

Changing Trends in Management of Labor

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“A LABOR which is unduly prolonged is likely to give rise to one or more of the three types of distress, namely maternal, fetal or “Obstetricians’ distress”. Of the three, the last may be easily the most dangerous!... “Dawn should not rise twice upon the same labour” - Ian Donald. Practical Obstetrical Problems, Lloyd Luke, London, 1979.

Working as a registrar in one hospital of UK in late '90s, I had to conduct an audit for rising Cesarean Delivery (CD) rate from 11% to 13.6% for that year. We were three registrars working in that hospital. Audit revealed dysfunctional labor due to large baby was one of the lead causes.

Today, Cesarean Delivery (CD) rate has risen in most countries worldwide.¹ Factors for the rise of CD are many. Decreased use of vaginal operative deliveries, increased primary CD with low threshold of labor progress, failed induction of labor, advanced maternal age, increased maternal request and the litigation concerns are the few. WHO has proposed an incidence between 10% and 15% as a target to optimize maternal and perinatal health.² Questions arise how to determine an optimal CD rate keeping in mind the several variable clinical factors as mentioned above. Furthermore, it is to be decided whether we should primarily stress how to limit the CD rates or look into the maternal and perinatal health outcomes following child birth.

Management of labor, be it normal, dysfunctional or with cephalopelvic disproportion is an area of long debate and controversy. Philpott (1972) introduced the initial concept of early warning of abnormal labor by drawing a straight line representing the mean rate of progress of the slowest 10% of patients in the African

population.³ The lower limit was 1 cm per hour in the active phase. It was designated as ‘alert line’. Later on a second line, the ‘action line’ was drawn initially four hours and later on changed to two hours and further changed to four hours to the right and parallel to the alert line.³ With this it was possible to prevent dysfunctional labors. This view was widely accepted. Artificial rupture of membranes (ARM) is performed when the labor is confirmed and the head is four fifth or less is palpable abdominally. ARM is done to assess the state of the liquor or to augment labor when needed. When the labor progress remained to the left of the nomogram or less than two hour to the right, it is considered normal and no augmentation is needed. On the other hand, if the cervical dilatation strays more than two hours to the right of the nomogram, the labor is judged dysfunctional and contractions are stimulated with an intravenous infusion of syntocinon provided malpresentation or cephalopelvic disproportion are ruled out. Benefits are improved fetomaternal outcome and above all, reduction of cesarean delivery (CD) significantly.^{4,3,5} These landmark studies³ provided a clear and defined criteria for midwives working in peripheral clinics who needed to refer woman in labor to the higher facilities. These studies referred to the study of Harare Hospital, Zimbabwe (then Rhodesia). This result coincided with the reports of the National Maternity Hospital, Dublin with active management of labor. The sole objective of ‘active management’ was to achieve birth within a designated time frame using early amniotomy, with or without the oxytocin and one to one labor care.

In 1990s, it was endorsed by WHO as a useful tool for the management of labor. It was accepted globally.

However its utilization and correct completion rate were too low (31% and 3% respectively).

Alert line represents the slowest tenth centile of nulliparous women in labor. Since 2018, WHO initiated a process of revising the partograph keeping in mind the variability of an individual woman in the progress of labor and that ends in good maternal and perinatal outcomes.

Partograph is the graphical representation of the progress of labor in terms of women's cervical dilatation and descent of the fetus presenting part, against time (Philpott & Castle 1972).³ Formal regular recording of important clinical parameters have been maintained covering the well-being of the woman and the baby.

Partograph has been used as the proper tool to make decision during labor with the aim of optimizing the time of referral and interventions.⁶ The cervicograph in the partograph where cervical dilatation is plotted from 4 cm (earlier 3 cm). The acceptable cervical dilatation rate is 1 cm per hour. The alert line represented the slowest tenth centile of the nulliparous women in labor.⁶ The action line is drawn at intervals of 4 hours (earlier 2 hours) to the right and parallel the alert line. The action line was meant to identify abnormal labor. This situation needed medical intervention that may suggest augmentation of labor or urgent delivery based on the underlying abnormality.

Currently several observational studies questioned the validity of one centimeter per hour rate to use as the benchmark for assessing the adequacy of labor progress. One systemic review⁶ failed to assess the usefulness of the objective in optimizing referral of laboring women from rural or primary health care facilities to higher care units. One largest study in the review found a mild increase in the risk of adverse birth outcomes in slow labors compared to fast labor.⁷ Importantly, the measures of identifying pregnant women at risk of developing complications through labor, delivery and immediate post partum are not perfect. It is true that perinatal outcomes are affected by many other reasons that are not related to cervical dilatation rates only.⁸ The alert and action lines failed to identify women at increased risk of outcomes. Labor progression for women in normal labor may not be linear. The relevance of alert line is to allow reasonable time to the health care facilities where interventions such as augmentation or cesarean section cannot be performed and where

referral facilities are difficult to organize to reach the higher level care centre. In sum, there is an urgent need for optimal benchmarks for assessing progress of labor and to make the decision when best to intervene to reduce adverse birth outcomes for the woman and her baby.

The advantage of the partograph in the AMOL is the simplicity of visual display of all the relevant events as recorded. It has its role in teaching and updating the labor care management. Active management of labor has been practiced at the National Maternity Hospital, Dublin for more than 50 years. The institute confirmed the diagnosis of spontaneous labor when cervix was effaced rather than by dilatation.

Progress of labor is strictly defined by the graphical record and interpretation of cervical dilatation and descent of the presenting part.^{7,9,3,4} Sole objective was the detection of delay in labor at an early stage using the reference to cervical dilatation and descent of the presenting part plotting. Dysfunctional labor could be corrected before the onset of prolonged labor or obstructed labor. Dynamics of labor are more important than the mechanics. Friedman's sigmoid shaped curve was divided into latent phase until 3 cm, active phase at the rate of 1 cm/hour and the deceleration phase from 9 cm to full dilatation.

Among all the phases of labor, latent phase is an ill defined area. It is difficult to identify with certainty. It is understood and defined only in retrospect. Duration of latent phase of labor is variable. Overall in primigravida, it is 20 hours (average 8.6 hours) and 14 hours (average 5.3 hours) in multigravida. It is defined as the interval between the onset of labor pain until the cervix is 3 cm changed to 4 cm and now 5cm or 6 cm dilated. In primigravida, it corresponds to the process of cervical effacement. Friedman¹⁰ stated that latent phase should not exceed 20 hours in a primigravida and not to exceed 14 hours in a multigravida. However it is sometimes difficult to distinguish between a prolonged latent phase from spurious labor or pre-labor phase. Therefore it is better to be conservative in approach of management.

National Maternity Hospital, Dublin practiced active management of labor in a different way. The diagnosis of spontaneous labor confirmed by effacement of the cervix rather than by dilatation. Debate arose in 1980 with the concept of active management of labor (AMOL) in lowering cesarean delivery (CD). National

Maternity Hospital in Dublin¹¹ (O'Driscoll et al 1988) and Parkland Memorial Hospital in Texas¹² were the main study centers to evaluate the merits of AMOL in lowering CD rates.

Current concept of partographic labor monitoring is beyond the limited boundaries of clinical assessment of uterine contractions and occasional vaginal examination. Labor Care Guide (WHO) has made several important changes. It emphasizes the need of evidence based practices and at the same time to maintain the woman's dignity, privacy and confidentiality. Following the Labor Care Guide, documentation is initiated once the active phase has been diagnosed. The terminology as alert and action lines, latent and active phases of labor are not used. Many of us feel, modern management of labor should embrace different ways of care and whether not the partogram is used or which rate of progress in labor is used to represent normal labor.⁸ Key to labor management is situational accuracy knowing where one is making the labor progress. Laboring woman need individualized care.¹³ Reason for rising rates of cesarean delivery (CD) are multiple as it is all over the world. Justifying the use of the partograph to lower CD rate remains a dilemma.

More recent data¹⁴ from the Consortium of Safe Labor, revised the definition of normal labor. Active phase of labor is changed to at least 6 cm dilatation. Cervical change is now thought to be slower.¹⁵

The new WHO recommendations are designed for an individual woman's care during the course of labor. The

new labor monitoring tool, "WHO Labor Care Guide"¹⁶ directs clearly the method of labor monitoring, place of clinical interventions and above all, the main task is the respectful maternity care. WHO revised partograph, is thought to be a revolutionary step for the care of individualized woman in labor. The changes that have been introduced in the revised partograph and Labor Care Guide are: active phase is defined to start from 5 cm of cervical dilatation instead of 4 cm. Fixed rate limit of 1 cm/hour alert and action line in the active phase is replaced. It is guided by an evidence based time limit for each centimeter of cervical dilatation, derived from the 95th centiles of labor duration at different centimeter levels of women. It has been observed to result in normal perinatal outcome.^{12,14} The cervical dilatation is recorded in the 'assessment' section and the steps are taken, in consultation with the woman. It is recorded in the 'plan' section. With this, iatrogenic cause of apparent poor progress of labor and at the same time unnecessary interventions are reduced.

The other major addition into the new care is the intensified monitoring of the second stage of labor. The strong uterine contractions, with the propulsive force combined with voluntary (expulsive) efforts make the second stage labor a more crucial time. Increased monitoring and vigilance are needed. The current "Labor Care Guide" emphasizes more attention for the mother and the baby.¹⁷

Supportive Care stresses the importance of clear recording of evidence based practices to improve woman's positive child birth experience and outcomes.

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