

CARDIOTOCOGRAPHY AS A PREDICTOR OF OUTCOME IN PRETERM LABOUR

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SUMMARY

This prospective observational study was conducted to find out a method for prediction of outcome in preterm labour. Fifty cases of established preterm labour between 32 to 36 weeks were selected. Cardiotocographic tracings were taken for 30 minutes before an attempt of inhibition of labour. Baseline fetal heart rate variation was obtained by joining the mid points of long term variations in CTG tracings were analysed. Eighty-six percent of patients with > 10 bpm variation had successful inhibition and 69% of ≤ 10 bpm did not respond to tocolysis. This method can also help in choosing patients for tocolysis.

INTRODUCTION

Inhibition of preterm labour is still widely practised in order to prevent the associated perinatal morbidity and mortality. But the successful inhibition depends on the diagnosis of true preterm labour rather than on the type of tocolytic drugs used. Unfortunately an accurate identification of true preterm labour remains a major problem in obstetric practice resulting in some patients receiv-

ing tocolytics unnecessarily. Attempts have been made by many obstetricians to help diagnosis of true preterm labour. The presence of fetal breathing movements has been tried to indicate the outcome of preterm labour. (Castle and Turnbull, 1983; Oscar J. et al, 1986; Besinger et al 1987).

The aim of the present study was to find out a simple bedside method to indicate the inevitable progression of labour. Thus fetal heart rate variations were analysed to indicate any evidence about the success of inhibition attempts

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in preterm labour.

METHOD

50 cases of established preterm labour (4 uterine contractions/20 minutes and 2 cm dilated cervix) between 32 to 36 wks of gestation were selected in whom good quality ultrasound cardiographic records were taken at the time of admission. These pregnancies were singleton, uncomplicated and with intact membranes. The tracing was taken for 30 minutes at the paper speed of 1 cm/min. All the patients were then administered the same regime of tocolysis (Sedation and isoxsuprime). Inhibition was labelled as successful in those patients whose pregnancies continued for 1 week.

The patients were then divided into two groups according to the outcome - one with successful inhibition and other with progression of labour. The CTG tracings of these two groups were analysed. The long term variations (LTV), accelerations and decelerations did not show any appreciable difference or change. But there was a difference in baseline heart rate variations. Besides short term variations and LTV's, there were slow inconsistent oscillations of basal heart rate over a period of 3 to 5 minutes. This can be found out by joining the mid points of LTV's excluding accelerations and decelerations. This line represents the basal heart rate whose amplitude of variations was noted.

RESULTS

Of the 50 cases of preterm labour, 27 were successfully inhibited. The baseline

fetal heart variations of > 10 beats per minute (bpm) were noted in 66.6% (18 patients) of these 27 patients. Whereas in the failed group, of the 23 patients, 20 (87%) showed a baseline fetal heart variations of \leq 20 bpm (Table I).

Again in Table II, of the total of 21 patients having > 10 bpm variation, 18 (86%) had successful inhibition and of the 29 patients with \leq bpm, 20 (66%), did not respond to inhibition. This data suggests a high predictive value of this parameter in the success of the inhibition attempt.

DISCUSSION

It has been demonstrated that fetal

Table I

Baseline Variations in different groups

Amplitude of baseline variation	Successful Tocolysis (n)	Failed Tocolysis (n)
> 10 bpm	18	3
10 bpm	6	10
< 10	3	10
Number of patients (n = 500)	27	23

Table II

Relation between baseline variation and outcome

Amplitude of baseline variation	Number of patients	Successful Tocolysis (n)
> 10 bpm	21	18
\leq 10 bpm	29	9

breathing movements modulate fetal heart rate (Wheeler T. et al, 1990; Dawes G.S. et al, 1981) and the presence of respiratory sinus arrhythmia was also recorded by Timor-Tritsch et al 1977. Thus this type of baseline fetal heart rate variation may be because of fetal breathing signifying false preterm labour. But this variation was also noted in those whose labour had progressed. Therefore, other factors such as influence from higher centres reacting to hypoxia and fetal movement may also contribute to the genesis of this variation.

The clinical utility of using this method to predict imminent preterm delivery is well demonstrated in this study. 86% patients with a baseline fetal heart rate variation of > 10 bpm had responded to the inhibition attempt whereas 69% of patients with variation ≤ 10 bpm did not

respond to the attempt.

This method is simple, quick and beside procedure and can help in predicting the outcome as well as in choosing the patients of preterm labour for inhibition attempt.

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