STUDY OF COURSE OF LABOUR BY USING PARTOGRAPH

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Abstract :

Introduction : Partograph is an essential tool in monitoring the progress of labour. It helps to detect the abnormal progress of labour. It guides the obstetrician to decide the need for augmentation of labour and provide timely surgical intervention where required. **Objectives:** The objectives were to study the course of normal and abnormal labour using partograph and to evaluate the maternal and perinatal outcome. **Methods :** A total of 100 patients coming for delivery were selected for the study and records were commenced at 4 cm dilatation. Close fetal and maternal monitoring was done throughout the labour and partograph was plotted to detect any deviation from normal course. **Results :** Based on the partograph findings , the patients were grouped into 'before alert line' , 'between alert and action line' and 'touching the action line '. Out of total 100 deliveries, 90 delivered vaginally and 10 underwent lower segment caesarean section (LSCS). Most common cause in patients belonging to the group 'between alert and action line' was inadequate uterine contractions. Most common cause in patients belonging to the group 'touching action line' was cephalopelvic disproportion. Average rate of cervical dilatation in nulli para was 1.76 per hour, in primi para was 2.13 per hour , in para 2 was 2.16 per hour and in para 3 and above was 2.56 per hour. **Conclusions:** Partograph improves the quality of delivery care, since it permits to identify dystocia and make effective interventions. Routine use helps in detection of abnormal course of labour. It assures the better maternal and perinatal outcome.

Key Words: Action line, Alert line, Labour, Partograph, Maternal outcome.

Introduction : The partograph is a very useful graphical record of the course of labour that yields optimum results when employed in labour management by obstetric caregivers. Evidence abounds that ensuring proper application of the knowledge about partographs would culminate in a remarkable reduction in the incidence and outcomes of prolonged and obstructed labour.[1,2] It is associated with 8-10% of maternal deaths and mechanical obstruction in the second stage is a possible complication in 1-2% of labours.[3] The use of partographs would ensure gross reduction in the number of these deaths since abnormal markers in the progress of labour would be identified earlier.[4]

Labour complications are important cause of mortality, morbidity and long term disabilities for both mothers and babies.[5] The partograph is a graphical presentation of the progress of labour and fetal and maternal condition during labour. Partograph is an essential tool in monitoring the progress of labour. It helps to detect the abnormal progress of labour. It guides the obstetrician to decide the need for augmentation of labour and provide timely surgical intervention where required. It is the best tool to detect whether the labour is progressing normally or abnormally, and to warn the obstetric care givers as soon as possible, if there are signs of fetal distress or if the mother's vital signs deviate from the normal range. Research studies have shown that maternal and fetal complications due to prolonged labour were less common when the progress of labour was monitored by the birth attendant using a partograph.[6]

The partograph provides health care professionals

with an overview of the labour to allow early identification and diagnosis of pathological labour. The World Health Organization recommends use of partograph during labour and delivery, with the objectives to improve health care and reduce maternal and fetal morbidity and death.[7]

The goal of this study is to use partograph to monitor labour, initiate uterine activity that is sufficient to produce cervical change and fetal descent while avoiding uterine hyperstimulation, hypostimulation and fetal distress and provide timely surgical intervention where required.[8] Easy and early recognition of poor progress of labour with the use of partograph and the prevention of prolonged labour significantly reduce the risk of PPH and sepsis, and eliminate obstructed labour, uterine rupture and thereby reduce the maternal mortality.[9]

Aims and Objectives : The aim was to study the course of normal and abnormal labour and to evaluate the maternal and perinatal outcome.

The Objectives Were :

1) Early detection of abnormal progress of labour.
2) Prevention of prolonged labour.
3) Recognize CPD long before obstructed labour.
4) Assist in early decision on augmentation or termination of labour.
5) Evaluation of maternal and neonatal outcome.

Materials and Methods : This was a prospective observational study carried out in a study carried out in a hospital over a period over a period of six months i.e. from April, 2017 to September, 2017, after getting ethical clearance. Hundred cases admitted to labour room were randomly selected and monitored using ' Modified WHO Partograph.' All hundred cases reporting to labour room, who were booked with us till term were selected for the study. Records were commenced at 4 cm dilatation. Close fetal and maternal monitoring was done throughout the labour and partograph was plotted to detect any deviation from normal course.

Inclusion Criteria:

- Term gestation
- Vertex presentation
- Singleton pregnancy

Exclusion Criteria:

- Obstetrical complications- Oligohydramnios, Antepartum Haemorrhage, Premature Rupture of Membranes, Intrauterine Growth Retardation, Intrauterine Fetal Death, Preeclampsia, Previous LSCS
- Medical complications- Anemia, Hypertension, Diabetes, Immune Compromised State

Results :

Total of 100 patients were included in this study.

90% of patients delivered vaginally where as 10 % of patients required caesarean section.

Out of 100 deliveries, 26 patients were in the age group <20 yrs, 58 patients were in the age group 21-25 yrs, 15 patients were in the age group 26-30 yrs and only 1 was in the age group > 31 yrs.

According to the position on the partograph, there were total 74 patients before the alert line,all of which delivered vaginally.16 patients were between the alert and action line,out of which all 16 delivered vaginally, whereas 10 patients were touching the action line who needed LSCS.(Table no 1)

Table no 1: Distribution according to position on the partograph

Position on the partograph	Total Number of patients	Vaginal delivery	LSCS
Before the alert line	74	74	00
Between alert & action line	16	16	00
Touching the action line	10	00	10

There were 16 patients between alert and action line and 12 of them were having hyptonic uterine contractions and 4 were having cervical dystocia. (Table no 2)

Out of the 10 patients who had touched the action line and needed LSCS, 6 were having cephalo pelvic disproportion and 4 were having meconium stained liquor. (Table no 3)

Table no 2: Distribution according to the position on the partograph and factor responsible for the position

Position on the partograph	Total Number of patients	Factor responsible for the position			
		Cephalo pelvic disproportion	Meconium stained liquor	Hypotonic uterine contractions	Cervical dystocia
Between alert & action line	16	00	00	12	04
Touching the action line	10	06	04	00	00

Table no 3: Distribution according to the indication of LSCS

Indication of LSCS	Total Number of patients
Cephalo pelvic disproportion	06
Meconium stained liquor	04

In patients with < 5 cm dilatation at the commencement of the partogram,it was observed that out of 74 patients ,68 delivered vaginally and 6 patients needed LSCS. Whereas patients with >7 cm dilatation, all patients delivered vaginally.(Table no 4)

It was also observed that with station lower than -2 and baby weight < 2.5 kg, the chances of vaginal delivery were more compared to LSCS. (Table no 4)

Table no 4 : Distribution according to cervical dilatation and station at commencement and baby weight with mode of delivery.

	Total Number of patients	Vaginal delivery	LSCS
Cervical dilatation at the commencement			
<5 CM	74	68	06
5-7CM	18	14	04
>7 CM	08	08	00
Station at the time of commencement			
-3	43	33	10
-2	39	39	00
-1	15	15	00
0	03	03	00
+1 and below	00	00	00
Baby weight			
<2 kg	04	04	00
2-2.5 kg	30	30	00
2.5-3 kg	43	40	03
3-3.5 kg	15	12	03
>3.5 kg	08	04	04

It was observed that, the average duration of labour in nulli para, primi para, para 2 and para 3 and above was 3 hours,2 hours 50 mins, 2 hours 55 mins and 1 hour 50 mins, respectively.(Table no 5)

Also, the average rate of cervical dilatation in nulli para, primi para, para 2 and para 3 and above was 1.76 cm/hr, 2.13 cm/hr, 2.16 cm/hr and 2.56 cm/hr, respectively.(Table no 5) Table no 5: Parity wise distribution of mean duration of labour, average rate of cervical dilatation and mode of delivery.

Parity	Mean Duration of labour	Average rate of cervical dilatation (cm/hour)	Total Number of patients	Vaginal delivery	LSCS
Nullipara	3 hours	1.76	51	46	05
Primipara	2 hours 50 mins	2.13	36	32	04
Para 2	2 hours 55 mins	2.16	08	07	01
Para 3 & above	1 hours 50 mins	2.56	05	05	00

Injection drotaverin and injection valethamate was given to 48 patients and labour analgesia in the form of injection neomol or injection tramadol was given to 25 patients.

Injection oxytocin was given to 75 patients,out of which 72 delivered vaginally and 3 required LSCS.

Discussion : In 1954, Friedman first reported graphic representation of progress of labour and Philpott developed the first formal partograph which combined the details given by Friedman. Philpott and Castle introduced the concept of 'ALERT ' and ' ACTION ' lines.The graphic form introduced by Philpot and Castle showed that once the alert line is crossed . the attendant is alerted of the possibility of an abnormal situation and crossing of the action line effectively separates the dysfunctional or abnormal labour requiring immediate action. In Philpott's prospective study , it was observed that 92.30% cases ,who delivered before alert line, had spontaneous vaginal delivery and 6.1% had caesarean section. Ventouse was applied in 1.5%. Among those who crossed the alert line, 61.90% had normal vaginal delivery and 33.3% had caesarean section and ventouse was applied in 4.7%. Among the women crossing the action line, 21.40% had normal vaginal delivery, 71.4% had caesarean section and ventouse was applied in 7.1%.[10]

Shortri A.N.et al (1991) in her study observed that 79.9% patients delivered vaginally and 5.7% required caesarean section, before alert line was crossed. The incidence of caesarean section was 26.7% in those cases whose alert line was crossed. The observation in all the above series show that the surgical operative interference is increased as the labour curve moves to the right of the alert line and it is significantly increased as the labour curve crosses the action line.[11]

In our present study, 100 patients were included, of which 90 underwent vaginal delivery and 10 underwent LSCS.

Out of 100, 74 patients were before the alert line, 16 were in between alert and action line and 10 were touching the action line. Out of the 16 patients who were in between alert and action line,8 were due to hypotonic uterine contractions. Augmentation of labour was done with injection Oxytocin.

Out of the 10 LSCS, 6 were due to CPD and 4 were due to meconium stained liquor.

In this study of 100 patients, none of the newborns required NICU care or ventilator support.

Injection Oxytocin was started in 75 patients out of which, 26 patients were having hypotonic uterine contractions, where Oxytocin was used to augment the labour.

It was observed that, the average duration of labour in nulli para, primi para, para 2 and para 3 and above was 3 hours,2 hours 50 mins, 2 hours 55 mins and 1 hour 50 mins, respectively.(Table no 5)

Also, in our study, the average rate of cervical dilatation in nulli para, primi para, para 2 and para 3 and above was 1.76 cm/hr, 2.13 cm/hr, 2.16 cm/hr and 2.56 cm/hr, respectively.(Table no 5)

The average rate of cervical dilatation was 1.3cm/hour in primi gravida and 1.7cm/hour in multigravidas in a study conducted by Bangal V et al.[12]

The average rate of cervical dilatation in primi gravidae was 1.7 cm/hour in a study conducted by Sizer AR et al.[13]

Also, it was observed that the incidence of LSCS increased as the labour curve moved towards the right, towards the action line. Similar observations were seen in other studies as well.[11,12]

Conclusion : Graphic record of labour increases the quality of regularity of observations on the mother and fetus, provide early warning for the abnormal progress and assist in early decision for referral, interventions and termination of labour. Partograph improves the quality of delivery care, since it permits to identify dystocia and make effective interventions. The 'Safe Motherhood' initiative

emphasizes that the monitoring of labour for early detection of dystocia is one of the most important approaches for reducing maternal and neonatal mortality.[13]

From the observations of the present study, we conclude that the routine use of partograph helps in detection of abnormal course of labour. It assures the best maternal and perinatal outcome. It is suggested that every woman in labour must be benefited by this scientific approach of labour management i.e. with the use of Modified WHO partograph.

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