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A study on Partographic management of labour at a tertiary care hospital

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Abstract
The Partographic control of labour has now outdated an impression of normal labour based upon the palpation of uterine contractions and occasional vaginal examination. Progress of labour has now been strictly documented by statistic graphical means based upon progressive cervical dilatation. The 200 cases contains study group of 100 primiparas and 'control group of 100 primiparas with no medical or obstetrical complication in either group. The 100 cases of study group were managed by partogram. Cases were selected randomly and Labour pattern of all cases was studied. There is a significant increase in the number of operative deliveries as the duration of labour increases. In 100 cases (control) 33 (80.48) delivered spontaneously. 2(4.87%) required forceps and 6(14.63%) required caesarean section when the labour of within 12 hr. Among 59 cases (control) in labour for more than 12 hours, Only 30(50.84%) delivered spontaneously while 14 (23.72%) required forceps and 15(25.42%) required caesarean section.

Keywords: Partographic control of labour, normal labour, caesarean section

Introduction
Midwifery, which was considered a skillful art, has over the years given way to the science, which is more, and more action and result oriented. As a matter of fact no other branch of medicine has been subjected to such close scrutiny as that of obstetrics. During the last two decades management of labour has become more scientific and rational resulting in significant reduction in Maternal and Perinatal morbidity and mortality. In today's jet age both the obstetrician as well as the woman in la. our would like to accomplish the delivery in the shortest possible time, comparable with the safety of both the mother and the baby, any measures that would hasten labour without adding to the maternal and perinatal morbidity and mortality are most welcome [1, 2].

The concept of watchful expectancy, which is very unpopular among the action oriented obstetricians, has been completely replaced, and in modern obstetrics practice, the achoutcher is considered an active, participant in the management of labour rather than a passive observer. Indeed our first attention was drawn by Philpott (1972) when he published his paper based on extensive study of labour in African women [3]

As a result of invaluable contibution by Philpott, Studd and Driscoil management of labour has been developed to the extent that assurance can be given to every woman in labour that her first baby will be born within twelve hours. This has led to a welcome change in the present attitude, because mere prospects of prolonged labour is often a cause of serious concern specially during the first pregnancy. Acceleration of labour is an accepted fact in present day obstetrics. Labour of strictly limited duration makes it possible for every woman to keep her morale up, which is an invaluable factor in the management of labour and its outcome and thus reduce maternal and perinatal mortality and morbidity [4].

It may seem strange that management of labour remains an area of controversy and that the treatment or even the diagnosis of C.P.D., an area of debate. Studd has correctly written that "This is a most confused area, as the standard definitions are poor and the diagnosis is still used too frequently and incorrectly in order to justify a caesarean section. The traditional definition relating the diagnosis to the size of the baby or the size arid shape of the pelvis is not helpful as it must be emphasized that CP.D. is a 'functional diagnosis' related to efficiency of labour rather than a diagnosis based upon centimeters or kilograms [4].

The Partographic control of labour has now outdated an impression of normal labour based upon the palpation of uterine contractions and occasional vaginal examination. Progress of labour has now been strictly documented by statistic graphical means based upon progressive cervical dilatation [5]

However the concept of Active Labour in conjunction with graphic labour record has been accepted but "Second thoughts" about the wisdom of acceleration of labour have been voiced by many obstetricians [6].

While in most of the African maternity hospitals and about half of the teaching hospitals in United Kingdom; partogram has become an accepted means of managing the labour; it has still to find a place in other developing countries and United States of America. This is a surprising omission when one considers the origin of the initial graphic analysis of labour [7].

Like other developing countries India also has shortage of doctors. Their distribution is such that although big cities are well covered but the rural areas have a doctor population ratio of 1:15000, or even less at some places. There is therefore, necessity for the medical profession to utilize midwives and maternity assistants extensively. In this situation one of the functions of the University department of Obstetrics is to provide training for the midwives and to establish simple and accurate guide lines for them. Thus those parturients who are not at risk and uncomplicated are screened and can be dealt with by these paramedical people, and those at risk, with some complication already existing or at an early indication of some aberration in labour pattern, can be transferred to a relatively well equipped hospital. This is only possible when the serious complication, which is going to occur during the dynamic process of labour is forecasted sufficiently early, so that one has adequate time for transferring the patient [8].

Cephalo-Pelvic-Disproportion end inefficient uterine contractions are two of the biggest problems in obstetrics. The main difficulty is not only that of evaluating the degree of C.P.D but also that of teaching the midwives and medical students; how best to assess these patients specially in a rural set-up.

Excluding the gross and severe pelvic contraction, mild or moderate pelvic contraction is very difficult to determine. It requires considerable experience, in spite of which it remains a subjective phenomenon. On the other hand forecast any aberration in the normal labour pattern sufficiently early, accurately and objectively, with little training in this field. Thus the neonatal morbidity as a result of prolonged labour and excessive moulding may be overcome.

The conduct end monitoring of labour have improved and as perinatal, maternal mortality have diminished increasing attention is being directed to the quality of infant being delivered.

The Partographic management of labour in our country should be most welcome as majority (79%) of our population lives in rural areas where the facilities are usually scarce [9].

"It is stated that life starts before the individual is born arid prenatal 38 weeks are medically more important than next 38 years of life and much of the damage may be caused to the baby, who have enjoyed good foetal health, during the process of delivery if not managed properly'.

And so the present work is aimed at the study of Partographic management of labour at, Government General Hospital.

Methodology

The present study consists of 200 primiparas with full term pregnancy in a spontaneous labour with cephalic presentation in Government General Hospital.

The 200 cases contains study group of 100 primiparas and 'control group of 100 primiparas with no medical or obstetrical complication in either group. The 100 cases of study group were managed by partogram. Cases were selected randomly and Labour pattern of all cases was studied.

Presentation, position, engagement of presenting pert and fetal heart rate were recorded on a graph paper. Blood pressure and pulse were also recorded on the same graph at an appropriate place.

Vaginal examination was carried out under all possible aseptic precautions, special note was taken of cervical dilatation. This cervical dilatation was charted at zero hour. The cases with cervical dilatation 7 cms or more were not taken for study.

The central graph (cervico-graph) of artogram was divided into 2 parts. A part was meant for latent phase upto 8 hours until cervix was 3 cms dilates. The rest of the graph was used for active phase. From 8 hours onwards Alert line was inserted, which started at 3 cms dilatation. This line was made progressing at the rate of 1 cm/hr. Two hours to right of this, Action line was inserted.

Cervical dilatation of the patient who came with more than 3 cms dilatation was recorded on Alert line at appropriate dilatation and the time indicated below as considered as zero hour or it was recorded at zero hours on the left side of the graph and the A1ert line was inserted there only. This not at all depicting the latent phase.

Patients who were admitted with 3 cms or less dilatation, the cervical dilatation was recorded on the extreme left of the cervicograph.

Membranes were ruptured and oxytocin drip was started, if the contractions were not adequate during Active phase. In some of the patients acceleration was done during latent phase also. ARM was done at the earliest possible opportunity and oxytocin drip was started, according to recommendation of Studd. Few cases refused IV drip so it could not be started for them at the time indicated.

After charting the dilatation and other maternal and foetal conditions. It was decided when to do next pelvic examination. In latent phase it was done 4 hours later and during Active phase 2 hourly examination was done.

Engagement of head was examined in terms of Fifth palpable/Abdomen. Presence of absence of Membranes was denoted in the proper column of membranes were absent liquor was seen for meconeum staining.

Abdominal delivery was decided upon for all cases of foetel distress during first stage of labour and forceps was applied during second stage, if all the criteria for outlet forceps were fulfilled.

In study group maximum period allowed for second stage was 30 minutes with good uterine contractions provided it was not occipitoposterior for occipitoposterior 2 hours time was given assessing the rotation of head if it was not rated within this time immediate delivery was effected either by L.S.C.S.

APGAR score was recorded in all cases at the end of 1 mm and 5 mm. All the patients with their infants were followed upto the time of discharge from the hospital. It was recorded whether patients were discharged with live baby in good health or baby expired before discharging the patients and it was also noted that whether the patient had any febrile illness during this time.

Control cases were the cases which were managed conventionally and not by partogram. Charts of 100 primiparas were reviewed. Patients who were admitted with less than three centimeters cervical dilatation, were considered to be in latent phase and those with cervical dilatation 3 Cms or more were considered to be in active phase a per recommendation of Philpott. Acceleration by any means was not done in this group of patients.

Results

Table 1: Study group – Cervical dilatation at admission

Cervical dilatation at admission	No. of patients
1	07
2	20
3	33
4	23
5	15
6	02
Total	100

Table 2: Study group - Mode of Acceleration

	Latent Phase	Active Phase
No. of patients	27	73
Acceleration done	22 (81.48%)	65 (89.04%)
- ARM	13 (48.14%)	56 (76.71%)
- Pitocin	01 (3.70%)	-
- Both	08 (29.62%)	09 (12.32%)

81.48% of patients in latent phase and 89.04% of patient in active phase were accelerated, as the above Table shows.

Study Group – Apgar Score

Less than 7/10 at 1 minute - 5 cases
Less than 7/10 at 5 minute - 2 cases

Table 3: Study group – Details of observation of Labour

Parameter	Mean	Mode	Median	M.D*	S.D**	Range
Cervical dilatation at admission in cms	3.45	3.00	3.00	1.02	1.21	1-6
Duration of labour in hours	6.06	3.5	5.37	2.85	3.56	1.16-15
Rate of cervical dilatation in cm/hr in active phase	1.81	2	1.5	0.78	1.08	0.56-5.6

*M.D – Mean Deviation
**S.D – Standard Deviation

The effect of active management of labour has been compared graphic statistically in study and control group.

Table 4: Effect of Active management on duration of labour

Group	No. of Patients	12 Hrs	12-16 Hrs	16 Hrs
Study	100	91	9	-
Control	100	41	10	49

The above table shows a significant reduction in total duration of labour in study group. The mean duration of labour in study group was 6.06 hrs and in control group it was 14 hours. No patients in study group was in labour for more than 16 hours while nearly half patients in control group were still undelivered at the end of 16 hours.

Table 5: Duration of labour V/S Mode of delivery

Group	Duration of Labour	No. of Cases	Mode of Delivery		
			Spontaneous	Forceps	Caesearen
Control 100 cases	<12 hrs	41	33 (80.48%)	2 (4.87%)	6 (14.63%)
	≥ 12 hrs	59	30 (50.84%)	14 (23.72%)	15 (25.42%)
Study 100 cases	<12 hrs	90	77 (85.55%)	9 (10%)	4 (4.44%)
	≥ 12 hrs	10	7 (70%)	2 (20%)	1 (1%)

The above table shows that there is a significant increase in the number of operative deliveries as the duration of labour increases. In 100 cases (control) 33 (80.48) delivered spontaneously. 2(4.87%) required forceps and 6 (14.63%) required caesarean section when the labour of within 12 hr.
Among 59 cases (control) in labour for more than 12 hours, Only 30 (50.84%) delivered spontaneously while 14 (23.72%) required forceps and 15 (25.42%) required caesarean section.

Table 6: Mode of delivery in Study group and Control group

Mode of Delivery	Study Group		Control Group	
	No.	Percent	No.	Percent
Spontaneous	80	84	63	63
Forceps Outlet	11	11	16	16
Caesarean Section	05	05	21	21
Total	100		100	

The above table shows significant increase in the rate of operative deliveries when the labour was not managed partographically. 84% of patients delivered spontaneously in study group as compared to only 63% in control group. 11% patients in study group required forceps as compared to 16% in control group and only 5% patient in study group required, abdominal delivery as compared to 21% in control group.

In our series with the Policy of Partographic Active management of labour incidence of forceps is reduced from 16% to 11% and incidence of caesarean section is reduced from 21% to 5%. Since labour is accelerated by Amniotomy and/or oxytocin. The total duration of patients stay in labour room is reduced significantly.

Discussion

Measures that would hasten labour without adding to the maternal and perinatal morbidity and mortality are most welcome. The whole idea of Active management of labour is to see that the method is safe for both mother and her baby and is result oriented. The term Active management of labour is self-explanatory. "Active management' is achieved by ensuring normal efficient uterine action. Intensive monitoring of fetal heart rate pattern and uterine contractions is an integral part of active management of labour without which oxytocin should never be administered. After having established the diagnosis of labour, progress of labour is watched graphically and in an event of unsatisfactory progress as shown in graph patient is reassessed for CPD Malposition and malpresentation especially occipito-posterior. Then amniotomy and controlled I.V. oxytocin is given while continuously monitoring the fetal heart-rate and uterine contractions. Progress of cervical dilatation is assessed every 2 hourly and FHR is assessed every half-an-hour.

In the present series approximately half of the patients were in labour for more than 12 hours1 in control group. This figure is comparable with that of Burly [10], Friedman [11] and Jeffcott [12].
With "Partographic Active Management of Labour" the mean duration of labour was reduced to 6.06 hours i.e. reduced by approximately by 50%. Koller also reported a shorter duration of labour following amniotomy. Kierant O' Driscoll (1973) have reported that 95. 5% of primiparas can be delivered within 12 hours, with the policy of Active management of Labour. In our series 91% of patients were delivered within 12 hours. With this policy only 9% of patients were in labour for more than 12 hours and No patient was labour for more than 16 hours. The following Table shows the duration of labour in actively managed patients in different series.

Table 7: Duration of labour in Actively managed group in different series

Author	No. of Patients	More than 12 hours	Less than 12 hours
'O' Driscoll [13]	1000	4.5%	95.5%
Deejankar [14]	95	8.4%	91.6%
Devantalasingh *et al.* [15]	375	30%	70%
Present Series	100	9%	91%

Our series is well compared with that of Deejanikar (1981) with regard duration of labour in actively managed patients.

Table 8: Study group - Mode of acceleration

	Latent Phase	Active Phase
No. of Patients	27	73
Acceleration Done	22 (81.48%)	65 (89.04%)
- ARM	13 (48.14%)	56 (76.71%)
- Pitocin	01 (3.70%)	-
- Both	08 (29.62%)	09 (12.32%)

As the above table shows 81.4% patients in latent phase and 89.04% patients in active phase were accelerated. These figures are comparable with that of ledger and Witting (1972). This shows that majority of the patients require some form of assistance.
It can be concluded that most of the complications of labour are due to ineffective uterine contraction and cephalopelvic disproportion leading to prolonged labour and thus increasing the maternal and perinatal morbidity and mortality. The problem of ineffective uterine action can be anticipated and managed properly, if policy of "Partographic Active Management" is accepted and CPD can be noted concurrently with this policy.
If the duration of labour (a painful physiological phenomenon) is short, it will produce less untoward effect on the Mother both psychologically a well as physically specially in a primipara by having short labour and easy delivery. 30 her first experience of labour will not be a nightmare. The patient will not have a negative attitude towards further pregnancy.
It is concluded that in all the cases of primiparas omen after careful assessment of foetopelvic disproportion judicious active management of labour added with partogram should be attempted in order to minimize the deleterious effects of prolonged labour on both mother as well as the foetus.
It is further concluded that by "Partographic Active Management of Labour" one can minimize the load on maternity personnel who are having a large catchments area.
Thus in near future the value of partographic active management of labour will be realized by most of the obstetricians and it will be accepted as a routine means of managing the labour efficiently and more scientifically. Thus reducing its various complications such as prolonged labour, forceps and specially caesarean section, which is misused today but it is not realized that it makes her obstetrical future gloomy, because many of them live in rural areas where facilities are usually scares and during next pregnancy she may die of scar rupture or if brought in time she will lose her uterus and reproductive capacity, not to speak of her agony.

Conclusion

In each case in study group, maternal and foetal condition uterine contraction, and cervical dilatation was recorded on a graph paper. In majority (87%) of patients labour had to be accelerated at appropriate time in study group. Labour was not accelerated in control group. The mean duration of labour in control group was 14 hours and in study group with treatment it was found to be 6.06 hours.
In control group 59% of patients were in labour for more than 12 hours, while in study group 90% of patients were delivered of within 12 hours. In control group 63 delivered normally, 16% required forceps and 21% required caesarean section, while in study group, 84% delivered normally, with treatment 11% required forceps and only 5% required caesarean section. Here the policy of 'Partographic Active Management of Labour' has reduced the incidence of operative deliveries.

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