high risk labours that occurred after 34 weeks gestation (term group), which comprised of cases complicated by intrauterine growth restriction, abnormal antepartum cardiotocogram tracings, oligohydramnios, or meconium stained liquor in labour. Cases that delivered by elective caesarean section, or immediate caesarean section at the onset of labour without going into the active phase, and those with congenitally malformed fetuses were excluded from the analysis. All intrapartum tracings were scored using the FIGO 1987 guidelines.

Results: The mean birth weight for the preterm group was 1605g (SD 673) and that for the term group was 3050g (SD 480). The caesarean section rate did not differ significantly between the two groups (16.6% versus 14.8%), but there were significantly more instrumental deliveries in the term group (32.4% versus 5.5%). The overall incidence of abnormal CTG findings was similar in the preterm and term groups (59.2% versus 61.8%), but there were a significantly higher proportion of pathological patterns in the term group (9.25% suspicious, 51.8% pathological) as compared to the preterm group (38.8% suspicious, 20.3% pathological)(p<0.001, OR0.95, 95% CI 0.49 to 1.85). The incidence of suspicious CTG findings due to decreased variability was also significantly higher in the preterm group (27.7%) as compared to the term group (5.5%) (p<0.001, OR 6.54, 95% CI 2.37 to 18.1). Despite the higher incidence of pathological patterns in the term group, the incidence of a low cord blood pH value below 7.20 was higher in the preterm group (12.9%) compared to the term group (2.75%) (p<0.025, OR 5.21, 95% CI 1.29 to 21). The incidence of low 5-minute Apgar score below 7 did not differ between the two groups.

Conclusion: Despite a similar overall incidence of abnormal intrapartum CTG patterns between the term and preterm groups, and a higher proportion of pathological intrapartum CTG findings in the term group, the incidence of low cord blood pH was apparently higher in the preterm group. On the contrary, there was a significantly higher incidence of suspicious CTG findings in the preterm group as a result of decreased variability. We conclude that the correlation between abnormal intrapartum CTG patterns and cord blood pH appeared better in term fetuses. The interpretation of intrapartum CTG findings in preterm labours should take into account the gestational age in addition to other clinical parameters.