

## DIAGNOSIS AND MANAGEMENT OF FOETAL DISTRESS IN LABOUR

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### SUMMARY

A critical study on diagnosis and management of foetal distress in labour was carried out over a period of one year. The incidence of foetal distress was 7.53% (492 cases). The diagnosis was based on detection of meconium in liquor as well as foetal heart abnormalities. A strong correlation was found between fetal asphyxia and P.I.H., postdatism, P.R.O.M., cord complications etc. 208 patients were delivered by caesarean, 130 patients by application of forceps and ventouse, while 154 patients were allowed to deliver vaginally without any aid. Cases of marked foetal bradycardia and/or thick meconium and foetal distress in first stage were mostly delivered by caesarean section.

### INTRODUCTION

Foetal distress is a state of foetal jeopardy, that if undetected and untreated leads to foetal death or causes significant neonatal morbidity and mortality. Presence of meconium in amniotic fluid and alterations in the foetal heart sounds are the traditional methods of diagnosing foetal distress in labour.

During the last few years relatively new biochemical and electronic methods

of foetal monitoring during labour have allowed a more accurate analysis and a reevaluation of the old classical signs of foetal distress. However, these techniques may not be freely available in all hospitals and also have been associated with an increase in the operative interference.

In this study, we have analysed 492 cases of foetal distress diagnosed in labour and the various modes of managing these cases.

**OBSERVATIONS**

The study was carried out in Sassoon General Hospital over a period of one year (1993-94). Cases of cephalic presentation at term are included in this study.

**INCIDENCE**

Out of 6526 deliveries in this study year, 492 cases developed foetal distress in labour (7.53%). Of these 194 cases (39.5%) were registered and 298 (60.5%) were unregistered cases. Also foetal distress developed more commonly in primigravidae (67.9%) than multigravidae (32.1%) (Table No.I).

**ASSOCIATED RISK FACTORS**

The patients in this study group (492) were evaluated for associated risk factors which may contribute to foetal distress.

As shown in Table-II pregnancy induced hypertension and eclampsia (30.2%) prolonged rupture of membranes (17.2%) acceleration with Pitocin (11.3%), prolonged labour (7.7%) IUGR. (6.9%), cord complications (7.3%) and postdatism (6%) were common contributing factors. In some cases there were combination of factors.

**Table No.I**  
**INCIDENCE AND PARITY-WISE DISTRIBUTION**

Total, Full term deliveries.	Foetal distress	%	Primis	Multi gravidas
6526	492	7.53	334 (67.9%)	158 (32.1%)

**Table No.II**  
**ASSOCIATED RISK FACTORS**

S.No.	Risk Factor	Cases	%
1.	Hypertension and eclampsia	149	30.2
2.	Prolonged rupture of membranes	65	13.2
3.	Pitocin acceleration	56	11.3
4.	Prolonged labour	38	7.7
5.	I.U.G.R.	04	6.9
6.	Cord Complications	36	7.3
7.	Postdatism	30	6
8.	Other APH, Anaemia, Unknown factors.	126	25.4

**SIGNS OF FOETAL DISTRESS**

Thin meconium staining (29.3%), thick meconium (14.2%) foetal heart abnormalities (20%) and combination of foetal heart changes with meconium (36.5%) were the signs taken as diagnostic criteria for foetal distress.

Foetal bradycardia (141 cases) and bradycardia with variable foetal heart sounds (102 cases) were commonly found than foetal tachycardia (19 cases) and tachycardia with variable foetal heart sounds (16), but in 214 cases foetal heart rate was normal in spite of liquor being meconium stained; and in 98 cases there were foetal heart abnormalities only with liquor being clear.

As shown in Table-III, combination of thick meconium and foetal bradycardia (62.2%) was commonly found and was considered seriously.

**MODE OF DELIVERY**

Cases of foetal distress were managed depending on the stage of labour and degree of foetal distress. First stage foetal distress was managed more commonly by caesarean section (175), while second stage distress was managed mostly by vaginal delivery (169 cases) including 95 forceps and 20 ventouse applications.

**NATURE OF DISTRESS AND MODE OF DELIVERY**

Spontaneous vaginal delivery was the method of choice (70.8%), when liquor was thin meconium stained as against caesarean in cases of thick meconium in liquor.

**DISCUSSION**

Foetal distress in a symptom complex

**Table III**  
**Diagnostic Criterias for Foetal distress**

Foetal Heart abnormalities	Quality of meconium			
	Thin Meconium	%	Thick meconium	%
Normal F.H.R. (214)	144	67.2	70	32.8
Bradycardia (95)	36	37.8	59	62.2
Tachycardia (13)	7	53.8	6	46.2
Variable (72)	33	45.8	39	54.2

indicative of a critical response to stress. Foetal distress implies metabolic derangements including hypoxia and acidosis, that affect essential body functions to the point of temporary or permanent injury or death.

The influence of labour on the foetus, who is already at risk adds to the likelihood of asphyxial insult. Prompt recognition and appropriate management of distressed labour is imperative in order to improve perinatal outcome.

In this study, we have analysed 492 full term patients who had intrapartum foetal distress with the aim to find the incidence of foetal distress to detect the risk factors and to analyse the various methods of deliveries.

The incidence of foetal distress in our study (7.53%) was comparable to the incidence reported by Walker (1959) as 5.5% and Fenton and Steer (1962) as 9.9%.

Beard and Clayton (1971) had 53.9% unregistered cases as compared to 60.5% in our study. Prelabour assessment, detection of risk factors like P.I.H., anaemia, contracted pelvis and other medical disorders reduced the incidence of foetal distress in registered group.

#### **Predisposing factors:**

Beard and Clayton (1971) and Dalvi and Mayadeo (1994) had correlated foetal distress to high risk factors like pre-eclampsia, postmaturity, antepartum haemorrhage, oligohydramnios, prolonged labour etc. In our study PIH, prolonged rupture of membranes, oxytocin acceleration prolonged labour, cord complications, I.U.G.R., postdatism, APH etc. contributed to development of foetal distress in labour (Table II).

#### **Diagnosis of foetal distress :**

In our study 80% cases had meconium in liquor. Roy Chaudhari (1965) also reported 87.7% cases with meconium stained liquor in his study.

Foetal bradycardia, which is due to anoxia was common observation (50.7%) in our study group. During course of labour increased intracranial pressure due to moulding stimulated the periosteum, duramater and tentorium. This pressure and the neural reflex was responsible for the great majority of slowing of foetal heart during labour. Gupta S. (1984) and Dalvi & Mayadeo (1994) detected 26.5% and 40% cases respectively as cases of foetal bradycardia in their studies.

Combination of meconium staining and foetal heart abnormalities was found in 36.5% cases of foetal distress in our study. Foetal bradycardia was associated with thick meconium (62.2%) while thin meconium was commonly associated with normal foetal heart rate (67.2%). Krebs (1980) also had abnormal foetal heart rate patterns with meconium in 30.6% cases. In our study, importance was given to cases with combination of factors than to an isolated factor.

#### **Mode of delivery :**

The choice of method of delivery depended on various factors like associated risk factors, nature of distress diagnosed, stage of labour and response to preliminary treatment given like oxygen inhalation, left lateral position, omission of pitocin and tocolytic drugs.

As shown in Table IV, caesarean section (42.2%) was done more commonly than forceps delivery (21.2%) in cases of foetal distress. In 31.5% cases labour was allowed

**Table IV**  
**MODE OF DELIVERY**

Stage of Labour	Cases	Mode of Delivery			
		Spontaneous Vaginal	Forceps	Ventouse	LSCS
First stage (Latent phase)	132	30 (22.7%)	-	-	102 (77.3%)
First Stage (Active phase)	158	70 (44.3%)	9 (5.6%)	6 (3.7%)	73 (46.9%)
Second Stage	202	54 (26.7%)	95 (47%)	20 (9.9%)	33 (16.4%)

**Table V**  
**NATURE OF DISTRESS AND MODE OF DELIVERY**

Nature of Distress	Mode of delivery				
	Spontaneous Vaginal	Forceps	Ventouse	LSCS	
Thin Meconium (144)	102 (70.8%)	17 (11.8%)	10 (6.9%)	15 (10.4%)	
Thick Meconium (70)	14 (20%)	20 (28.5%)	7 (10%)	29 (41.4%)	
F.H.R. Abnormalities (98)	21 (21.4%)	32 (32.6%)	4 (4.1%)	14 (14.2%)	
Combined signs (180)	15 (8.3%)	35 (19.4%)	5 (2.7%)	123 (68.3%)	

to progress without any intervention, with a spontaneous vaginal delivery. Bhide et al (1993) had 55.2% incidence of vaginal delivery against 24.1% cases requiring caesarean for foetal distress. In our study, higher caesarean rate (42.2%) can be attributed to a higher incidence of patients being referred from peripheral hospitals and to the reluctance to allow vaginal delivery, whenever foetal distress was detected in early labour.

The caesarean section rate was 77.3% for cases of foetal distress developed in latent phase of first stage as against 46.2% in active phase of first stage of labour. In rest of the cases labour was allowed to proceed and patients were delivered vaginally with or without forceps or ventouse after proper assessment.

Second stage foetal distress was managed mostly by forceps or ventouse (56.9%) as against caesarean in only 16.4% cases.

**Nature of distress and mode of delivery:**

In cases with thin meconium, vaginal

delivery was preferred (70.8%) while caesarean was preferred in cases who had thick meconium (Table V).

In cases where combination of factors were present caesarean was method of choice for delivery (68.3%).

Thus we agree to the statement of Fenton and Steer (1962) that in the presence of bradycardia and passage of thick meconium, delivery should be effected in 30 minutes.

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