

## CLINICAL FETAL MONITORING & FETAL OUTCOME

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### SUMMARY

The study includes retrospective analysis of 1604 women monitored during labour by intermittent fetal heart auscultation. The fetal outcome in these women has been correlated with observation of intrapartum fetal distress. Out of 1604 patients, 120 (8.5%) were detected to have fetal distress on auscultation. Twenty six (21.6%) of these 120 delivered a neonate with an Apgar score of <7 at birth. Remaining 1484 (92.5%) patients had no clinical evidence of fetal distress and 9 (0.6%) of these delivered a neonate with Apgar score of <7. The sensitivity for clinical detection of fetal distress resulting in low Apgar score was 93.7% and specificity of 74.3%. These figures are comparable to those predicted by more advanced electronic fetal monitoring. We therefore recommend that in our country where expensive electronic gadgets are not universally available, a careful clinical monitoring for fetal distress is equally rewarding.

### INTRODUCTION

Detection of fetal distress during labour has always been a challenge to the obstetrician. Various intrapartum fetal monitoring techniques have been advocated with variable predictability. Electronic fetal monitoring to detect in utero fetal jeopardy has been in existence for more than 3 decades with rapid advances in techniques. These gadgets are not universally available in

most obstetric units in India. Therefore, to assess the accuracy of clinical assessment of fetal well-being by intermittent fetal heart auscultation, fetal outcome in 1604 women monitored clinically during labour has been analyzed retrospectively and correlated with observations of intrapartum fetal distress.

### MATERIAL & METHOD

The study includes 1604 women in labour with live fetuses from 29-42 weeks of

gestation. Patients with fetal distress on initial evaluation or those planned for elective caesarean were not included. All patients were monitored clinically by intermittent fetal heart auscultation using a stethoscope or fetoscope. Monitoring was done by 'on duty residents' half hourly in early first stage, every 15 minutes in late first stage and every 5-10 minutes during second stage of labour. More frequent monitoring was done in cases requiring syntocinon acceleration, premature rupture of membranes or any other fetal risk factors. Fetal heart rate was counted for at least 1 minute immediately following a contraction and rate as well as rhythm was noted. Results on fetal monitoring were correlated with fetal outcome.

### RESULTS

Out of 1604 women monitored, there were 608 primigravida and 996 multiparous patients. The age range was 19-36 years.

A single patient needed between 8-69 fetal heart auscultations. Out of 1604 patients,

120 (7.5%) were detected to have fetal distress on auscultation. In 37 (30.8%) of these cases there was meconium stained liquor along with fetal heart abnormality. Fetal distress parameters included - irregular fetal heart rate, base line bradycardia of less than 100/min. or fetal tachycardia of more than 180/min. (Table 1). Unless delivery was imminent, these patients were delivered by LSCS or forceps application depending upon whether the fetal distress was diagnosed during the first or the second stage of labour. Percentage of babies born with low Apgar was not influenced by the mode of delivery (Table II).

At delivery, 26 (21.6%) of these 120 neonates had a low Apgar score of less than 7.0. Out of remaining 1484 patients where no evidence of fetal distress was detected clinically, 9 (0.6%) delivered a neonate with apgar score less than 7 (Table - III).

Statistical analysis of this data showed a sensitivity for clinical detection of fetal distress resulting in low Apgar score as 93.7% with a specificity of 74.3%.

Table I

Type of Fetal Heart Abnormality (n=120)

Abnormality	No. (%)
Fetal bradycardia	32(26.7%)
Fetal tachycardia	18 (15%)
Irregular fetal heart variable deceleration	44 (36.7%)
Spont/post contraction drop	26(21.6%)

**Table II**  
**Mode of delivery in patients with clinical fetal distress (n=120)**

Mode of delivery	No.	Fetus with Apgar Score of <7
LSCS	86	19 (22.1%)
Forceps	23	5 (21.7%)
Normal Vaginal Delivery	11	2 (18.2%)
	120	26 (21.6%)

**Table III**  
**Clinical Fetal Distress and Fetal Outcome (n = 1604)**

Clinically Diagnosis	No.	Fetal Outcome Apgar <7
Fetal Distress	120 (8.5%)	26 (21.6%)
No Fetal Distress	1484 (92.5%)	9 (0.6%)

### DISCUSSION

Several intrapartum fetal monitoring methods have been advocated with variable predictability. The American college of Obstetricians & Gynecologists (1989) indicated that fetal well being could be assessed either by electronic fetal heart rate monitoring or by intermittent auscultation.

Several investigators felt that auscultation may miss sudden changes in fetal heart rate between two auscultation periods, short term variability and mild decelerations. Benefits of continuous

electronic fetal heart rate monitoring were highlighted by Neutra et al (1978). A randomized trial of intrapartum monitoring by Haverkamp et al (1976) showed no benefit of electronic monitoring as compared with intermittent auscultation. Subsequently, several randomized clinical trials did not find any decrease in intrapartum death, low Apgar score or fetal acidosis by continuous fetal monitoring (Wood et al 1981, MacDonald et al 1985), though in a study of over 13,000 patients, MacDonald et al (1985) demonstrated a 50% reduction in neonatal seizures by using electronic

fetal monitoring.

Leveno et al (1986), compared universal monitoring with selective monitoring in 34,995 pregnancies and observed 50% increase in caesarean section for fetal distress in universal monitoring group, while fetal outcome was no different. They concluded that introduction of universal monitoring at Parkland Memorial Hospital had no significant effect on infant outcome and all pregnancies specially those at low risk do not need continuous electronic fetal monitoring during labour. Prentice & Lind (1987) felt that continuous monitoring only lead to too frequent intervention with too little benefit. A randomized trial in premature labour (Luthy et al, 1987) failed to show any positive benefit of electronic monitoring over intermittent auscultation. Grant et al (1989) in a survey of cerebral palsy showed that compared with intermittent auscultation, intensive monitoring had little, if any, protective effect against cerebral palsy.

Shy et al (1990) made a similar observation on a randomized clinical trial of neurological development in premature infants and concluded that as compared to periodic auscultation electronic fetal monitoring does not result in improved neurological development. Freeman (1990) wrote an Editorial on disappointing story of fetal monitoring as electronic monitoring did not accrue desired benefit to improve fetal survival.

With clinical monitoring, the specificity and sensitivity for assessment of fetal distress was 74.28% and 93.68% respectively in our study. These figures are comparable to those predicted by more advanced electronic fetal monitoring.

### CONCLUSION.

Detection of fetal distress by clinical methods was not inferior to more invasive and expensive techniques of electronic fetal monitoring. Clinical assessment of fetal distress is extremely important if carried out accurately and perhaps as useful as electronic monitoring. In a country like India, the expensive monitoring gadgets are not universally available, but these centres are not at a great disadvantage in assessing fetal distress, if careful clinical monitoring is done.

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