

# Effect of Foetal Station at the Onset of Labour on the Cervimetric progress in a Primigravida

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**Summary:** The cervimetric progress of labour was monitored in 150 full term primigravidae in early labour. The cases with obvious CPD and premature rupture of membranes were not included in the study. The mean duration of different stages of labour and the incidence of dysfunctional labour were higher with higher foetal stations. The mean cervical dilatation rate was 0.90 cm/hr in free floating head as compared to 2.43 cm/hr for 0 station group. The incidence of interventional delivery like forceps application and caesarean section was higher in higher stations.

## Introduction:

Most institutions have adopted the policy of active management of labour thus decreasing the maternal and perinatal mortality and morbidity.

A significant proportion of primigravidae present with unengaged heads or high station of the vertex at the onset of labour. The duration of different stages of labour are longer in patients with unengaged heads as compared to those with engaged heads, though a substantial proportion of them deliver vaginally. The present study has been carried out to find out the relationship of foetal station, at the onset of labour in primigravidae, with cervimetric progress and the outcome of labour, the nature of delivery and maternal and foetal well being.

## Material and Methods:

One hundred & fifty full term primigravidae having cephalic presentation in early first stage of labour with intact membranes at different stations of vertex were included in the study. The cases having obvious CPD and other complications of pregnancy were not included. The cervimetric progress was observed by doing a PV ex-

amination every two hours.

Dysfunctional labour was identified, using criteria modified from suggestions by Friedman (1971) and Studd et al (1982) as follows:

### *Prolonged Latent Phase:*

More than 6 hours from the time of admission to the time of beginning of active phase.

### *Primary Dysfunctional Labour:*

Protracted active phase with cervical dilatation rate (CDR) < 1.2 cm/hr and protracted descent < 1.0 cm/hr

### *Secondary Arrest:*

1. Secondary arrest of dilatation for more than 2 hrs.
2. Arrest of descent > 1 hr and/or failure of descent in second stage of labour.

## Observations:

Table I shows the distribution of cases according to foetal station and their mode of delivery.

Table-I

Distribution of Cases According to the Station of Foetal Head and Their Mode of Delivery.

Station	Number	Normal Vaginal delivery		Forceps		LSCS	
		No.	%age	No.	%age	No.	%age
FF	19	8	42.1	3	15.8	8	42.1
-3	31	18	58.1	7	22.6	6	19.3
-2	56	48	85.7	5	8.9	3	5.4
-1	24	21	87.5	2	8.3	1	4.2
0&below	20	20	100.0	0	-	0	-
	150	115	76.7	17	11.3	18	12.0

In all 115 patients i.e. 76.7% delivered vaginally, 11.3% forceps application and 12% by LSCS.

There was a need to resort to forceps application or do LSCS in nearly half the cases in higher foetal station i.e. free floating (FF) & -3. In patients in FF & -3 groups 15.8% and 22.6% respectively were delivered by forceps and 42.1% and 19.3% had to undergo caesarean sections.

Normal labour was seen in only one third of the cases. Only 5.2% and 3.2% in FF and -3 group showed normal cervimetric progress (i.e. CDR of 1 cm/hr in active phase), whereas incidence of normal labour was 95% when foetal station was 0 or below at the time of admission.

Prolonged latent phase was seen in most of the cases with higher foetal station i.e. 89.5% in FF and 93.5% in -

**Table-II:**  
**Mean Duration of Different Phase of Labour with Respect to Foetal Station.**

Station	Latent Phase (hrs)	Acceleration Phase (hrs)	Max. Slope (hrs)	Active Phase (hrs)	Second Stage (hrs)	Total Duration	CDR cm/hr
FF	11.21	2.53	5.00	7.53	0.92	19.44	0.90
-3	10.97	2.21	5.31	7.52	0.95	19.47	0.93
-2	7.79	1.60	4.60	6.19	0.64	14.73	1.17
-1	6.25	1.10	3.65	4.75	0.53	11.64	1.65
0	5.10	0.73	2.85	3.58	0.44	9.24	2.43

**Table-III:**  
**Incidence of Dysfunctional Labour with Different Station on Admission.**

Station	Prolonged Latent Phase		Primary Dysfunctional labour		Secondary Arrest		Normal	
	No.	%	No.	%	No.	%	No.	%
FF	17	89.5	7	36.8	9	47.4	1	5.2
-3	29	93.5	16	51.6	9	29.0	1	3.2
-2	34	60.7	11	19.6	3	5.3	17	30.4
-1	8	33.3	5	20.8	1	4.1	14	58.3
0	1	5.0	0	-	0	-	19	95.0
	89		39		22		52	

The mean total duration of labour was longer in higher stations i.e. FF & -3 as compared to lower stations i.e. -2, -1 and 0 ( $p < 0.05$  by 't' test)

The mean duration of latent phase, acceleration phase, maximum slope, active phase and second stage were all longer in higher stations as compared to lower stations. ( $p < 0.05$  by 't' test).

The mean cervical dilatation rate (CDR) in active phase was 0.90 & 0.93 in FF and -3 groups as against 2.43 in 0 station group.

3 groups whereas it was seen in 60.7% in -2 group, 33.3% in -1 group and in only 5.0% with foetal station 0.

Prolonged latent phase was seen in 89 cases; of these 33 delivered vaginally normally. In another 33 cases, who developed primary dysfunctional labour, augmentation was done with ARM and oxytocin. Of these 25 delivered vaginally, 7 with forceps and 1 with LSCS.

In another, 22 cases, following prolonged latent phase, secondary arrest of labour was seen. ARM with oxytocin supplementation was done in them. Of these, 7 (5%)

cases were delivered by forceps and the rest 15 (10%) by LSCS.

Higher incidence of maternal exhaustion and maternal complications like PPH, vaginal tears and retained placenta was found in higher stations as compared to station 0 group.

The proportion of neonates born with Apgar score of 5 or less was higher in FF and -3 group i.e. 26.3% and 19.4% as compared to 4.1% and 0.0% in -1 and 0 groups.

The mean birth weight in FF & -3 group was 3.14 kg. and 3.05 kg. as compared to 2.79 kg. in -1 and 0 groups.

### Discussion:

Shirotri and Ray (1994) have reported that the duration of different phases of labour is longer for station -3 as compared to station 0. The findings of the present study are comparable.

Prolonged latent phase was the most common disorder seen in 89.5% in FF and 93.6% in -3 group in this study which is similar to 90% in -3 group reported by Shirotri and Ray (1994). These figures are considerably higher than those reported by Friedman and Sachtleben (1965) due to difference in criteria followed in defining latent phase.

The incidence of primary dysfunctional labour and secondary arrest of labour was higher in FF and -3 group as compared to 0 foetal station group as was also seen by Shirotri and Ray (1994).

The cervical dilatation rate ranged from 0.90 cm/hr in FF group to 2.43 cm/hr in 0 group.

The incidence of normal vaginal delivery was only 42.1% and 58.1% in FF and -3 groups respectively as compared to 100% in 0 station group in this study. The incidence of caesarean section was 42.1% in FF group. The higher incidence of caesarean section was also reported by Friedmann and Sachtleben (1965) in higher foetal stations and also by Stipp (1969).

The incidence of maternal complications and perinatal morbidity in higher foetal stations was higher as compared to lower stations though not so significantly due to active management of labour. Steer et al (1985) and Frank (1990) have reported that appropriate use of augmentation of labour had no adverse effect on perinatal mortality while decreasing the duration of labour.

The progress of labour appears to be slow in a substantial proportion of primigravidae with unengaged heads at the onset of labour. Therefore, active and timely intervention in such patients will minimize the maternal and perinatal morbidity.

### References:

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