EVALUATION OF THE USE OF PARTOGRAPHY IN OBSTETRIC MANAGEMENT IN HAWAMDIA GENERAL HOSPITAL

Thesis

Submitted for partial fulfilment
of Master Degree of Obstetric and Gynaecology

Presented by

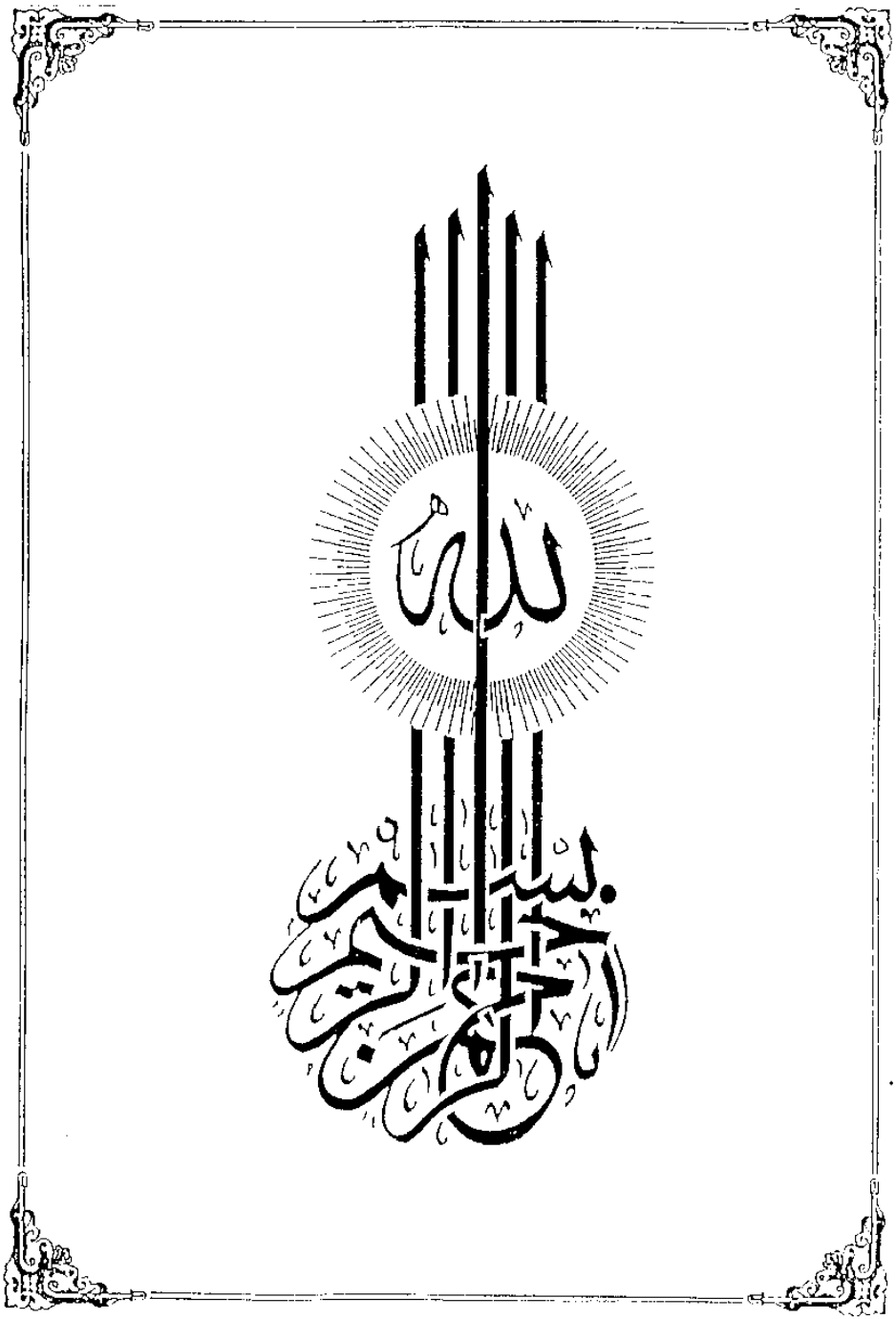
Zakaria Salama Saroufim
M.B.,B.Ch Ain Shams University
Registrar, Department of Obstetric
and Gynaecology in Hawamdia General Hospital

Supervised by

Prof. Dr. Mohammed Nagi El-Makhzangy
Professor of Obstetric and Gynaecology
Ain Shams University

Prof. Dr. Ahmed Ismail Abou Gabal
Professor of Obstetric and Gynaecology
Ain Shams University

Faculty of Medicine
Ain Shams University
1994



INTRODUCTION

The average risk of normal labor are considered by many to be too great to be acceptable, considereable efforts have been made to recent years to promote low risk obstetric situation (Robinson,1974).

After the diagnosis of labor has been confirmed the next important item in management is to monitor the progress at short and regular intervals.

Progress during the first stage of labor is measured mainly by dilatation of cervix because the sole action during the first stage is to open the exit from the womb sufficiently to allow the baby's head to pass through.

The rate of diltation of cervix is curcial because the duration of labour depend on the duration of the first stage which account 90% of duration.

Friedman (1954,1987), showed that the only accurate method of assesing the progress labor was by the rate of dilatation of cervix and the descent of the presenting part .

The whole purpose of the graph is to relate progress in labor to the time in a visual manner that is readily intelligible even to lay person efforts to included every detail of every aspect of labor, whether relevant or not in this graph.

The safe motherhood intiative (SMI) emphasises that the

monitoring of labor for early detection of dystocia is one of the most important approaches for reducing maternal and neonatal mortality.

In this context the partogram has been adapted by the World Health Organisation (WHO) to monitor labor in maternity clinics in developing countries. (Dujardin 1992 Lancet).

This graphic record of labor increases the quality and regularity of observation on mother and fetus, gives an early warning for detection of abnormal progress, and assists early decision for , intervention and termination of labor (Sene, 1992).

A partogram based on the same principles as WHO model is used in labor is divided into a latent phase, which should last no longer than 8h. and active phase starting at 4 cm cervical dilatation the rate of which should be no slower than 1 cm/h. (Nadiaye 1992 Lancet).

Obstetricions were more likely to intervene and to intervene more actively if the progress of labor curve appeared flat and if the latent phase was included.

The shape of the partogram influence intervention rates in practice and may partly explain the low rates of C.S. in some hospitals (Thoronton, 1992 Lancet).

ACKNOWLEDGEMENT

I would like to express my supreme gratitude and appreciation to **professor Dr. Mohammed Nagi El-Makhzangy** professor of obstetrics and Gynaecology, Ain Shams University, for his kind supervision and help throughout this work. It is especially difficult for me to express in measured terms my indebtedness to him for his continued guidance in supervising every section of this thesis, his constant encouragement throughout the study. It is an honour to work under his supervision and enjoy his help.

I am greatly indebted to **Prof. Dr. Ahmed Abou Gabal** Professor of Obstetric and Gynaecology, Ain Shams University, to the Nobel Character of whom I owe a lot. I have been most fortunate in having his support and encouragement and his sincere and valuable advice were indispensable.

Historical Development of Partography

Forty year ago (Friedman, 1954) showed that the only accurate method of assessing the progress of labor was by the rate of dilatation of cervix and descent of the presenting part.

He constructed the first cervical dilatation time curve for normal labor and showed that it could be divided into 3 parts (Friedman, 1955) (Fig. I), latent phase, the active phase and lastly deceleration phase which ended when the cervix was fully dilated and the second stage commenced.

However, many investigators do not believe that Friedman's curve is very helpful in the practical management of an individual labor because it starts at 0 cm cervical dilatation and it is rare to see patients in labor at this early stage. Although, he realized that the cervix may dilate prior to the onset of labor (Friedman's and Sachttan, 1961).

They also showed that the average cervical dilatation on admission was 2.5 cm for primigravidae and 3•5 cm for multigravidae.

Hendricks et al., 1970, showed that the cervix dilates during the 4 week before labor.

Philpott, (1972) combined the thoughts of Friedman and hendricks to produce the first partogram.

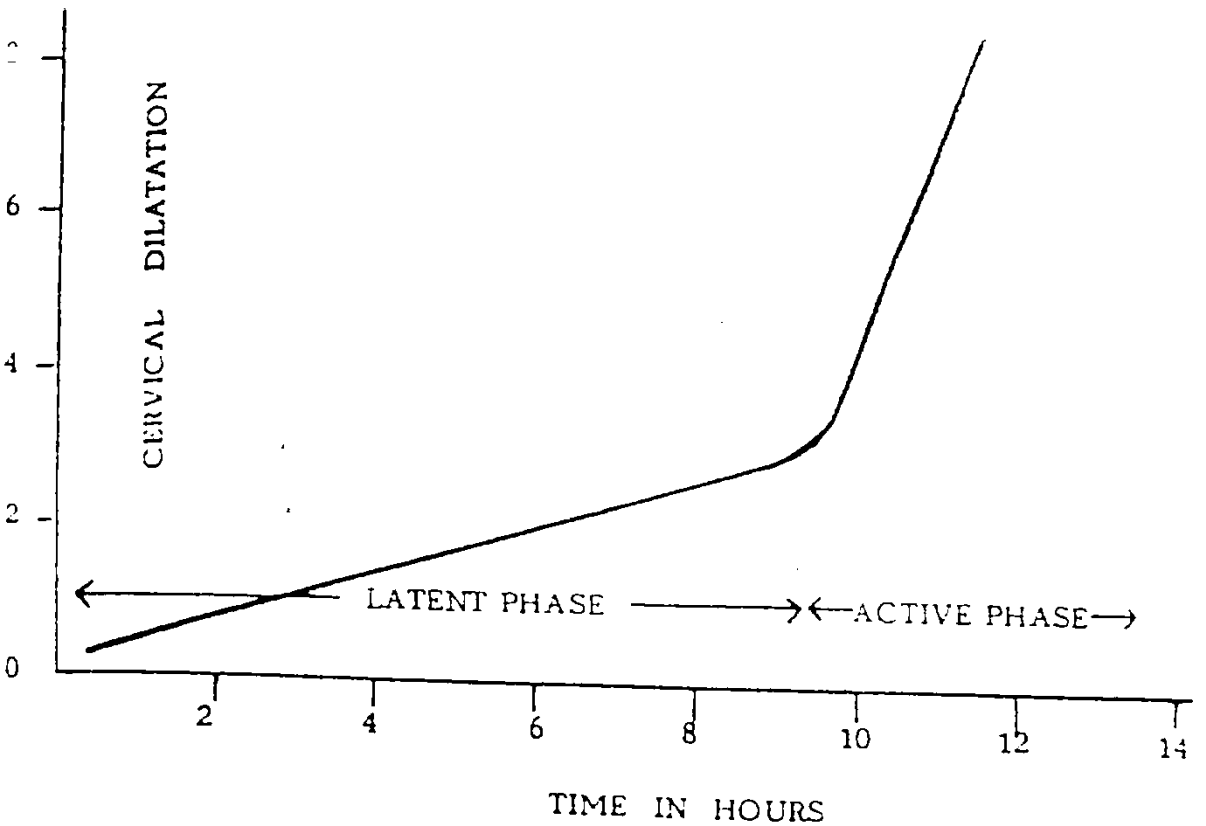


Figure. (I): Friedman's cervical dilatation time curve (1954).

He started cervical dilatation against time starting from the patient's cervical dilation on admission in labor (Cervicogram) and and recorded his findings together with information regarding maternal and fetal well being on a single sheet of paper.

This was designed to ensure quality of recording and management in a community with a high incidence of prolonged labor, inadequate medical resources and poor transport facilities for the great distance involved.

(Philopott's partogram 1972), was the first used in UK at Brimingham maternity hospital (Studd and Philopott 1972) and following a pilot study with Dudely Road hospital, certain minor modifications were made based upon the wishes of the medical and nursing staff (Studd and Duignen 1972). The subsequent popularity for partograms encoaurged other workers including : (Notelovitz 1973 and Johonson 1973) to report their graphic labor records currently in use.

A very comprehensive partogram has been used by (Watson 1974) for many years and there are certainly many useful graphic records which remained unpublished following the success of Philpott partogram (Studd 1975).

In 1977 Beazly established his partogram to be used at liverpool maternity hospital. It extended beyond the time required to achieve full cervical dilatation.

Cervicography

(Friedman 1954) subjected the labor to statistic graphical analysis upon the measurement of progressive cervical dilatation against spent in labor.

All examinations were noted on graph paper, with an ordinate of cervical in centimeter against time in hour, and this was an early graphic record of labor.

From 1955-1967 Friedman studied the details of more than 10.000 labors and reported the characteristics of normal and dysfunctional labor, relating phase to other potentially important clinical features such as parity, age, type of pelvis, presentation and head level (Friedman, 1967).

Starting with 500 nulliparae and 500 multiparae (Friedman, 1957) demonstrated that the cervical dilatation time curves of labor showed a characteristic sigmoid curve which although varying quantatively for parity and normal labor could be divided into three parts as shown in the latent phase, the active phase and the deceleration phase (Fig. II).

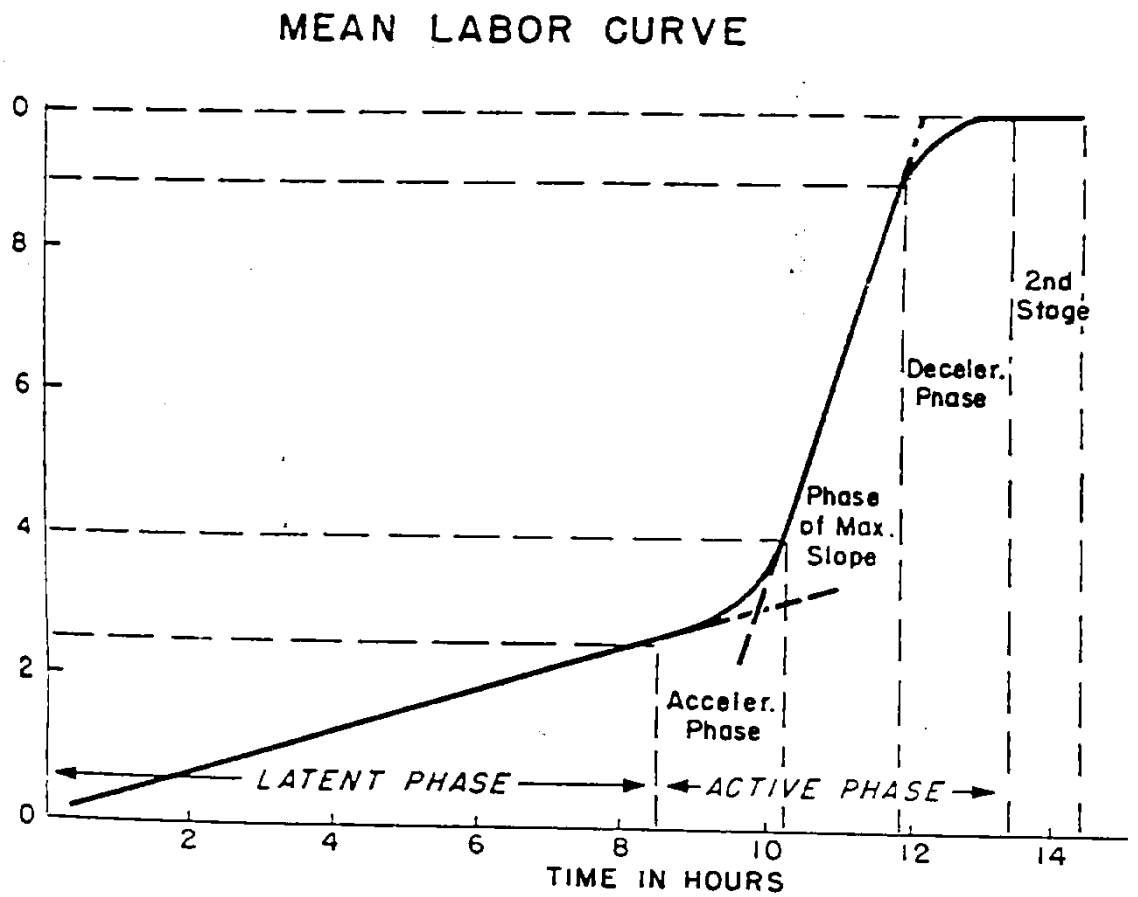


Figure. (II): Composite of cervical dilatation tracings plotted against elapsed time in labour to show phases of the nuliparous labour process. Friedman (1954).

1. Latent phase :

It start at the onset of labor taking from the onset of regular uterine contraction and lasts until the start of active phase at 3 cm (Friedman, 1954).

Because of the difficulty in defining the precise time of the onset of labor either reterospectively or prospectively it was decided to follow the practice of (hendricks et al.,1970) and to use the time of admission to the labor ward as the starting of cervical dilatation curve (Duigonan et al.,1975).

The duration of latent phase is quite sensitive to interference, prolonged with heavy sedation and shortened with stimulations. The duration of this pre-labor period has no apparent bearing on the future course of labor (Friedman, 1954).

The average duration of the latent phase is 6.4 hours for primiparae and 4.8 hours for multiparae. The length of latent phase is not influenced by the age of the mother, size of fetus or obstetric abnormalities that may become apparent later in labor.

An important factor that affects the duration of latent phase is the initial status of the cervix. It seems obvious that patient who have more favourable cervices at the onset of labor are destined to have shorter latent phase.

This probably account for a significant portions of difference in the latent phase between primiparae and multiparae (William Koontz 1982). Only about 10% of primiparae and even fewer multiparae have cervical dilatation less than 1 cm in last week of pregnancy .

The mean cervical dilatation during the last 3 days prior to onset of labor is 1.8 cm for primiparae and 2.2 cm for multiparae further more when admitted in early labor the average dilatation for primiparae is about 2.5 cm and multiparae 3.5 cm (hendricks 1970).

2. Active phase :

The active phase of labor begins at a time when the rate of cervical dilatation changes (Friedman, 1954). It is essentially the point of established labor (O'Driscol & Collegue 1970) (Philopott, 1972) defined the onset of this active phase as being when cervix 3 cm and 100% effaced.

In 1959 Friedman stated that the active phase can be divided into:

A) Short and variable preliminary accelerated phase, which is very important in determining the ultimate outcome of the labor in question.

It leads from the minimum slope of the latent phase to the maximum slope.

B) The maximum constant slope is inversely related to the total duration of the first stage of labor, since the major portion of the cervical changes occur during this period (3.5- 8. cm).

3. Deceleration phase :

The final phase of the first stage of labor reflect best the fetopelvic relationship in that cervical retraction about fetal head is essential in obtaining full dilatation, the descent of the fetal head occur in this phase (Friedman, 1954).

In normal labor when one observes any deceleration at the end of what was appeared to be normal labor, they considered this to be an early manifestation of dysfunction labor.

Functional Division of Labor

The original work of Friedman was modified in his paper (1971) into the relation between the dilatation of the cervix and the descent of presenting part.

He described this relation by dividing labor into three fundamental divisions :(Fig. III)

A. preparatory division.

B. Dilatation division.

C. Pelvic division.

A. Preparatory Division :

This include the latent phase and the acceleration phase of cervical dilation and at the same time there is minimal descent of fetal presenting part. The change that occur during this division include factors related to orientation and co-ordinations of myometrial contractility, softening and effacement of the cervix.

The preparatory division is sensitive to sedation and anaethesia.

The poorly polarized uterine contraction of this interval are easily disturbed. Myometrial function has not become sufficiently co-ordinated to withstand the inhibitory aspect of such exogenous influences.