"MATERNAL AND NEWBORN OUTCOMES AMONG LOW RISK PRIMIGRAVIDA ADMITTED IN LATENT PHASE OF LABOUR AT KLE'S Dr. PRABHAKAR KORE HOSPITAL AND MEDICAL RESEARCH CENTRE"

By

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Dissertation

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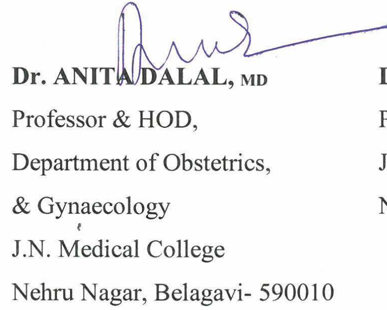

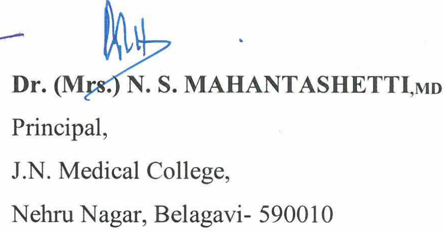

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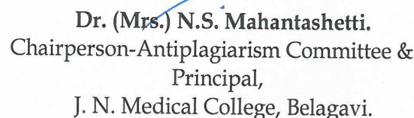

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LIST OF ABBREVIATIONS

ACOG	- American College of Obstetricians and Gynaecologist
AFI	- Amniotic Fluid Index
ARM	- Artificial Rupture Of Membranes
BMI	- Body Mass Index
BPP	- Biophysical Profile
CPD	- Cephalo-Pelvic Disproportion
CS	- Cesarean Section
CTG	- Cardio Toco Graphy
DFMC	- Daily Foetal Movement Count
DM	- Diabetes Mellitus
EROM	- Early Rupture Of Membranes
FBS	- Fasting Blood Sugar
FGR	- Fetal Growth Restriction
GDM	- Gestational Diabetes Mellitus
HTN	- Hypertension
IL 6	- Interleukin 6
LBW	- Low Birth Weight
LSCS	- Lower Segment Caesarean Section
MSL	- Meconium Stained Liquor
NICU	- Neonatal Intensive Care Unit
NPL	- Non Progress of Labour
PROM	- Premature Rupture of Membranes
ROP	- Right Occipito Posterior
SRM	- Spontaneous Rupture Of Membranes
TNF	- Tumor Necrosis Factor
WHO	- World Health Organization

// ABSTRACT

Background and objectives:

Interventions given to women admitted in the latent or active phase of labour may influence the outcomes of labour and ameliorate complications that can affect the mother and fetus. Labour management, maternal and fetal outcomes among low-risk women presenting in the latent phase of labour have not been explored recently.

Methodology:

This was a prospective observational study done from January 2021 to December 2022. Case records were collected serially until the sample size was reached. The study included 215 patients with low-risk primigravida aged between 18 to 35 years with gestation age between 37 to 42 weeks with a singleton pregnancy with cephalic presentation admitted to KLE's Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi. A structured checklist was used to collect data. Data was analysed using SPSS version 20. The Chi-square test was applied for qualitative variables, and Person's correlation test was applied to correlate the quantitative variables, and 5% was considered as the level of significance.

Results:

The mean age of the participants was 23.47 ± 3.16 years, with a minimum age of 18 years and maximum age of 36 years. The key interventions included augmentation of labour with dinoprostone gel + misoprostol- 23(29.48%) which was the main mode of augmentation, SRM occurred in 113(52.6%) participants, whereas ARM was done in 32(14.9%) participants. The majority, 136 (63.3%) participants, had a vaginal delivery, and 79(36.7%) participants had c-sections. Out of the 79 LSCS, 46 (58.2%) participants were taken during the latent phase, 30(37.7%) participants were taken during the active phase, and 3(3.79%) cases were taken up during 2nd stage of labour.

Fetal distress was the main indication; $3/4^{th}$ of the babies weighed between 2.6 to 3.5 kg- 160(74.4%), $1/4^{th}$ of the babies weighed < 2.5 kg- 52(24.2%), and 3 (1.4%) babies weighed > 3.5 kg. About 17(7.9%) babies required NICU admission, and respiratory distress was the prime indication for NICU admission- 12(70.58%). 26(12.1%) participants had prolonged labour, 11(5.1%) participants had postpartum haemorrhage and 2(0.9%) participants had surgical site infection. The mean cervical dilatation at admission was 1.75 ± 0.75, the mean BISHOP score at admission was 4.64 ± 1.99, the mean duration of the latent phase was 9.25 ± 8.08 hours, the mean duration of the active phase was 2.47 ± 2.10 hours, the mean time interval between admission and delivery was 11.46 ± 8.01 hours. The mean APGAR score at 1 min was 7.07 ± 0.95, the mean APGAR score at 5 min was- 8.24 ± 0.79, the mean duration of hospital stay- 4.97 ± 0.96 days, the mean total blood loss was 323.72 ± 153.66 ml. The mean duration of labour decreased with an increase in cervical dilatation on admission. There was a negative, weak significant correlation between the BISHOP score at admission and the time interval between admission and delivery.

Conclusion:

Admission during latent phase of labour in low-risk primigravida patients is a risk factor for an increased need for obstetrical interventions, operative delivery, and adverse maternal and neonatal outcomes.

Keywords: Latent phase of labour, active phase of labour, interventions, low-risk pregnancy

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INTRODUCTION

Giving birth is a complex physiological as well as a psychological process. Traditionally, labour is divided into 3 stages, the first of which is further divided into a latent and active phase.[1] The latent phase of labour is when the cervix starts to efface and dilate up to 4cm. The active phase of labour begins when the rate of cervical dilatation is more than 4 cm.[1]

In contrast to the fairly strong focus on the active phase, there has been less research addressing the characteristics of the latent phase of labour, and there is no consensus regarding the normal duration of the latent phase.[2] Research indicates that the duration of this phase may normally range from 8 to 20 hours.[1,3-6] As per many institutional guidelines in developed nations, upon arriving at the labour ward, women in the latent phase are encouraged by health professionals to return home until they enter the active phase in order to avoid unnecessary obstetric interventions during labour and to improve labour outcomes.[7] Research shows that hospital admission is nevertheless common during this phase, especially for nulligravida women.[8-11]

In addition to a lack of consensus about the duration and clinical management of the latent phase, studies have used different definitions of prolonged latent phase regarding both when the latent phase of labour starts and when it ends. For example, in the United States, a prolonged latent phase is diagnosed after 20 hours of regular painful contractions in primigravida women, and for multiparous women, a prolonged latent phase is diagnosed after 14 hours of regular painful contractions.[2] In Sweden, the diagnostic code defines the prolonged latent phase, regardless of parity, as a phase lasting more than 18 hours until cervical dilatation reaches 4 cm. The classification code describes regular contractions without impending rest.[12]

The prevalence of the prolonged latent phase ranges from 5% to 6.5%.[1,3-6] The lack of consistency in defining the latent phase of labour and the prolonged latent phase of labour may have significant implications for managing care for women during the latent phase.

In our study, all low-risk primigravida aged between 18 – 35 years with gestation age between 37 – 42 weeks with singleton, cephalic pregnancy is included. Patients usually get admitted during the first stage of labour. Women admitted in the latent phase of labour tend to spend more time in labour than those admitted in active phase of labour. Therefore, these patients are subjected to more interventions than those who are admitted in the active phase of labour.

There is evidence that demonstrates that management of early labour has an impact on maternal and neonatal outcomes. Women who are admitted in the active phase of labour experience less intervention or complication than those admitted in the latent phase of labour.

The duration of latent labour depends on various factors, such as unfavourable cervical dilatation, false labour pain, sedation, and analgesia/anaesthesia. The prolonged latent phase may be misdiagnosed as a protraction or arrest disorder leading to an increased rate of intervention. The prolonged latent phase is associated with a higher possibility of caesarean delivery, higher risk of postpartum haemorrhage, chorioamnionitis, prolonged hospital stays and neonatal admission.

Delayed admission in labour may help in avoiding premature and unnecessary intervention in women with latent phase. Therefore, the aim of this study was to examine the maternal and newborn outcomes among low risk primigravida women hospitalized during latent phase of labour.

AIMS AND OBJECTIVES

Primary Objective:

- To study the maternal and new born outcomes among women admitted in latent phase of labour.

REVIEW OF LITERATURE

Labour is the process through which a fetus and placenta are delivered from the uterus through the vagina.[13] Human labour divides into three stages. The first stage is further divided into two phases. Successful labour involves three factors: maternal efforts and uterine contractions, fetal characteristics, and pelvic anatomy.[13] This triad is classically referred to as the passenger, power, and passage. Clinicians typically use multiple modalities to monitor labour. Serial cervical examinations are used to determine cervical dilation, effacement, and fetal position, also known as the station. Fetal heart monitoring is employed nearly continuously to assess fetal well-being throughout labour. Cardiotocography is used to monitor the frequency and adequacy of contractions. Medical professionals use the information they obtain from monitoring and cervical exams to determine the patient's stage of labour and monitor labour progression.

Management of Normal Labour

Labour is a natural process, but it can be interrupted by complicating factors, which sometimes necessitate clinical interventions. The management of low-risk labour is a delicate balance between allowing the natural process to proceed while limiting any potential complications.[15] Cardiotocographic monitoring is frequently used during labour to track the progression of uterine contractions and heart rate of fetus. Clinicians evaluate the inadequacy or adequacy of contractions while keeping a focus on fetal cardiac tracings to look for any indications of fetal distress that might require intervention. Laboratory testing often includes the haemoglobin, hematocrit, and platelet count and is sometimes repeated following delivery if considerable loss of blood occurs. Unless there are issues that require more frequent inspections, per vaginal assessments are generally carried out every 4 hours. Particularly if membranes are

absent, regular per vaginal assessments are linked to a higher infection risk. Women must have the freedom to move around and change positions as they like.[15] Patient is encouraged to hydrate adequately.[15] Amniotomy is considered on as-needed basis for labour augmentation, but its routine use should be discouraged.[15] Oxytocin may be initiated to augment the labour. Dinoprostone gel or misoprostal can also be used to augment the labour.

First Stage of Labour

The first stage of labour begins when labour starts and ends with full cervical dilation to 10 centimeters. Labour often begins spontaneously or may be induced medically for a variety of maternal or fetal indications.[16] The first stage of labour is divided into two phases:

1. Latent phase – It is when cervix starts to efface, till 4 cm dilatation.
2. Active phase – It starts when the cervical dilatation is more than 4cm, till full dilatation.

Second Stage of Labour

The second stage of labour commences with full cervical dilation and ends with the delivery of the fetus. This was also defined as the pelvic division phase by Friedman. After cervical dilation is complete, the fetus descends into the vaginal canal with maternal pushing efforts. The fetus passes through the birth canal via 7 movements known as the cardinal movements. These include engagement, descent, flexion, internal rotation, extension, external rotation, and expulsion.[13]

Third Stage of Labour

The third stage of labour commences when the fetus is delivered and concludes with the delivery of the placenta. WHO recommends active management of third stage of labour (AMTSL) for the prevention of postpartum hemorrhage. The components of AMTSL includes,

- Administration of a uterotonic (recommended is Inj Oxytocin 10units, IM/IV) immediately after the delivery of the baby.
- Controlled cord traction (CCT) to deliver the placenta
- Massage of the uterine fundus after the placenta is delivered.

There are 3 cardinal signs that indicate the placenta has separated from the uterine interface:

- gush of blood from the vagina
- apparent umbilical cord lengthening
- a suprapubic bulge.[13]

Clinical Significance

Defining the stages of labour with a specific beginning and end has allowed clinicians to study labour trends and create labour curves. For example, in the 1950s, Dr. Friedman created a graphical representation of the normal labour rate during latent and active labour using observed clinical data.[17] These, in turn, can be used to determine if a woman is progressing through labour as expected and help to identify abnormal labour. Friedman observed that labour typically has a sigmoidal shape when measured by cervical dilation over time. During the active phase of labour, cervical dilation occurs at a rate of 1 centimeter or more per hour. If dilation occurs much slower, the patient might be at abnormal labour or arrest of labour risk.[18]

If a woman is not progressing through the first stage of labour as expected, this could lead to diagnosis of the arrest of dilation or descent, resulting in cesarean delivery. The findings of Dr. Friedman have recently been challenged, and the current consensus is the normal latent phase of labour lasts longer than was previously observed.[19] The criteria for the stages of labour create a universal language which allows healthcare professionals to communicate with one another about patient care accurately. Also, specific interventions are tailored to particular labour stages to create better patient outcomes. For example, active management in the third stage of labour is carried out by placing immediate traction on the umbilical cord and administering intravenous oxytocin, which correlates with a lower risk of postpartum haemorrhage.[20] Clinicians will continue to use the stages of labour to guide labour management and study labour patterns to improve patient care.

Feto-maternal endocrine cascade:

Labour is a multifactorial physiological event involving an integrated set of changes within the maternal tissues of the uterus (myometrium, decidua, and uterine cervix), which occur gradually over a period of days to weeks. Such changes include but are not limited to

- An increase in prostaglandin synthesis and release within the uterus
- An increase in the myometrial gap junction formation
- Up-regulation of myometrial oxytocin receptors.

Paracrine-autocrine or endocrine elements from the fetoplacental unit change the pattern of myometrial activity to regular contractions from irregular once the cervix and myometrium are prepared.

The fetus may coordinate this switch in myometrial activity through its influence on production of placental steroid hormone, through the mechanical distention of the uterus and through the neurohypophyseal hormones secretion as well as secretion of other prostaglandin synthesis stimulators. The final common pathway towards labour appears to be the activation of the fetal HPO axis.

HORMONES

Estrogen

Estrogen increases the excitability of the myometrial cells by reducing its resting membrane potential. The connexion-43 gap junction protein production is stimulated. Prostaglandin synthesis is also stimulated by it. The oxytocin receptors are increased by estrogen and it also sensitises the uterus for oxytocin to act.[21]

Prostaglandins

It functions as a final common pathway for the labour onset. The rise in estrogen, cortisol, uterine distension, increase in cytokines (IL-6, TNF), infection, vaginal examination, and separation or rupture of membranes stimulates its synthesis. Gap junction formation is enhanced by it.[22]

Oxytocin

It is the major stimulus for the initiation of labour. Oxytocin receptors are higher in early labour than in advanced labour. The release of prostaglandins from the decidua is promoted by oxytocin.[23]

PHASES OF PARTURITION

Parturition requires multiple transformations in both uterine and cervical function. It is divided into 4 overlapping phases.[24]

Phase 1: Uterine quiescence and cervical competence

The uterine muscle is kept unresponsive to natural stimuli, and the ability of the myometrium to contract is held in abeyance. This phase comprises 95% of the pregnancy.[25]

Phase 2: Phase of Activation: preparation for labour

It occurs during the last 6-8 weeks of pregnancy. Phase 2 is called uterine awakening/activation. Myometrial changes prepare it for labour contractions. The shift of phase 1 to phase 2 results from the alteration in the expression of contraction-associated proteins (CAP) like oxytocin receptor, prostaglandin F receptor, and connexion 43. This increases the sensitivity to uterotonics and uterine irritability.[25]

Cervix undergoes extensive remodelling for the transition from the softening to the ripening phase. Collagen fibrils are disorganised, and the space between the fibrils increases in cervical ripening. Dermatan sulphate and chondroitin sulphate are replaced by hyaluronic acid, which imbibes water. Collagenases and leucocyte elastase decrease the collagen content of the cervix.[25]

Phase 3: Process of labour: Phase of Stimulation

The third Phase is synonymous with active labour and is divided into 3 stages of labour which are the stage of cervical effacement and dilatation followed by the stage of fetal expulsion and lastly the stage of placental separation and expulsion .[26]

Phase 4: Puerperium

Uterine involution occurs in phase.[27] Uterus remains in a state of persistent contraction and retraction immediately after delivery and for an hour or so. Larger uterine vessels are compressed, and thrombosis of their lumen occurs, thereby

postpartum haemorrhage is prevented. Oxytocin facilitates compression of uterine vessels. Uterine involution and cervical repair follow in a timely fashion.

Stages of labour

Prelabour or preparatory stage

- Lightening or falling forward of the uterus occurs.
- Cervical canal undergoes shortening gradually
- False pains frequently occur [26]

Stage I: Begins with the onset of true labour pains to full cervical dilatation

Three functional divisions of I stage of labour are:

- Preparatory division
- Dilatational division
- Pelvic division[26]

Preparatory division

Components of the cervical connective tissue undergo changes considerably. Cervical dilatation is little. Sedation and analgesia can arrest this division of labour.[26]

Dilatational division

Dilatation of the cervix proceeds rapidly. This division is unaffected by sedation or analgesia.[26]

Pelvic division

During this division, there are cardinal movements of labour.

Two phases of cervical dilation are,

i) Latent Phase - Corresponds to preparatory Division

ii) Active Phase - Corresponds to dilatation division

Latent phase, early labour, and labour onset

In obstetric literature, labour is traditionally divided into three stages that have been formulated in textbooks since the early 18th century based on increasing knowledge and understanding of anatomy.[28-30] The first stage of labour is described as the shortening and dilatation of the cervix, the second stage as the descent of the baby into the birth canal and the birth, and the third stage as the delivery of the placenta. In the 1950s, the first stage of labour was divided into a latent phase and an active phase by Friedman, who also developed a visual description of the labour curve, known as the Friedman curve.[31] The term early labour refers to the same period of labour as the latent phase but is instead viewed from the woman's description.[29,32] The latent phase of labour and early labour are concepts that each have a variety of definitions, and there is a lack of consensus with these.[33] Both the terms latent phase of labour and early labour is used frequently in literature and occur simultaneously. According to WHO (2018), the concept latent first stage of labour should be favoured since this term is more established.

There is an organisational requirement to separate the latent phase from the active phase to prioritise resources for women 'in labour', i.e., the active phase of labour. Women, defined as 'not in labour' or in the latent phase of labour, do not require midwifery care in the labour ward.[34,35] Definitions of labour onset vary in literature and use different classifications according to parity. Some of the studies included in a review used the degree of cervical effacement as a marker for labour onset, while about one-third of the studies indicated that the woman's self-reported symptoms were used to diagnose the onset of labour.[33] Women can define what they perceive to be the onset of labour, and they do not only describe contractions as the onset of labour.[37,38] WHO recommends the following definition for labour onset: the latent first stage of labour is

characterized by painful uterine contractions and variable changes of the cervix, including some degree of effacement and slower progression of dilatation up to 5 cm for first and subsequent labours.[30]

Tilden EL et al. 2019, conducted a prospective study with objectives to characterize the duration of the latent phase of labour among term, low-risk, women in spontaneous labour using the women's self-identified onset; This study (n=1281) described the duration of latent phase in hours, stratified by parity at the mean, median, 80th, 90th, and 95th percentiles. The duration of the latent phase was compared for each characteristic using t-tests or Wilcoxon Rank-Sum tests and regression models that controlled for confounders. The study results showed that in predominantly white, healthy women, the duration of the latent phase was longer than described in previous studies: The median duration was 9.0 hours, and the mean duration was 11.8 hours in primigravida women. The median duration was 6.8 hours, and the mean duration was 9.3 hours in multiparous women. Among primigravida women, longer duration was seen in women whose fetus was in a malposition. Among multiparous women, longer duration was noted in women with chorioamnionitis and those who gave birth between 41 - 41+6 weeks gestation (vs. 40 – 40+6 weeks gestation). The study concludes that the latent phase of labour may be longer than previously estimated. Contemporary estimates of the latent phase of labour duration will help women and providers to accurately anticipate, prepare, and cope during spontaneous labour.[39]

Miller YD et al. 2020, performed a retrospective cohort study to estimate the prevalence of early labour admission in one hospital in Australia, and to compare rates of clinical intervention, length of hospital stays, and clinical outcomes for women admitted in early (< 4 cm cervical dilatation) or active (≥4 cm) labour; and determine

the impact of recent recommendations to define early labour as < 5 cm on the findings. Medical record data from a random sample of 1223 women from live singleton births recorded between July 2013 and December 2015 were used. Analyses included women who had spontaneous onset of labour at ≥37 weeks gestation and who had not scheduled a caesarean section before labour onset or delivered prior to hospital admission. Associations between the timing of hospital admission in labour and clinical intervention, outcomes and hospital stay were assessed using logistic regression. The study results found that between 32.4% (< 4 cm) and 52.9% (< 5 cm) of eligible women ($N = 697$) were admitted to the hospital in early labour. After adjustment for potential confounders, women admitted in early labour (< 4 cm) were more likely to have their labour augmented by oxytocin (AOR = 3.57, 95% CI 2.39–5.34), an epidural (AOR = 2.27, 95% CI 1.51–3.41), a caesarean birth (AOR = 3.50, 95% CI 2.10–5.83), more vaginal examinations (AOR = 1.73, 95% CI = 1.53–1.95), and their baby admitted to special care nursery (AOR = 1.54, 95% CI = 1.01–2.35). The authors concluded that findings provide preliminary evidence that a notable proportion of labouring women are admitted in early labour and are more likely to experience several medical procedures, neonatal resuscitation and admission to a special care nursery, and longer hospital stay.[40]

Seravalli V et al. 2022, carried out a retrospective cohort study to investigate the relationship between the labour phase at admission and obstetric and neonatal outcomes. A total of 1005 women with uncomplicated singleton pregnancies admitted for spontaneous labour were included in the study. Cesarean section rate and other perinatal outcomes were compared between women admitted in the latent phase and those admitted in the active phase. The study results revealed that admission occurred in the active phase of labour for 331 women (32.9%) and in the latent phase for 674

(67.1%). Admission in the latent phase was more frequent in primigravida than in multiparous ($p < 0.01$) and for Italian patients compared to foreigners. The incidence of caesarean section was similar between groups. Admission in the latent phase increased the likelihood of epidural analgesia (OR 3.47, 95% CI 1.96–6.14, in primigravida, and OR 2.58, 95% CI 1.37–4.84, in multiparous) and increased the rate of augmentation of labour with oxytocin in multiparous (OR 2.87, 95% CI 1.05–7.85), without any difference in neonatal outcomes. Based on the study results, it was concluded that admission in the latent phase is associated with more frequent use of epidural analgesia without an increase in cesarean section or adverse neonatal outcomes.[41]

Angeby K et al. 2018, performed a descriptive and comparative study intending to describe the prevalence of the prolonged latent phase of 18 hours or more, based on women's reports, in women intending vaginal birth and who had spontaneous onset of labour. An additional aim was to compare the incidence of obstetric interventions and the labour and neonatal outcomes in women with and without a prolonged latent phase. The study was performed in a mid-sized hospital in western Sweden. The sample consisted of 1343 birth records of women who intended vaginal births and who had spontaneous onset of labour at 37 or more weeks gestation during a one-year period (2013-2014). Based on women's self-reports, background characteristics, obstetric interventions, and labour and neonatal outcomes were compared between women with latent phases lasting less than 18 hours and 18 hours or more. Odds ratios with 95% confidence intervals were calculated for the different exposure variables. The study results depicted that a prolonged latent phase lasting 18 hours or more occurred in 23% of all births analyzed (n = 1343). A prolonged latent phase was more common among primigravida women (29.2%) but also common for multiparous women (17%).

Primigravida and multiparous women who experienced a prolonged latent phase were more often exposed to amniotomy during the latent phase. For primigravida women, the adjusted odds ratio (aOR) was 11.57 (95% confidence interval [CI], 5.25-25.51), and for multiparous women, the aOR was 18.73 (95% CI, 9.06-38.69). Women with latent phases of 18 hours or more often experienced augmentation of labour during all phases, especially during the latent phase. For primigravida women, the aOR was 10.13 (95% CI, 2.82-36.39), and for multiparous women, aOR was11.9 (95% CI, 3.69-38.71). A prolonged latent phase was associated with more instrumental vaginal births for multiparas (aOR, 2.58; 95% CI, 1.27-5.26) and emergency cesarean regardless of parity (primigravida women: aOR, 3.21; 95% CI, 1.08-9.50 and multiparous women: aOR, 3.93; 95% CI, 1.67-9.26). Based on the study results, the authors demonstrated that the prevalence of a prolonged latent phase in women at term who planned a vaginal birth and had spontaneous onset of labour was higher than previously reported. Women with a prolonged latent phase were more likely to receive obstetric interventions. Assisted vaginal birth was more common for primigravida women with a prolonged latent phase, and emergency cesarean occurred more frequently for both primigravida women and multiparous women with a prolonged latent phase.[42]

Rota A et al. 2018, conducted a correlational study to investigate the association between hospital admission diagnosis (latent vs active phase) and mode of birth. The study was conducted in a large Italian maternity hospital. Data from January 2013 to December 2014 were collected from the hospital's electronic records. 1.446 records of low-risk women were selected. These were dichotomized into two groups based on admission diagnosis: the ‘latent phase’ or ‘active phase’ of labour. The study results found that 52.7% of women were admitted in active labour and 47.3% in the latent phase. Women in the latent phase group were more likely to experience a caesarean

section or an instrumental birth, artificial rupture of membranes, augmentation of labour and epidural analgesia. Admission in the latent phase was associated with higher intrapartum interventions, which were statistically correlated to the mode of birth. The study concludes that women admitted in the latent phase of labour were more likely to experience intrapartum interventions, which increased the probability of caesarean section.[43]

Interventions given to the women admitted in the latent or active phase of labour may influence the outcomes of labour and increase complications that could affect the fetus as well as the mother. Labour management, maternal and fetal outcomes among low-risk women presenting both in the latent and active phases of labour in Tanzania have not recently been explored. With this background, **Chuma C et al. 2014**, conducted a descriptive cross-sectional study. It was done from February to April 2013. Until the required sample size was obtained, case records were gathered serially. A structured checklist was used to extract data. The study results depicted that five hundred case records of low-risk women which were pregnant were gathered, half of each showed in the latent and half showed in active labour phases. Key interventions, which includes artificial rupture of membranes, augmentation of labour with oxytocin/ dinoprostone gel/ misoprostal and caesarean section were considerably higher in the latent phase group compared to the active phase group 84(33.6%) versus 52(20.8%) $p < 0.05$; 96(38.6%) versus 56(22.4%) $p < 0.05$ and 87(34.8%) versus 60(24.0%) $p < 0.05$ correspondingly. Spontaneous vertex delivery was higher among pregnant women admitted in the active phase than in latent phase groups 180(72.0%) versus 153(61.2%) $p > 0.01$). Based on the study findings, it was concluded that pregnant women admitted at BMC in the latent phase of labour were subjected to more obstetric interventions than those admitted in the active phase.[44]

Mikolajczyk RT et al. 2016, analyzed information on 1,202 primigravida women who had spontaneous labour onset, vertex pregnancies, and were singletons. We selected three groups on basis of cervical dilatation at admission. The Kaplan–Meier estimator was used to analyze the delivery risk by cesarean section at a given dilatation, and thin-plate spline regression with a binary outcome (R library *gam*) to evaluate the form of the associations between the cesarean section in either the first or second stage versus vaginal delivery and dilatation at admission. The results revealed that women who were admitted to labour early had a higher risk of delivery by cesarean section (18 versus 4% in the late admission group), while the risk of instrumental delivery did not differ (24 versus 24%). Before 4 cm dilatation, the earlier a woman was hospitalized due to labour, her delivery risk by cesarean section was higher. For both first as well as second-stage cesarean deliveries, these patterns were true. Only in the middle group, the use of oxytocin increased the cesarean delivery risk (2.5 to 3.5 cm dilatation at admission). The scientists came to the conclusion that a considerably increased probability of cesarean delivery during the first and second stages of labour was associated with early admission to labour.

Since Friedman's seminal publication on labouring women, numerous publications have sought to define normal labour progress. However, there is paucity of data on contemporary labour progress incorporating both maternal and neonatal outcomes. With this scenario, **Shazly SA et al. 2022**, performed a study to establish intrapartum prediction models of unfavourable labour outcomes using machine-learning algorithms. Consortium on safe labour is a large database consisting of pregnancy and labour characteristics from 12 medical centers in the United States. Outcomes, including maternal and neonatal outcomes, were retrospectively collected. The authors defined primary outcome as the composite of the following unfavourable outcomes:

caesarean delivery in active labour, postpartum haemorrhage, intra-amniotic infection, shoulder dystocia, neonatal morbidity, and mortality. Clinical and obstetric parameters at admission and during labour progression were used to build machine-learning risk-prediction models based on the gradient-boosting algorithm. The results observed that of 228,438 delivery episodes, 66,586 were eligible for this study. The mean maternal age was 26.95 ± 6.48 years, the mean parity was 0.92 ± 1.23, and the mean gestational age was 39.35 ± 1.13 weeks. Unfavourable labour outcome was reported in 14,439 (21.68%) deliveries. Starting at a cervical dilation of 4 cm, the area under the receiver operating characteristics curve (AUC) of prediction models increased from 0.75 (95% confidence interval, 0.75–0.75) to 0.89 (95% confidence interval, 0.89–0.90) at a dilation of 10 cm. The baseline labour risk score was above 35% in patients with unfavourable outcomes compared to women with favourable outcomes, whose score was below 25%. Shazly et al. concluded that the labour risk score is a machine-learning–based score that provides individualized and dynamic alternatives to conventional labour charts. It predicts a composite of adverse birth, maternal, and neonatal outcomes as labour progresses. Therefore, it can be deployed in clinical practice to monitor labour progress in real-time and support clinical decisions.[46]

Zhang et al 2010 concluded that in women admitted with spontaneous labour, the cervical dilatation rate accelerated after 6cm of dilatation. The dilatation rate is much faster in multiparous than primigravida. Therefore, LSCS rate can be reduced by allowing the labour for a longer period before 6cm of dilatation.[47]

Gray MM et al. 2018, evaluated the association of latent phase duration and adverse maternal and neonatal outcomes, including a retrospective cohort of women with non-anomalous, singleton gestations ≥36 weeks who were induced with oxytocin and

reached at least 6 cm dilation. Exposure groups were defined by the length of the latent phase of labour (time from oxytocin start to reaching ≥ 6 cm) defined as <5th percentile, 5-95th percentile, >95th percentile for primigravida or parous women in our population, as appropriate. The primary maternal outcome was a composite of postpartum haemorrhage, chorioamnionitis, operative complications, postpartum complications, and maternal ICU admission. Cesarean delivery was examined as a secondary outcome. The study results indicated that of the 538 women, 43 (8.0%) experienced a latent phase length less than the 5th percentile, 453 (84.2%) between the 5th-95th percentile, and 42 (7.8%) >95th percentile. The latent phase across all percentiles was longer for primigravida women than parous women (Figure 1). BMI and diabetes increased as the latent phase increased, while gestational age at delivery and cervical dilatation at the start of induction decreased as the latent phase increased. As the length of the latent phase of labour increased, so did the risk of the primary adverse maternal composite. However, even in the >95 percentile group, 78.6% of women delivered vaginally. While these results do not suggest intervention with caesarean delivery for the prolonged latent phase, it is important to recognize the risk factors as well as the increased risks of adverse maternal and neonatal outcomes associated with the prolonged latent phase in the induction of labour. Strategies to reduce risks are needed to prevent both cesarean delivery and adverse perinatal outcomes.[48]

Caesarean sections without medical indication cause substantial maternal and perinatal ill health, particularly in low-income countries where surgery is often less safe. In the presence of adequate labour monitoring and by appropriate use of evidence-based interventions for the prolonged first stage of labour, unnecessary caesarean sections can be avoided. With this background, **Bakker W et al. 2021**, aimed to describe the incidence of the prolonged first stage of labour and the use of amniotomy and

augmentation with oxytocin in a low-resource setting in Malawi. Medical records and partographs of all women who gave birth in 2015 and 2016 in a rural mission hospital in Malawi were retrospective analysed. Primary outcomes were the incidence of the prolonged first stage of labour based on partograph tracings, caesarean section indications and utilization of amniotomy and oxytocin augmentation. The results showed that out of 3246 women who gave birth in the study period, 178 (5.2%) crossed the action line in the first stage of labour, of whom 21 (11.8%) received oxytocin to augment labour. In total, 645 women gave birth by caesarean section, of whom 241 (37.4%) with an indication 'prolonged first stage of labour'. Only 113 (46.9%) of them crossed the action line, and in 71/241 (29.5%), membranes were still intact at the start of the caesarean section. Excluding the 60 women with prior caesarean sections, 14/181 (7.7%) received oxytocin prior to a caesarean section for augmentation of labour. This study inferred that the diagnosis prolonged first stage of labour was often made without being evident from labour tracings, and two basic obstetric interventions to prevent caesarean section, amniotomy and labour augmentation with oxytocin, were underused.[49]

MATERIALS AND METHODS

Source of data:

This is a prospective observational study conducted in the Department of Obstetrics & Gynaecology in KLE's Dr. Prabharkar Kore Hospital and Medical Research Centre, Belagavi. Ethical clearance was approved by the Institutional Ethical Committee of KLE's Dr. Prabharkar Kore Hospital and Medical Research Centre, Belagavi. The duration of the study was for a period of one year, from January 2022 to December 2022. The study included low-risk primigravida with gestation age between 37 to 42 weeks aged between 18 to 35 years with singleton pregnancy with cephalic presentation admitted during latent phase of labour to KLE's Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi.

Study design and method of collection of data:

It was a cross- sectional observational study conducted in KLE's Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi.

Selection Criteria:

The patients were recruited based on the following inclusion and exclusion criteria.

Inclusion criteria:

All low-risk primigravida at term (gestation age between 37-42 weeks) ageing between 18-35 years of age with a singleton pregnancy with cephalic presentation who were admitted during latent phase of labour, to KLE's Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi were included in the study.

Exclusion criteria:

High-risk pregnancies including

- Multiple pregnancies
- Previous caesarian delivery
- Non-cephalic presentation
- Gestation age less than 37 weeks
- Abnormal placentation
- Antepartum haemorrhage
- Pregnancy related complications such as gestational hypertension, gestational diabetes mellitus, pre-eclampsia, intra uterine death, anomalous fetus.
- Chronic medical conditions (hypertension, cardiac disease, asthma, diabetes mellitus, epilepsy, anaemia, HIV and sickle cell disease)

Sample size:

The minimum sample size was calculated based on the prevalence rate and using the below-mentioned formula: -

$$n = \frac{Z21\text{-}\alpha/2\ (1\text{-}p)\ p}{\Xi\ 2p}$$

Where P – expected proportion = 0.386

Ξ – relative precision = 20%

1-α/2 is the desired confidence level.

For 95% desired confidence level.

According to the reference article, with P = 0.386 and relative precision = 20%, the desired sample size was found to be 153.[50]

Methodology:

All low-risk primigravida at term (gestation age between 37-42 weeks) ageing between 18-35 years of age with a singleton pregnancy with cephalic presentation admitted to KLE's Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi during latent phase of labour, were included in the study. The latent phase of labour is when the cervix starts to efface and dilate up to 4cm. The active phase of labour begins when the rate of cervical dilatation is more than 4 cm.

Women will often self-present to obstetrical triage with concern for the onset of labour. Common chief complaints include painful contractions, vaginal bleeding/bloody show, and fluid leakage from the vagina. It is up to the clinician to determine if the patient is in labour, which is defined by regular, clinically significant contractions with cervical dilation and/or effacement.[13] Vital signs, such as heart rate, respiration rate, temperature, oxygen saturation, and blood pressure, must be recorded when women initially enter the labour room and checked for any abnormalities after a thorough history has been taken. Fetal well-being is monitored using cardiotocography. The patient's detailed history, including obstetric history, surgical history, medical history, laboratory, and imaging data, should undergo review. Finally, a history of present illness, general physical examination and systemic examination if required a sterile speculum examination, will be carried out.

During the sterile speculum exam, clinicians will look for membrane rupture signs, like pooling of amniotic fluid in the posterior vaginal canal. If the clinician is unsure whether or not a rupture of membranes has occurred, additional testing such as pH testing, microscopic exam looking for ferning of the fluid, or laboratory testing of the fluid can be the next step.[14] The pH of Amniotic fluid is 7.0 to 7.5, which is more basic compared to pH of normal vagina. A sterile per vaginal examination should be

carried out to analyse the degree of cervical dilation as well as effacement. The measurement of cervical dilation is made by locating the external cervical os and spreading one's fingers in a ‘V’ shape, and estimating the distance in centimetres between the two fingers. Effacement is measured by estimating the percentage remaining of the length of the thinned cervix compared to the uneffaced cervix. Confirming the presenting fetal part is also necessary during the examination. Ultrasound can be employed to confirm the presentation and position of the fetal presenting part.

Case files of the eligible women were reviewed. Information was collected using pre-structured proforma. Information collected included socio-demographic data, obstetric history such as gravity, parity and gestational age, menstrual history, any interventions such as artificial rupture of membranes, augmentation with oxytocin and cesarean section; maternal outcome including mode of delivery, complications such prolonged latent labour, postpartum haemorrhage, cervical tears, surgical site infections and neonatal outcome including birth weight, APGAR score and neonatal intensive care unit admission.

Statistical Analysis:

Since the study is of observational study, the plan of analysis was as follows.

- Data was collected by using SPSS version 17.
- For the continuous quantitative variables, the mean and standard deviation was calculated.
- For the purpose of comparison, the data was divided into two groups with respect to certain qualitative characteristics, the continuous variables were compared using suitable tools of statistics like students' unpaired t-test.
- The Chi-square test made use to compare the differences among 2 groups for categorical variables.
- Sensitivity, specificity, positive and negative predictive values were calculated to check the efficacy of the diagnostic procedure. Discrete variables will be represented by a median.
- The categorical data were expressed in terms of rates, ratios and percentages. The association between the outcome, clinical and demographic characteristics was tested using the Chi-square test, the test of proportion or Fisher's exact test.
- For discrete variables, nonparametric tests were used.
- Apart from the above suitable tools like ANOVA, correlation, regression etc., were used according to the need. Suitable graphs were used to depict the comparison.

For all the tests, the value of p less than 5% (0.05) was considered significant.

RESULTS

In the present, a total of 215, low-risk primigravida at term (gestation age between 37-42 weeks) between 18-35 years of age with a singleton pregnancy with cephalic presentation satisfying the inclusion criteria were enrolled at KLE's Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi.

The mean age of the participants was 23.47 ± 3.16 yrs, with a minimum age of 18 years and maximum age of 36 years. Out of 215 participants, 168(78.1%) were aged between 18 to 25 years and 47(21.9%) participants were aged between 26 to 35 years. 175(81.4%) participants were registered and 40(18.6%) were unregistered. (Table 1, Table 2, and Table 3)

TABLE 1: MEAN AGE DISTRIBUTION OF THE PARTICIPANTS

	Number	**Minimum (years)**	**Maximum (years)**	**Mean**	**SD**
AGE	215	18.0	36.0	23.470	3.1634

TABLE 2: DISTRIBUTION OF THE PARTICIPANTS BASED ON AGE GROUPS

Age groups	**Number**	**Percent (%)**
18 to 25 years	168	78.1
26 to 35 years	47	21.9
Total	215	100.0

TABLE 3: DISTRIBUTION OF THE PARTICIPANTS BASED ON REGISTRATION STATUS

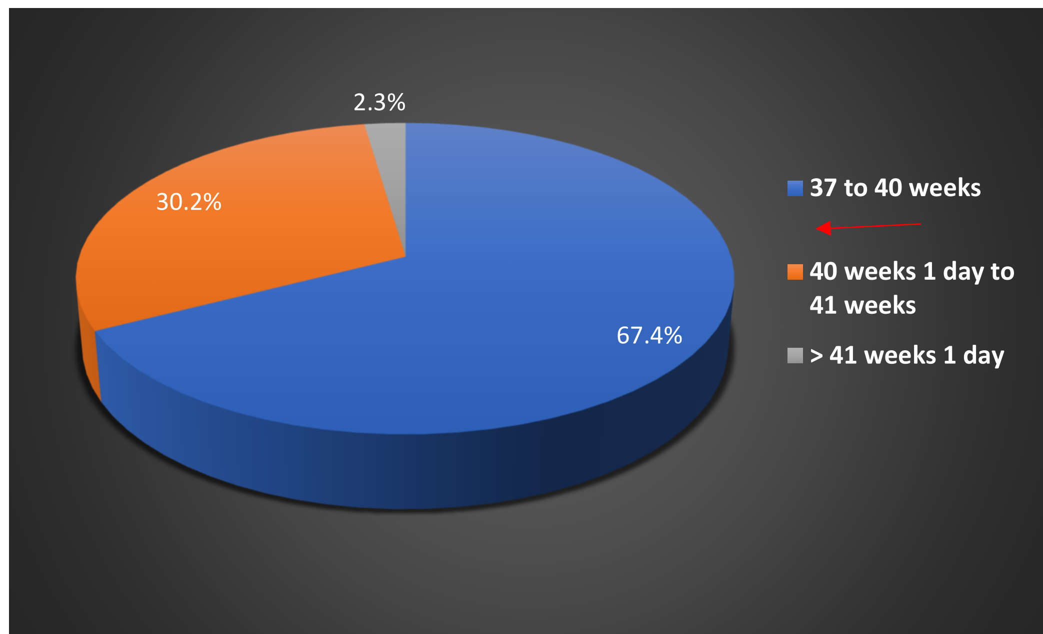
Registration status	Number	Percent (%)
Registered	175	81.4
Unregistered	40	18.6
Total	215	100.0

TABLE 4: DISTRIBUTION OF THE PARTICIPANTS BASED ON GESTATIONAL AGE

Gestational Age	Number	Percent (%)
37 to 40 weeks	145	67.4
40 weeks 1 day to 41 weeks	65	30.2
> 41 weeks 1 day	5	2.3
Total	215	100.0

Among 215 study participants, 145(67.4%) participants were of gestational age between 37 to 40 weeks, 65(30.2%) participants were of gestational age between 40 weeks 1 day to 41 weeks, and 5(2.3%) participants were above > 41 weeks 1 day. (Table 4 and Figure 1)

FIGURE 1: DISTRIBUTION OF THE PARTICIPANTS BASED ON GESTATIONAL AGE



BMI was normal among 213(99.1%) participants, and only 2(0.9%) participants were pre-obese. (Table 5)

TABLE 5: DISTRIBUTION OF THE PARTICIPANTS BASED ON BMI

BMI	Number	Percent (%)
Normal	213	99.1
Pre-obese	2	.9
Total	215	100.0

Out of 215 study participants, most of the participants 147(68.4%) were spontaneously delivered, and 68 (31.6%) participants had augmentation of labour. (Table 6)

TABLE 6: DISTRIBUTION OF THE PARTICIPANTS BASED ON AUGMENTATION OF LABOUR:

Augmentation	Number	Percent (%)
Spontaneously delivered	147	68.4
Augmentation of labour	68	31.6
Total	215	100.0

Premature rupture of membrane (PROM) – 17(24.64%) was the common reason for augmentation of labour, followed by no progression- 13(18.84%), postdatism- 12(17.39%), inadequate contraction, and oligohydramnios- 9(13.04%) participants each, early rupture of membranes - 7(10.14%) subjects and Fetal growth restriction (FGR)- 2(2.9%). (Table 7)

TABLE 7: DISTRIBUTION OF THE PARTICIPANTS BASED ON INDICATION FOR AUGMENTATION OF LABOUR

Indication for augmentation of labour	Number	Percent (%)
PROM	17	24.64
Non progression of labour	13	18.84
Postdatism	12	17.39
Inadequate contraction	9	13.04
Oligohydramnios	9	13.04
EROM	7	10.14
FGR	2	2.9
Total	69	100

The combined use of dinoprostone gel and misoprostol- 23(29.48%) was the main mode of augmentation of labour, followed by only dinoprostone gel - 23(29.48%) and misoprostol only - 11(14.1%). (Table 8)

TABLE 8: DISTRIBUTION OF THE PARTICIPANTS BASED ON THE MODE OF AUGMENTATION OF LABOUR

Mode of Augmentation	Number	Percent
Dinoprostone gel + Misoprostol	34	43.58
Dinoprostone gel only	23	29.48
Misoprostol only	11	14.10
Total	78	100.0

Among 215 participants, spontaneous rupture of membrane (SRM) occurred in 113(52.6%) participants; 50 participants were admitted with ruptured membranes, artificial rupture of membranes (ARM) was done for 32(14.9%) participants and for the remaining 20 participants, lower segment caesarean section (LSCS) was done before membrane rupture.

TABLE 9: DISTRIBUTION OF THE PARTICIPANTS BASED ON THE NATURE OF RUPTURE OF MEMBRANE:

Rupture of membrane	Number	Percent (%)
Participants admitted with rupture of membrane (PROM and EROM)	50	23.2
Spontaneous rupture of membrane during the progress of labour	113	52.6
Artificial rupture of membrane (ARM)	32	14.9
LSCS done before membrane rupture	20	9.3
Total	215	100.0

Out of 32(100%) participants who were subjected to artificial rupture of membranes(ARM), 18(56.25%) participants had inadequate contraction, 13(40.62%) had fetal distress. (Table 10)

TABLE 10: DISTRIBUTION OF THE PARTICIPANTS BASED ON INDICATION FOR ARM

INDICATION FOR ARM	Number	Percent (%)
Inadequate contraction	18	56.25
Fetal distress	13	40.62
Excess liquor	1	3.12
Total	32	100.0

The colour of liquor was clear among most of the participants, i.e., 179 (83.3%), and meconium-stained liquor was seen among 36(16.7%) participants. (Table 11)

TABLE 11: DISTRIBUTION OF THE PARTICIPANTS BASED ON COLOUR OF LIQUOR

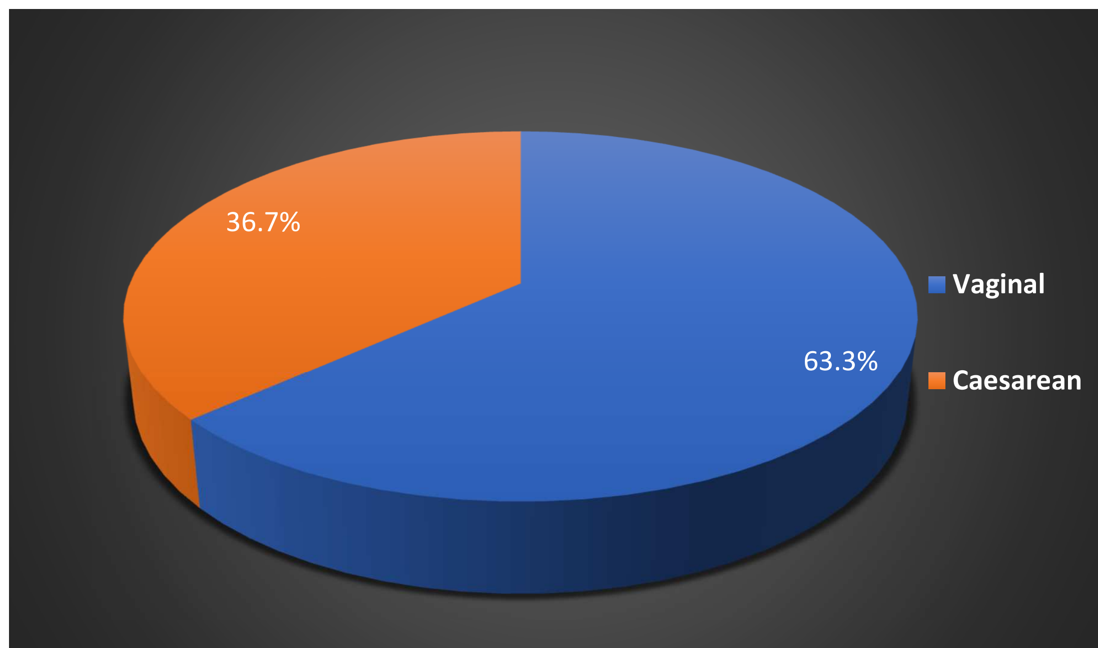
Liquor	Number	Percent
Clear liquor	179	83.3
Meconium-stained liquor	36	16.7
Total	215	100.0

Of 215 subjects, the majority, 136 (63.3%) participants, had a vaginal delivery, and 79(36.7%) participants had a caesarean section. (Table 12 and Figure 2)

TABLE 12: DISTRIBUTION OF THE PARTICIPANTS BASED ON MODE OF DELIVERY

Mode of Delivery	Number	Percent (%)
Vaginal delivery	136	63.3
Caesarean delivery	79	36.7
Total	215	100.0

FIGURE 2: DISTRIBUTION OF THE PARTICIPANTS BASED ON THE MODE OF DELIVERY



Out of 136 (100%) participants who underwent vaginal delivery, 17(12.5%) had ventouse delivery. (Table 13)

TABLE 13: DISTRIBUTION OF THE PARTICIPANTS BASED ON VAGINAL DELIVERY

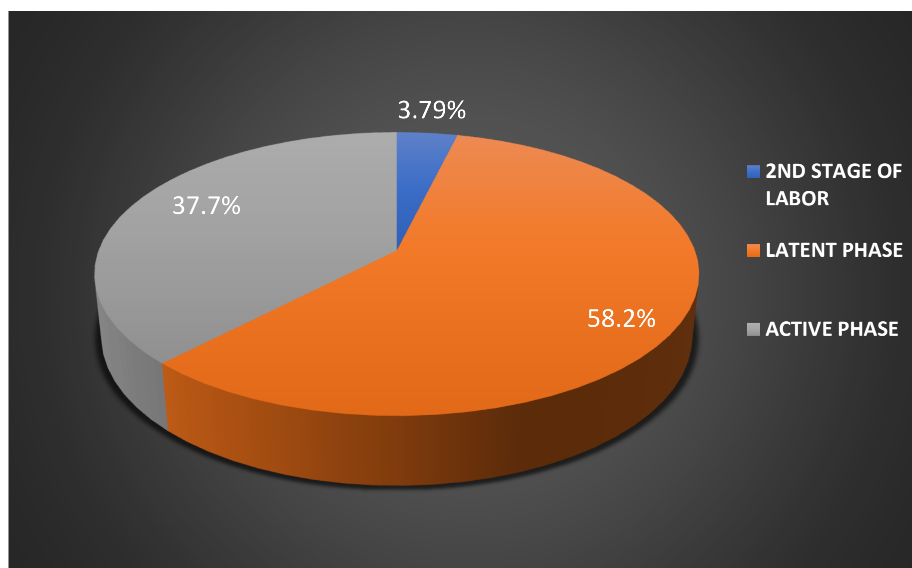
Vaginal Delivery	Number	Percent(%)
Normal Delivery	119	87.5
Ventouse Delivery	17	12.5
Total	136	100.0

Out of the 79 LSCS, 46 (58.2%) participants were taken up during the latent phase, 30(37.7%) participants were taken during the active phase, and 3(3.79%) participants were taken up during 2nd stage of labour. (Table 14)

TABLE 14: DISTRIBUTION OF THE PARTICIPANTS BASED ON THE STAGE AT WHICH LSCS IS DONE

Stage of Labour	Number	Percent(%)
Latent phase	46	58.2
Active phase	30	37.7
2nd stage of labour	3	3.79
Total	79	100.0

FIGURE 3: DISTRIBUTION OF THE PARTICIPANTS BASED ON THE STAGE AT WHICH LSCS IS DONE

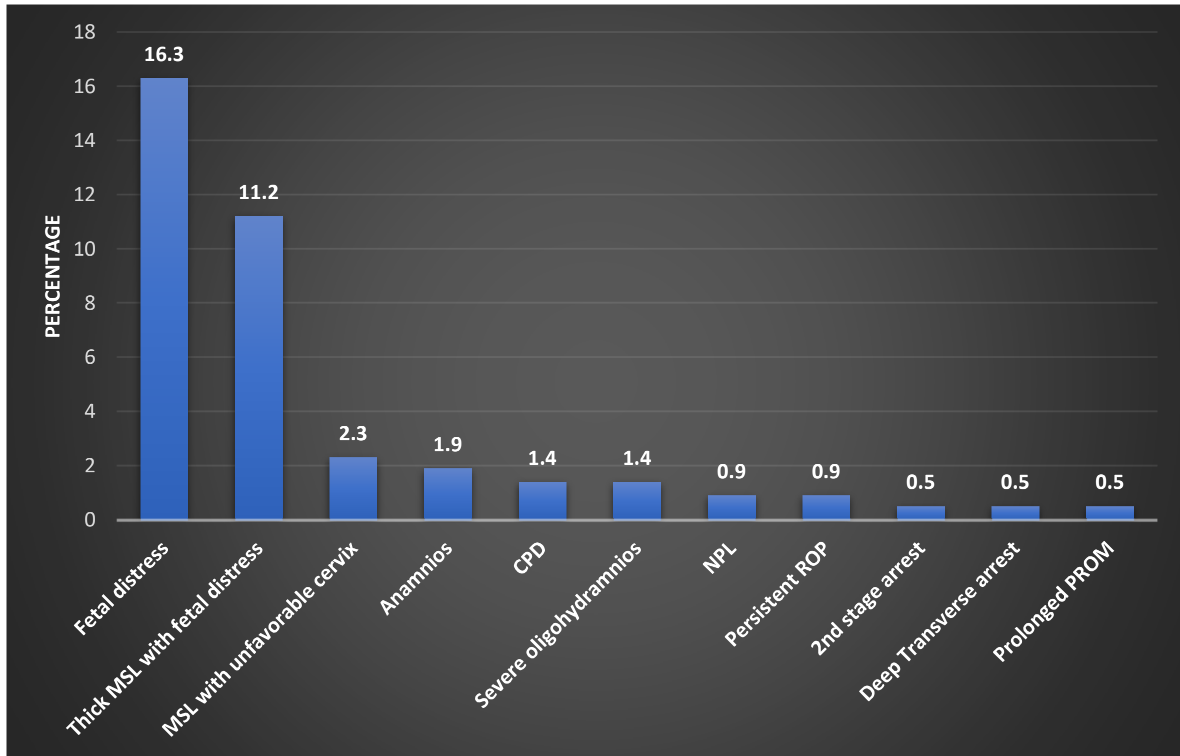


Fetal distress was the main indication for LSCS- 35(16.3%) followed by thick MSL with fetal distress- 24(11.2%), MSL with unfavourable cervix- 5(2.3%), anamnios among 4(1.9%) participants, CPD and severe oligohydramnios among 3(1.4%) participants each. (Table 15 and Figure 4)

TABLE 15: DISTRIBUTION OF THE PARTICIPANTS BASED ON THE INDICATION FOR LSCS

Indication	Number	Percent(%)
Fetal distress	35	16.3
Thick MSL with fetal distress	24	11.2
MSL with an unfavourable cervix	5	2.3
Anamnios	4	1.9
CPD	3	1.4
Oligohydramnios	3	1.4
NPL	2	0.9
Persistent ROP	2	0.9
2nd stage arrest	1	0.5
Deep Transverse arrest	1	0.5
Prolonged PROM	1	0.5
Total	79	100.0

FIGURE 4: DISTRIBUTION OF THE PARTICIPANTS BASED ON INDICATION FOR LSCS.



Approximately 3/4th of the babies weighed between 2.6 to 3.5 kg- 160(74.4%), 1/4th of the babies weighed < 2.5 kg- 52(24.2%) and 3 (1.4%) babies weighed > 3.5 kg. (Table 16)

TABLE 16: DISTRIBUTION OF THE SUBJECTS BASED ON BIRTH WEIGHT

Birth Weight	Number	Percent(%)
< 2.5 kg	52	24.2
2.6 to 3.5 kg	160	74.4
>3.5 kg	3	1.4
Total	215	100.0

Among 215 babies, about 198 (92.1%) babies were with their mothers, and 17(7.9%) babies required NICU admission. (Table 17)

TABLE 17: DISTRIBUTION OF THE PARTICIPANTS BASED ON NEED FOR NICU CARE:

BABY WITH MOTHER/NICU	Number	Percent(%)
Baby with mother	198	92.1
Baby requiring NICU admission	17	7.9
Total	215	100.0

Respiratory distress was the prime indication for NICU admission- 12(70.58%) followed by LBW and prolonged PROM- 2(11.76%), Perinatal asphyxia- 1(11.76%). (Table 18)

TABLE 18: DISTRIBUTION OF THE PARTICIPANTS BASED ON INDICATION FOR NICU ADMISSION

Indication for NICU admission	Number	Percent(%)
Respiratory distress	12	70.58
LBW	2	11.76
Prolonged PROM	2	11.76
Perinatal asphyxia	1	5.89
Total	17	100.0

The mean cervical dilatation on admission was 1.75 ± 0.75, the mean BISHOP score on admission was 4.64 ± 1.99, the mean duration of the latent phase was 9.25 ± 8.08 hours, the mean duration of the active phase was 2.47 ± 2.10 hours , the mean time interval between admission and delivery was 11.46 ± 8.01 hours, mean APGAR score at 1 min was 7.07 ± 0.95, mean APGAR score at 5 min was- 8.24 ± 0.79, mean duration of hospital stay- 4.97 ± 0.96 days, mean total blood loss was 323.72 ± 153.66 ml. (Table 19)

TABLE 19 TABULATION OF MEDIAN, RANGE, STANDARD DEVIATION OF VARIABLES:

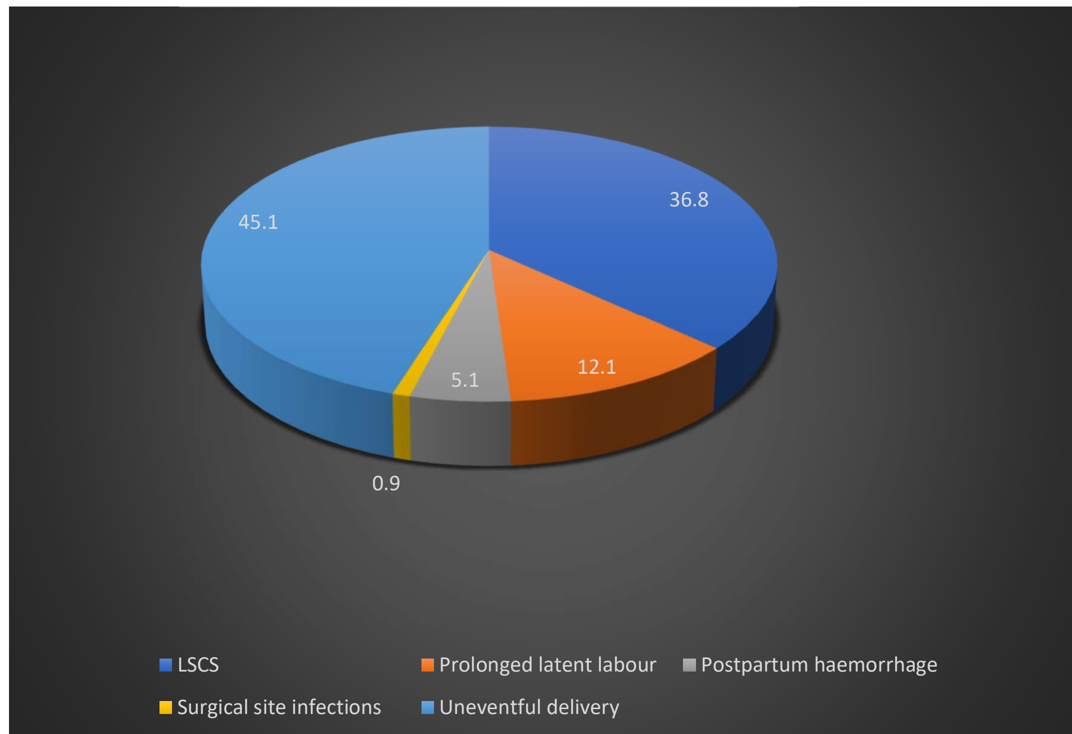
	N	Minimum	Maximum	Mean	SD
Cervical dilatation on admission	215	1 cm	3 cm	1.75	0.75
Admission BISHOP score	215	1	12	5.04	2.39
Duration of Latent phase (hrs and mins)	215	0.19	40.41	9.25	8.08
Duration of Active phase (hrs and mins)	169	0.56	15.00	2.47	2.10
Time interval between admission and delivery (hrs and mins)	215	0.19	40.41	11.46	8.01
APGAR 1 min	215	1	8	7.07	0.95
APGAR 5 min	215	4	10	8.24	0.79
Duration of Hospital Stay (days)	215	3.0	8.0	4.97	0.96
Total Blood loss(ml)	215	100.0	830.0	323.72	153.66

About 79(36.8%) participants had LSCS, 26(12.1%) participants had prolonged latent labour, 11(5.1%) participants had postpartum haemorrhage and 2(0.9%) participants had surgical site infection. (Table 20 and Figure 5)

TABLE 20: DISTRIBUTION OF THE PARTICIPANTS BASED ON MATERNAL OUTCOMES:

Maternal Outcome	Number	Percent(%)
LSCS	79	36.8
Postpartum haemorrhage 1. Medical management alone – 6 2. Uterine Artery ligation – 3 3. Compression sutures - 2	11	5.1
Prolonged latent labour	26	12.1
Surgical site infections	2	0.9
Uneventful delivery	97	45.1
Total	215	100.0

FIGURE 5: DISTRIBUTION OF THE PARTICIPANTS BASED ON MATERNAL OUTCOME



The participants who had a normal BMI of about 134(62.3%) underwent vaginal delivery, and 79(36.7%) underwent C-sections. 2 pre-obese participants underwent vaginal delivery. The Chi-square test was applied to find the association between BMI and Mode of delivery. The Chi-square test showed no statistically significant association between BMI and mode of delivery ($\varkappa 2$=1.17, p=0.27). (Table 21)

TABLE 21: CROSS-TABULATION OF BMI AND MODE OF DELIVERY

BMI	Mode of delivery		Total
	Vaginal	Caesarean	
Normal	134	79	213
	62.3%	36.7%	99.1%
Pre-obese	2	0	2
	0.9%	0.0%	0.9%
Total	136	79	215
	63.3%	36.7%	100.0%

The mean time interval between admission and delivery was 11.46 ± 8.06 hours, with a minimum of 0.19 hours and a maximum of 40.41 hours. (Table 22)

TABLE 22: MEAN DURATION OF LABOUR FROM THE CERVICAL DILATATION ON ADMISSION AND DELIVERY

	N	Minimum	Maximum	Mean	SD
Time interval between admission and delivery	215	0.19	40.41	11.46	8.06

Among the participants who underwent vaginal delivery, the mean duration of labour from cervical dilatation at admission till delivery was 15.21 ± 8.02 hours and for participants with C-sections was 16.13 ± 10.04 hours. The mean duration of labour decreased with an increase in cervical dilatation on admission. (Table 23)

TABLE 23: MEAN DISTRIBUTION OF DURATION OF LABOUR FROM THE CERVICAL DILATATION ON ADMISSION BASED ON MODE OF DELIVERY

Mode of delivery	Cervical dilatation on admission (cm)	N	Minimum duration	Maximum duration	Mean	SD
Vaginal	1.0	54	3.16	33.37	15.21	8.02
	2.0	54	3.22	26.00	10.37	5.22
	3.0	28	2.23	14.00	6.13	3.18
Caesarean	1.0	40	0.19	40.41	16.13	10.04
	2.0	26	0.20	35.00	10.37	9.05
	3.0	13	0.36	9.22	4.20	3.33

Negative, weak, and significant correlation was seen between the BISHOP score at admission and the time interval between admission and delivery (r=-0.414, p=0.001). (Table 24)

TABLE 24: PEARSON'S CORRELATION BETWEEN ADMISSION BISHOP SCORE AND TIME INTERVAL BETWEEN ADMISSION AND DELIVERY

	Admission BISHOP Score V/s time interval between admission and delivery
r value	-0.414
p value	0.001*

*Significant

Out of 68(68.4%) participants who had augmentation, 44(20.5%) had underwent vaginal delivery and 24(11.2%) underwent C-section. The Chi-square test was applied to find the association between the augmentation and mode of delivery. The Chi-square test showed no statistically significant association between augmentation and mode of delivery ($\varkappa 2=0.09$, $p=0.76$). (Table 25)

TABLE 25: CROSS-TABULATION OF AUGMENTATION AND MODE OF DELIVERY

Augmentation of labour	Mode of delivery		Total
	Vaginal	Caesarean	
Done	44	24	68
	20.5%	11.2%	31.6%
Spontaneously delivered	92	55	147
	42.8%	25.6%	68.4%
Total	136	79	215
	63.3%	36.7%	100.0%

Pearson's correlation showed a very weak, positive, and significant correlation between the duration of hospital stay and latent phase (r= 0.344, p=0.001). (Table 26)

TABLE 26: PEARSON'S CORRELATION BETWEEN DURATION OF HOSPITAL STAY AND DURATION OF LABOUR

		Duration of labour
Duration of hospital stay	r value	0.344
	p value	0.001*

*Significant

The mean latent phase in participants with C-sections was 10.05 ± 9.01, whereas the mean latent phase in participants with a vaginal delivery was 8.39 ± 7.18. (Table 27)

TABLE 27: DISTRIBUTION OF THE LATENT AND ACTIVE PHASE BASED ON THE MODE OF DELIVERY

Mode of Delivery		**N**	**Minimum**	**Maximum**	**Mean**	**SD**
Latent Phase	Vaginal	136	1.30	30.00	8.39	7.18
	C-section	79	0.19	40.41	10.05	9.01
Active Phase	Vaginal	136	0.56	15.00	2.46	1.70
	C-section	79	0.00	6.00	0.56	1.24

DISCUSSION

Interventions given to patients who are admitted while in the latent or active stages of labour may change the course of the labour and lessen problems that could harm both the fetus as well as mother. The need to minimize medical or surgical interventions among pregnant women in labour is a challenge in most of the clinical settings. Labour management, maternal and fetal outcomes among low-risk women presenting both in the latent phase and active phase of labour in Belagavi have not recently been explored. Therefore, a prospective observational study was conducted, including a total of 215 study subjects with low-risk primigravida at term (gestation age between 37-42 weeks) between 18-35 years of age with a singleton pregnancy with cephalic presentation satisfying the inclusion criteria were enrolled at KLE's Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi.

Childbirth at a young (i.e., ≤ 18 years old) or advanced maternal age (i.e., ≥ 35 years old) is associated with an increased risk of adverse maternal and neonatal outcomes, such as postpartum haemorrhage, increased operative interventions, prolonged latent labour, as well as adverse infant outcomes including preterm birth, poor fetal growth, low birth weight, and neonatal morbidity and mortality.[51-57] Large-scale population-based investigations with the use of current data to inspect maternal age associations with labour and complications of delivery are required to help delineate the maternal age contributions to perinatal morbidity. Such outcomes might help in managing risks during pregnancy, particularly when the symptoms as well as signs of complications can be monitored by the clinician and/or the pregnant woman. In our study, the mean age of the participants was 23.47 ± 3.16 years, with a minimum age of 18 yrs and maximum age of 36 years. Out of 215 participants, 168(78.1%) were

aged between 18 to 25 years and 47(21.9%) participants were aged between 26 to 35 years. 175(81.4%) participants were registered and 40(18.6%) were unregistered. As per the study by Chuma C et al., the majority of individuals were between the ages of 18 and 40 years, with 25.42 ± 5.25 years of mean age.[62] Majority of women were in the age group between 20–35 years 222(88.8%), 208(83.2%) correspondingly and also majority with only primary school education (179(71.6%), and also 199(79.6%), mean age distribution was 23 years in Meena et al. study.[64]

Among 215 study participants, 145(67.4%) participants were of gestational age between 37 to 40 weeks, 65(30.2%) participants were of gestational age between 40 weeks 1 day to 41 weeks, and 5(2.3%) participants were above > 41 weeks 1 day. This is similar to that observed in studies done by Meena et al. (272.3 days) as well as Mir et al. (271.6 days). Low-risk pregnant women between 37- and 42-weeks' gestation made up the study population in Chuma et al.[63,64]

Out of 215 study participants, most of the participants 147 (68.4%) were spontaneously delivered, and 68 (31.6%) participants were augmented in our study. Chuma et al. observed spontaneous vertex delivery was significantly higher in the patients admitted in active phase than those admitted in the latent phase, 180(72.0%) against 153(61.2%) $p < 0.01$. There was no difference with regard to the proportions of women who had assisted vaginal delivery between the two groups.[63]

Premature rupture of the membranes (PROM) is usually defined as rupture of membranes at any time before the onset of uterine contractions. PROM, which occurs prior to 37 weeks of gestation, is referred to as preterm premature rupture of membranes (PPROM), whereas; PROM, which occurs after 37 weeks of gestation, is referred to as term premature rupture of membranes. The latent period is defined as the duration from

the rupture of the membranes until the onset of true labour.[65] Worldwide, there is a slight difference in the prevalence of premature rupture of membranes, and this could be due to the difference in the population studied. The incidence of PROM ranges from about 5% to 10% of all deliveries, and PPROM occurs in approximately 3% of all pregnancies. Approximately 70% of cases of PROM occur in pregnancies at term, but in referral centers, more than 50% of cases may occur in preterm pregnancies. PROM is the cause of about one-third of all preterm births.[65] In our study, PROM - 17(24.64%) was the common reason for augmentation, followed by non progress of labour - 13(18.84%), postdatism- 12(17.39%), inadequate contraction, and oligohydramnios- 9(13.04%) subjects each, EROM- 7(10.14%) subjects and fetal growth restriction (FGR)- 2(2.9%). The proportion of pregnant women in the Chuma et al. study who received key interventions including augmentation with oxytocin [84(33.6%) versus 52(20.8%) $p < 0.05$], artificial rupture of membranes [96(38.6%), versus 56(22.4%) $p < 0.001$] and caesarean section [87(34.8%), versus 60(24.0%) $p < 0.05$], were significantly higher in the latent phase group than in the active phase group respectively. Women who were admitted in their latent phase of labour have increased obstetric interventions compared to those in an active phase of labour. The most frequent interventions were augmentation with oxytocin which was high in women admitted in the latent phase than an active phase of labour (33.6% vs. 20.8 $p < 0.05$).[65]

Augmentation of labour is the process of stimulating the number, duration, and intensity of uterine contractions after the onset of labour, either by intravenous oxytocin infusion or artificial rupture of membranes, and it is used to treat prolonged latent labour and potentially avert cesarean section (CS). Although augmentation of labour may be effective in shortening the first and second stages of labour,[66-68] little to no effect has been demonstrated on CS rates.[66-71] During uterine contractions, the maternal spiral

arteries are compressed, and placental perfusion is reduced. As oxytocin increases the intensity of uterine contractions and decreases the resting time between contractions,[72] it has been suggested that augmentation of labour with oxytocin increases the risk of fetal asphyxia.[73] Dinoprostone gel and misoprostol 23(29.48%) was the main mode of augmentation, followed by Dinoprostone gel - 23(29.48%) and misoprostol - 11(14.1%). In the study by Afzal et al., augmentation of labour with oxytocin was the most often used intervention; 64 (32%) primigravida in latent labour required augmentation compared to 36 (18%) in an active phase of labour (p value less than 0.004).[74]

Among 215 subjects, spontaneous rupture of membrane (SRM) was seen majorly among 113(52.6%) subjects; others included 50 cases admitted with ruptured membranes, and 20 cases for which lower segment caesarian section (LSCS) was done before membrane rupture and amniotomy was done for 32(14.9%) subjects. Caesarean section was more in the latent phase compared to the active phase of the labour group in the Chuma et al. study and other similar studies done in Iran, the USA, and Ethiopia.[75-77] Afzal et al found about 85 (42.5%) primigravida, in latent labour, needed artificial rupture of membranes than 46 (23%) patients in active labour (p value <0.0007) showing that primigravida patients in the latent phase of labour needed more amniotomy than active phase parturient to accelerate the process of labour.[74] Anjum N et al. showed that 62.2% of patients presenting at cervical dilatation of <4cm required more ARM than 40.9% of late presenters.[74]

Fetal distress was the main indication for LSCS 35(16.3%), followed by thick MSL with fetal distress- 24 (11.2%), MSL with unfavorable cervix- 5(2.3%), anamnios among 4(1.9%) subjects, CPD and oligohydramnios among 3(1.4%) subjects each.

Liquor was clear among most of the subjects, i.e., 179 (83.3%), and meconium-stained liquor was seen among 36(16.7%) subjects. Fetal distress served as the primary indication for caesarean section in this study, whereas dystocia was the leading indication in a study done in Iraq.[78] Fetal distress in this study was diagnosed by monitoring the fetal heart rate using fetal doppler, cardio topography and by examining the state of the liquor.

Out of 32 (100%) participants who were subjected to ARM, 18(56.25%) participants had inadequate contraction, and 13(40.62%) had fetal distress. In low-risk nulligravida obstetric population, the process of labour and delivery is considered to be normal

physiological phenomenon. However, in our local settings, the obstetric unit of a tertiary care hospital is considered as the preferred place of birth as it provides the safest environment for labour, delivery, neonate, and the postpartum period.[79] On the contrary, the hospital environment is thought to be responsible for an undue increase in obstetrical interventions, e.g., repeated CTGs of low-risk primigravida patients are associated with false positive rates of fetal distress resulting in an operative delivery.[80]

Of 215 participants, the majority, 136 (63.3%), had vaginal delivery followed by 79(36.7%) c-section. Out of 136 (100%) participants who underwent vaginal delivery, 17(12.5%) had ventouse delivery. Whereas in Daftary et al. study, 15.55% had ventouse delivery. The reason for the increased rate of caesarean section in our study was because as our study population was primigravida having no prior experience of labour with more anxiety and a low threshold for pain, so they got admitted in the latent phase of labour, where they underwent multiple interventions like amniotomy (ARM), augmentation of labour, repeated CTG, and were asked to bear down so as to

reduce labour course. This all led to maternal exhaustion in the second stage of labour leading to instrumental vaginal delivery.[81] This admission in latent labour led to prolonged hospital stay, and yet the baby to be born, caused apprehension in patient and family members; thus, increased the anxiety of obstetrician, resulting in the augmentation of labour at poor BISHOP Score, and also increased the rate of instrumental delivery / LSCS. In addition, excessive use of electronic fetal heart rate monitoring resulted in the diagnosis of fetal distress, and thereby increasing the rate caesarean section in latent phase primigravida patients. This increased rate of caesarean section has been reported by other researchers too. So early admission in the latent phase of labour may reflect an underlying risk for LSCS independent of the care provided.[81]

Out of the 79 LSCS, 46 (58.2%) cases were taken during the latent phase of labour, 30(37.7%) patients were taken during an active phase of labour, and 3(3.79%) patients were taken up during 2nd stage of labour. The higher prevalence of latent phase of labour in this study may be explained by different definitions and measurements compared to previous studies. For example, the findings in our study were different from the body of prior literature that defined labour onset based on the clinicians' reports.[1,3-6] The present results suggest that if women's perceptions of labour onset are considered, the prevalence of a prolonged latent phase of labour is more common than if defined by clinicians. The results also showed that a prolonged latent phase was more common among primigravida women, which corresponds with the results from previous studies.[9,11]

Approximately 3/4th of the babies weighed between 2.6 to 3.5 kg- 160(74.4%), 1/4th of the babies weighed < 2.5 kg- 52(24.2%) and 3 (1.4%) babies weighed > 3.5 kg.

Shahida M and Aziz reported the mean birth weight of the neonates was 2.85kgs in the study group and 2.84kgs in the control group. [Mir et al 2008]

About 198 (92.1%) babies were with their mothers, and 17(7.9%) babies required NICU admission. Respiratory distress was the prime indication for NICU admission- 12(70.58%), followed by LBW and prolonged PROM- 2(11.76%) and perinatal asphyxia- 1 (11.76%). In Afzal et al. study there were 27 (13.5%) of the subjects who required NICU admission.[74]

Participants who underwent vaginal delivery, the mean duration of labour for cervical dilatation at admission was 15.21 ± 8.02 hours and for participants with C-sections was 16.13 ± 10.04 hours. The mean duration of labour decreased with an increase in cervical dilatation. The mean cervical dilatation at admission was 1.75 ± 0.75, the mean BISHOP score at admission was 4.64 ± 1.99, the mean duration of the latent phase was 9.25 ± 8.08 hours, the mean duration of the active phase was 2.47 ± 2.10 hours, the mean time interval between admission and delivery was 11.46 ± 8.01 hours, the mean APGAR score of babies at 1 min was 7.07 ± 0.95 and at 5 min was 8.24 ± 0.79, mean duration of hospital stay 4.97 ± 0.96 days, mean total blood loss was 323.72 ± 153.66 ml. In Daftary et al. study, the mean rate of cervical dilatation was 2.5cm per hour, while Veronica et al. reported as 2.3cm per hour. In their study, Sameer Dixit et al. reported an Apgar score of 8-10 in all neonates at 1 and 5 minutes.[82] Our study is consistent with their study. In Daftary et al. study, the average rate of cervical dilatation was 2.5 cm per hour, compared to 2.3 cm per hour reported by Veronica et al. The rate of cervical dilatation observed in my study is slower when compared with Daftary et al. and Veronica et al. studies. In Meena et al. study, the mean blood loss was 110ml, and Daftary et al. observed blood loss of only 60ml. In Veronica et al. study,

he observed blood loss of 75ml. Our study had more blood loss than Meena et al., Daftary et al., and Vernonica et al. study.[64,83,84]

The length of maternal stay in the hospital in the Afzal et al. study was found to be more than 72 hours (14.5%) in patients admitted in the latent phase than those admitted in the active phase (6.5%) with a p value < 0.0001. The duration of hospital stay was more compared to Afzal et al.[70] The admission in the latent phase of labour results in need for prolonged hospitalization.[85] The reason for this is believed to be more obstetrical interventions resulting in increased operative vaginal and abdominal delivery in the primigravida study population admitted in the latent phase than those admitted in the active phase of labour.

About 79(36.8%%) participants had LSCS, 26 (12.1%) participants had prolonged latent labour, 11(5.1%) participants had a postpartum haemorrhage, and 2 (0.9%) participants had surgical site infections. In Daftary et al. study, only 65.5% of the women had a vaginal delivery, while in Meena et al., 98% of the women had a vaginal delivery.[83,64]

BMI was normal among 213 (99.1%) participants, and only 2(0.9%) participants were pre-obese. The participants who had a normal BMI of about 134 (62.3%) underwent vaginal delivery, and 79 (36.7%) underwent C-sections. 2 pre-obese participants underwent vaginal delivery. The association between higher BMI and slower labour has also been demonstrated in other studies.[86,87] Neal et al found in a study of primigravida women admitted in latent phase of labour compared to women admitted in the active phase that those admitted early were more likely to have higher BMI, which is in line with our findings.[88]

The mean time interval between admission and delivery was 11.46 ± 8.006 hours, with a minimum of 0.19 (19 mins) and a maximum of 40.41 (40 hrs 41mins). Out of 68(68.4%) participants who had augmentation of labour, 44(20.5%) had underwent vaginal delivery and 24(11.2%) underwent C-section. The normal vaginal delivery was significantly higher in the active phase of labour than in the latent phase of labour ($p < 0.05$) in the study of Janna and Kwast et al., the finding which relates to our study.[75,89] The increased need for augmentation of labour in the latent phase in our study can be justified to shorten the latent phase duration and to prevent maternal and neonatal complications. Also, we noticed that undue pressure by the patient's family for immediate delivery led to obstetrician anxiety, thus resulting in more interference in the natural process of labour. These observations of our study are in comparison to that of Impey et al.[90]

In the present study, a negative, weak and significant correlation was seen between the BISHOP score at admission and the time interval between admission and delivery. Pearson's correlation showed a very weak, positive, and significant correlation between the duration of hospital stay and the latent phase. The mean latent phase in participants with C-sections was 10.05 ± 9.01 hours, whereas the mean latent phase in subjects with a vaginal delivery was 8.39 ± 7.18 hours. Chuma et al. observed that the caesarean section was significantly higher in the latent phase group than in the active phase group, 84(33.6%) versus 52(20.8%).[44]

CONCLUSION

Based on the results of the present study following conclusions could be drawn.

- Early hospitalization of low-risk primigravida i.e. during latent phase of labour resulted in increased interventions such as augmentation of labour, artificial rupture of membranes, and increased number of caesarean sections. There is a need for the development of recommendation on the management of women admitted in latent phase of labour.
- Also, prolonged latent labour, prolonged hospital stay and neonatal complications like APGAR < 7 at 1st minute of birth, need for NICU care and prolonged hospitalization of neonates were seen among patient's admitted in latent phase of labour.

LIMITATIONS:

Larger sample size would have contributed to better results of the study and also would have improved the external validity of the study.

SUMMARY

The latent stage of labour is a period of time characterized by painful uterine contractions and variable changes of the cervix, including some degree of effacement and slow progression of cervical dilatation up to < 4cm. The active stage of labour is a period of time characterized by regular painful uterine contractions, a substantial degree of cervical effacement, and more rapid cervical dilatation from 4cm until full dilatation. Admission in active labour helps to avoid premature obstetrical interventions in patients with prolonged latent phases. Women admitted in latent phase of labour experience prolonged latent labour and caesarean section than women admitted in active phase of labour. This study was conducted on low-risk primigravidas to evaluate the effect of the timing of admission (latent phase) to the labour room on maternal and new-born outcomes. A total of 215 study participants with low-risk primigravida at term (gestation age between 37-42 weeks) between 18-35 years of age with a singleton pregnancy with cephalic presentation satisfying the inclusion criteria were enrolled at KLE's Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi.

- The mean age of the participants was 23.47 ± 3.16 years, with a minimum age of 18 years and maximum age of 35 years. Out of 215 participants, 168(78.1%) were aged between 18 to 25 years and 47(21.9%) participants were aged between 26 to 35 years. 175(81.4%) participants were registered and 40(18.6%) participants were unregistered.
- Among 215 study participants, 145(67.4%) participants were of gestational age between 37 to 40 weeks, 65(30.2%) participants were of gestational age between 40 weeks 1 day to 41 weeks, and 5(2.3%) participants were above > 41 weeks 1 day.

- BMI was normal among 213 (99.1%) participants, and only 2(0.9%) participants were pre-obese.
- Out of 215 study participants, 147(68.4%) delivered spontaneously, and 68 (31.6%) participants were augmented and then delivered.
- PROM (17(24.64%) was the common reason for augmentation, followed by non-progression of labour- 13(18.84%), post-datism - 12(17.39%), inadequate contraction, and oligohydramnios- 9(13.04%) participants each, ARM - 7(10.14%) subjects and fetal growth restriction (FGR)- 2(2.9%).
- Dinoprostone gel + misoprostol- 23(29.48%) was the main mode of augmentation of labour, followed by dinoprostone gel only- 23(29.48%) and misoprostol only - 11(14.1%).
- Among 215 participants, spontaneous rupture of membrane (SRM) was seen majorly among 113(52.6%) participants; 50 participants were admitted with ruptured membranes, and 20 participants were taken for LSCS before membrane rupture and ARM was done for 32(14.9%) participants.
- Out of 32(100%) participants who were subjected to ARM, inadequate contraction (18(56.25%) participants) the most common indication followed by fetal distress (13(40.62%)).
- Liquor was clear in most of the participants, i.e., 179 (83.3%), and meconium-stained liquor was seen among 36(16.7%) participants.
- Of 215 participants, the majority, 136 (63.3%) participants, had undergone vaginal delivery, and 79(36.7%) participants had undergone c-section.
- Out of 136 participants who underwent vaginal delivery, 17(12.5%) had ventouse delivery.

- Out of the 79 participants who had undergone LSCS, 46 (58.2%) participants were taken during the latent phase of labour, 30(37.7%) participants were taken during the active phase of labour, and 3(3.79%) participants were taken up during 2nd stage of labour.
- Fetal distress was the main indication for LSCS- 35(16.3%) followed by thick MSL with fetal distress (24(11.2%)), MSL with unfavorable cervix- 5(2.3%), anamnios among 4(1.9%) participants, CPD and severe oligohydramnios among 3(1.4%) participants each.
- Approximately 3/4th of the babies weighed between 2.6 to 3.5 kg- 160(74.4%), 1/4th of the babies weighed < 2.5 kg- 52(24.2%) and 3 (1.4%) babies weighed > 3.5 kg.
- Among babies of 215 study participants, about 198 (92.1%) babies were with their mothers, and 17(7.9%) babies required NICU admission.
- Respiratory distress was the prime indication for NICU admission- 12(70.58%), followed by LBW and prolonged PROM - 2 (11.76%) and perinatal asphyxia- 1(11.76%).
- The mean cervical dilatation at admission was 1.75 ± 0.75, the mean BISHOP score at admission was 4.64 ± 1.99, the mean duration of the latent phase was 9.25 ± 8.08 hours, the mean duration of the active phase was 2.47 ± 2.10 hours. The mean time interval between admission and delivery was 11.46 ± 8.01; the mean APGAR score at 1 min was 7.07 ± 0.95; the mean APGAR score at 5 min was- 8.24 ± 0.79, the mean duration of hospital stay- 4.97 ± 0.96, mean total blood loss was 323.72 ± 153.66.
- About 79(36.8%) participants had LSCS, 26(12.1%) participants had prolonged latent labour, 11(5.1%) participants had postpartum haemorrhage and 2(0.9%) participants had surgical site infection.

- Out of the participants who had a normal BMI, 134(62.3%) underwent vaginal delivery, and 79(36.7%) underwent C-sections. Only 2 pre-obese participants underwent vaginal delivery. The Chi-square test was applied to find the association between BMI and mode of delivery. The Chi-square test showed no statistically significant association between BMI and mode of delivery ($\varkappa 2$=1.17, p=0.27).
- The mean time interval between admission and delivery was 11.46 ± 8.06, with a minimum of 0.19 and a maximum of 40.41.
- The mean duration of labour decreased with an increase in cervical dilatation.
- Negative, weak, and significant correlation was seen between the BISHOP score at admission and the time interval between admission and delivery (r=-0.414, p=0.001).
- Out of 68(68.4%) participants who had augmentation of labour, 44(20.5%) had underwent vaginal delivery and 24(11.2%) underwent C-section. The Chi-square test was applied to find the association between augmentation and Mode of delivery. The Chi-square test showed no statistically significant association between augmentation of labour and mode of delivery ($\varkappa 2$=0.09, p=0.76).
- Pearson's correlation showed a very weak, positive, and significant correlation between the duration of hospital stay and latent phase of labour. (r= 0.344, p=0.,001).
- The mean latent phase duration in participants with C-sections was 10.05 ± 9.01 hours, whereas the mean latent phase duration in participants with a vaginal delivery was 8.39 ± 7.18 hours.

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SCREENING FORM

Screening number:

Date of screening:

First name:

Middle name:

Last name:

Husband's name:

Age:

IP NO:

Address:

Phone no:

Landline:

PROFORMA

Serial no: ☐☐ Registered ☐ Unregistered ☐

Name: IP NO

Age:

Address:

Date of admission: ☐ Time of admission Date of ☐

delivery: ☐

HISTORY OF PRESENTING ILLNESS (yes -1, no-2)

Months of amenorrhea ☐

Appreciating fetal movements:

yes ☐ No ☐

Chief complaints:

	YES	NO
Pain abdomen	☐	☐
PV bleed	☐	☐
PV leak	☐	☐

OBSTETRIC HISTORY: (yes -1, no-2)

Married life -

Consanguineous marriage

yes ☐ no ☐

OBSTETRIC HISTORY:

GRAVIDA ☐ PARA ☐ LIVE ☐ ABORTION ☐

MENSTRUAL HISTORY(regular -1, irregular -2)

Cycles: regular ☐ irregular ☐

LMP: ☐

EDD: ☐

POG: ☐

PAST HISTORY: (yes -1, no-2)

		YES	NO	
1.	Diabetes	☐	☐	if yes, treatment__________________
2.	Hypertension	☐	☐	if yes, treatment__________________
3.	Hypothyroidism	☐	☐	if yes, treatment__________________
4.	Bronchial asthma	☐	☐	if yes, treatment__________________
5.	epilepsy	☐	☐	if yes, treatment___________________
6.	TB	☐	☐	if yes, treatment___________________
7.	Cardiac disease	☐	☐	if yes, treatment_______________
8.	h/o blood transfusion	☐	☐	
9.	h/o drug allergy	☐		

COMORBIDITIES:

GENERAL EXAMINATION:

Height

Weight

BMI

(yes -1, no-2)

Pallor

Icterus

Pedal edema

Thyroid / breast/ spine Pulse rate -

Blood pressure –

SYSTEMIC EXAMINATION:

CVS- RS -

P/A – Uterus size

Relaxed Acting

Presentation

Engaged unengaged

FHR CEFW

Per Speculum: Active leak: yes ☐ no ☐

If yes, color of the liquor __________________

DIAGNOSIS:

LABOUR DETAILS:

1) Mode of onset of labor: Spontaneous ☐ Induced ☐

2) Augmentation of labor : YES ☐ NO ☐

COLOUR OF LIQUOR ____________________________________

Cervical Dilatation							
Effacement/Length							
Consistency							
Position							
Station							
Membranes							
BISHOPS SCORE							
Intervention done							

Mode of delivery: (vaginal delivery -1, LSCS – 2)

Vaginal delivery: (normal -1, ventouse-2, forceps -3)

Normal ☐ Ventouse ☐ Forceps ☐

Emergency LSCS:

Indication for emergency LSCS:

Duration of latent phase of labour:

Duration of active phase of labour:

Time interval between admission and delivery:

FINAL DIAGNOSIS:

LAB INVESTIGATIONS:

HB - PCV - ---

PLT - ________________________

DIPSI -___________________

SR TSH - _________________

HIV -_________________ HbsAG

____

MATERNAL OUTCOME:

Prolonged latent labour – yes ☐ no ☐

Operative delivery – yes ☐ no ☐

LSCS – yes ☐ no ☐

Intrapartum / Intra-op complications: if specify ___________________

Postpartum hemorrhage –

Management method –

Others: if specify _________________________

DURATION OF HOSPITAL STAY:

DATE OF DISCHARGE:

NEONATAL OUTCOME:

Live Birth - yes ☐ no ☐

Still birth - yes ☐

no ☐

Birth weight -

APGAR

1MIN

5MINs

CORD blood pH DONE YES / NO If yes, pH _

NICU ADMISSION - yes ☐ no ☐

INDICATION FOR ADMISSION

S NO	AGE	REGISTERED / UNREGISTERED	Gestation age	BMI	CERVICAL DILATATION AT ADMISSION	ADMISSION BISHOP SCORE	AUGMENTATION DONE OR NOT DONE	REASON FOR AUGMENTATION	MODE OF AUGMENTATION			OXYTOCIN	RUPTURE OF MEMBRANE	INDICATION FOR ARM	LIQUOR	DURATION OF LABOR		MODE OF DELIVERY	VAGINAL DELIVERY		INDICATION	TIME INTERVAL BETWEEN ADMISSION AND DELIVERY	BIRTH WEIGHT	APGAR 1MIN	5 MIN	BABY WITH MOTHER/NICU	INDICATION FOR NICU ADMISSION	DURATION OF HOSPITAL STAY	TBL		
										NO OF CP	NO OF CT					LATENT PHASE	ACTIVE PHASE														
1	24	1	2	23.4	2	6	2	NA	NA	0	0	2	2	0	1	4	4.3	1	1	0	0	9.1	2	7	8	2	NA	5	200		
2	21	1	1	21.8	3	7	2	NA	NA	0	0	2	2	0	1	1.3	4	1	1	0	0	6.14	2	7	9	2	NA	4	150		
3	27	1	1	20.2	3	7	2	NA	NA	0	0	2	2	0	2	3.15	0	2	0	2	msl	3.45	2	8	9	2	NA	5	560		
4	21	1	1	23.6	2	5	2	NA	NA	0	0	2	2	0	1	4	4.15	1	1	0	0	8.54	1	7	8	2	NA	4	100		
5	22	1	2	22.4	1	1	1	POST DATISM	1	2	0	2	2	0	2	12.15	0	2	0	1	msl	12.37	1	7	8	2	NA	5	380		
6	19	1	2	19.8	3	7	2	NA	NA	0	0	2	NA	0	1	2	3.3	1	1	0	0	6.39	2	8	9	2	NA	5	100		
7	23	1	1	20.2	1	1	1	FGR	2	3	1	2	1	INADEQUATE CONTRACTION	1	22	2.45	1	1	0	0	25.15	2	7	7	2	NA	5	150	prolonged latent phase	
8	28	1	2	21.6	3	7	2	NA	NA	0	0	2	1	INADEQUATE CONTRACTION	1	1.3	3.15	1	1	0	0	4.24	2	7	8	2	NA	4	100		
9	25	1	1	22	3	6	2	NA	NA	0	0	2	NA	0	1	1	2	1	1	0	0	3.32	1	8	9	2	NA	4	200		
10	21	1	2	20.4	2	5	2	NA	NA	0	0	2	1	INADEQUATE CONTRACTION	1	6	5.45	1	1	0	0	12.22	2	7	8	2	NA	4	250		
11	21	1	2	19.8	2	2	1	OLIGOHYDRAMNIOS	1	2	0	2	2	0	1	12	3.3	1	1	0	0	16.26	2	7	8	2	NA	5	100		
12	26	1	2	22.5	2	7	1	POST DATISM	1	2	0	2	1	INADEQUATE CONTRACTION	1	12	3.45	1	1	0	0	15.52	2	7	8	2	NA	4	150		
13	25	1	1	21.7	3	7	2	NA	NA	0	0	2	1	INADEQUATE CONTRACTION	1	4	3	1	1	0	0	7.37	2	8	9	2	NA	4	200		
14	20	1	1	20.3	1	1	1	OLIGOHYDRAMNIOS	NA	2	0	2	2	0	1	16	4	1	1	0	0	20.45	2	7	8	2	NA	5	250		
15	24	1	2	22.1	3	6	2	NA	NA	0	0	2	1	NON REASSURING NST	1	2	3.45	1	2	0	POOR MATERNAL BEARING DOWN EFFORTS	6.31	2	7	9	2	NA	4	350		
16	24	1	2	21.8	2	6	2	NA	NA	0	0	2	2	0	1	2	2.3	1	1	0	0	4.5	2	8	9	2	NA	5	100		
17	24	1	1	22	2	5	1	NO PROGREE	1	3	0	2	1	INADEQUATE CONTRACTION	1	18	5	1	1	0	0	23.57	2	8	9	2	NA	5	350		
18	20	1	1	21.5	3	8	2	NA	NA	0	0	2	NA	0	1	2	3	1	1	0	0	5.32	2	8	9	2	NA	4	150		
19	24	1	2	20.6	2	4	1	NO PROGREE	1	2	0	2	2	0	1	11	2.45	1	1	0	0	14.35	2	6	7	1	respiratory distress	5	300		
20	26	1	2	20.5	1	1	1	POST DATISM	2	3	2	2	2	0	2	26	0.3	2	0	2	thick MSL	27.4	2	7	8	2	NA	6	570	prolonged latent phase	SSI
21	23	1	1	21	1	1	1	OLIGOHYDRAMNIOS	1	3	0	2	2	0	1	22	5.45	1	1	0	0	28.38	2	7	9	2	NA	6	150		
22	25	1	2	20.3	2	5	2	NA	NA	0	0	2	NA	0	1	4	0	2	0	1	anamnios	4.17	2	7	9	2	NA	5	410		
23	25	1	2	21.6	2	5	2	NA	NA	0	0	2	2	0	1	6.3	6	2	0	2	2nd stage arrest	13.34	2	5	7	1	respiratory distress	6	830	Haymann's suture	
24	24	1	1	22.6	1	1	2	NA	NA	0	0	2	2	0	2	8.3	4	2	0	2	msl	12.42	2	7	8	2	NA	4	510		
25	23	1	2	21.4	1	1	2	NA	NA	0	0	2	2	0	1	8.3	5.3	1	1	0	0	14.48	2	7	8	2	NA	5	200		
26	26	2	1	20.4	1	5	2	NA	NA	0	0	2	2	0	1	5	5.3	1	2	0	poor maternal bearing effort	11.22	2	7	8	2	NA	4	350		
27	22	1	2	20.9	3	8	2	NA	NA	0	0	2	2	0	1	2.3	3	1	1	0	0	6.3	1	8	9	2	NA	4	150		
28	35	1	2	23.4	1	1	2	NA	NA	0	0	2	NA	0	1	1	0	2	0	1	anamnios	1	2	7	7	2	NA	5	510		
29	28	1	1	22.4	1	1	1	OLIGOHYDRAMNIOS	2	3	2	2	1	FETAL DISTRESS	1	26	0	2	0	2	fetal distress	26.39	2	7	9	2	NA	6	380	prolonged latent phase	
30	25	1	1	21.8	1	1	1	LESS LIQUOR	1	2	0	2	2	0	2	12	1.3	2	0	2	thick MSL	14.24	1	7	8	2	NA	6	450		
31	19	2	1	22.3	2	5	1	EROM	3	0	1	2	NA	0	1	4	5.3	1	1	0	0	10.9	2	8	9	2	NA	4	150		
32	20	1	1	22.4	2	6	2	NA	NA	0	0	2	2	0	1	3.3	0.1	1	1	0	0	3.48	2	7	8	2	NA	5	200		
33	23	1	1	22	1	1	2	NA	NA	0	0	2	NA	0	2	0.18	0	2	0	1	Thick MSL	18	1	7	8	1	LBW	5	430		
34	24	1	1	23.1	3	9	2	NA	NA	0	0	2	2	0	1	4	1.45	2	0	2	Suspicious trace	6.3	2	8	9	2	NA		390		
35	26	1	2	20.1	1	3	2	NA	NA	0	0	2	2	0	1	8	3.45	1	1	0	0	12.16	2	4	6	1	respiratory distress	4	250		
36	20	1	2	20.2	1	1	2	NA	NA	0	0	2	NA	0	2	0.19	0	2	0	1	severe oligohydramnios	0.19	2	8	10	2	NA	4	410		
37	21	1	2	21.2	1	3	1	NO PROGRESS	1	2	0	2	NA	0	1	20	0	2	0	1	pathological trace	20.3	1	7	8	2	NA	6	350	prolonged latent phase	
38	22	2	2	22.8	3	3	2	NA	NA	2	0	2	2	0	1	2.3	0.45	1	1	0	0	3.8	2	6	9	2	NA	4	200		
39	24	1	2	20.2	1	3	1	NO PROGRESS	1	2	0	2	1	NON REASSURING NST	1	13	2	1	1	0	0	15.6	2	7	8	2	NA	5	100		
40	29	1	2	20.4	1	4	2	NA	NA	0	0	2	2	0	2	4.54	0	2	0	1	Thick MSL	4.54	2	7	8	2	NA	5	370		
41	22	1	1	21.5	2	5	2	NA	NA	0	0	2	2	0	1	1	2.15	1	1	0	0	3.22	1	7	8	2	NA	4	100		
42	21	1	2	23.8	1	1	1	NO PROGRESS	2	2	4	2	NA	0	1	40.41	0	2	0	1	Suspicious trace	40.41	2	7	8	2	NA	5	440	prolonged latent phase	
43	19	2	2	22.6	1	5	1	INADEQUATE CONTRACTION	3	2	3	2	2	0	1	22	0	2	0	1	Non reassuring test	22.36	2	8	9	2	NA	5	390	prolonged latent phase	
44	20	1	2	20.2	2	3	2	NA	NA	0	0	2	NA	0	1	1.07	0	2	0	1	persistent fetal tachycardia	1.07	2	7	9	2	NA	5	540		
45	26	1	2	22.2	3	7	2	NA	NA	0	0	2	2	0	1	1	1.5	2	0	2	Fetal distress	2.5	1	8	9	2	NA	6	380		
46	19	2	1	21.5	2	7	2	NA	NA	0	0	2	2	0	1	3	1	1	1	0	0	4.9	2	7	8	2	NA	4	100		
47	19	1	1	24.9	1	5	1	OLIGOHYDRAMNIOS	1	2	0	2	2	0	1	9.3	0.15	1	1	0	0	9.52	2	7	8	2	NA	5	150		
48	28	1	2	20.6	2	5	2	NA	NA	0	0	2	NA	0	2	0.08	0	2	0	1	thick MSL	8	2	6	8	2	NA	5	430		
49	24	1	3	20.4	1	3	1	POST DATISM	2	2	2	2	2	0	1	25	4	2	0	2ND STAGE	persistent OP	29.51	2	7	8	2	NA	6	750	prolonged latent phase	B/L uterine artery ligation
50	22	1	1	22.2	1	4	1	NO PROGRESS	1	2	0	2	1	NON REASSURING NST	1	20	3.3	1	1	0	0	23.51	1	7	8	2	NA	5	200	prolonged latent phase	
51	25	1	2	24	2	5	2	NA	NA	0	0	2	NA	0	1	4.3	2.3	1	1	0	0	6.3	2	6	7	2	NA	6	100		
52	36	1	1	21.4	2	7	2	NA	NA	0	0	2	2	0	1	7.3	0.4	1	1	0	0	8.13	1	7	8	2	NA	4	300		
53	23	1	2	22.6	2	5	1	PROM	3	2	1	2	NA	0	1	8	2.3	1	1	0	0	10.48	2	7	8	2	NA	4	650	atonic PPH	
54	30	1	1	23.8	2	6	1	EROM	3	2	2	2	NA	0	1	8.3	1.3	1	1	0	0	10.27	1	6	9	2	NA	5	200		
55	18	1	3	22.1	1	4	2	NA	NA	0	0	2	NA	0	2	0.21	0	2	0	1	thick MSL	21	2	7	8	2	NA	6	450		
56	19	1	1	22.16	2	5	2	NA	NA	0	0	2	2	0	1	4	2.3	1	1	0	0	6.59	2	7	8	2	NA	4	100		
57	25	1	1	22.4	2	5	1	EROM	3	2	2	2	NA	0	1	13.2	0	2	0	1	SUSpicious trace	13.52	2	1	4	1	Respiratory distress	6	550	difficult extraction - inverted T shaped incision	
58	25	1	1	23.8	3	7	2	NA	NA	0	0	2	1	INADEQUATE CONTRACTION	1	4	2.4	1	1	0	0	6	2	7	9	2	NA	4	100		
59	19	1	2	22.3	1	1	2	NA	NA	0	0	2	2	0	2	20	2	2	0	2	thick MSL	22.32	3	7	7	2	NA	6	470	prolonged latent phase	
60	20	1	1	22.4	3	7	2	NA	NA	0	0	2	2	0	1	3.3	2	1	2	0	POOR MATERNAL BEARING DOWN EFFORTS	6.34	2	5	9	1	Respiratory distress	5	350	shoulder dystocia	
61	27	1	1	21.7	3	7	2	NA	NA	0	0	2	1	SUSPICIOUSTRACE	1	4	0	2	0	2	PATHOLOGICALTRACE	7.15	2	8	9	2	NA	5	350		
62	22	1	2	21.3	2	2	2	NA	NA	0	0	2	NA	0	1	0.35	0	2	0	1	pathological trace	35	2	6	9	2	NA	6	480		
63	25	2	2	24.6	1	4	2	NA	NA	0	0	2	NA	0	1	11.16	0	2	0	1	severe oligohydramnios	11.16	2	7	8	2	NA	6	410		
64	25	1	1	20.2	2	4	2	NA	NA	0	0	2	2	0	2	5.45	0	2	0	2	CPD	6.29	3	7	8	2	NA	5	550		
65	21	2	1	21.9	3	7	2	NA	NA	0	0	2	1	LIQUOR EXCESS	2	3	1.15	1	1	0	0	4.48	2	8	9	2	NA	4	100		
66	20	1	2	22.3	1	2	2	NA	NA	0	0	2	1	NONREASSURING NST	2	21	2	2	0	2	THICKMSL	23.3	2	8	9	2	NA	5	380	prolonged latent phase	
67	24	1	1	21.6	3	10	2	NA	NA	0	0	2	2	0	1	0.3	2.3	1	2	0	POOR MATERNAL BEARING EFFORTS+	3.38	2	7	8	2	NA	3	150		
68	21	1	1	22.4	1	4	2	NA	NA	0	0	2	2	0	1	10.3	2.45	1	1	0	0	13.32	1	7	8	2	NA	4	200		
69	23	2	2	20.8	1	3	2	NA	NA	0	0	2	2	0	1	5.3	2	1	1	0	0	8.17	2	7	9	2	NA	5	100		
70	30	1	1	24.6	1	5	2	NA	NA	0	0	2	2	0	1	2.3	1.45	1	1	0	0	4.3	2	7	9	2	NA	4	150		
71	26	1	2	24.8	3	5	2	NA	NA	0	0	2	NA	0	2	0.36	0	2	0	1	THICK MSL	0.36	2	7	8	2	NA	6	550		
72	25	1	2	24.3	2	5	2	NA	NA	0	0	2	NA	0	2	0.2	0	2	0	1	thick MSL	0.2	2	7	9	2	NA	5	410		
73	25	1	1	22	3	6	2	NA	NA	0	0	2	2	0	1	4	5	1	2	0	FETAL DISTRESS	9.25	2	7	8	2	NA	5	350		
74	21	1	2	24.1	1	5	1	POST DATISM	2	2	3	2	2	0	1	30	1.3	1	1	0	0	31.46	2	7	8	2	NA	6	100	prolonged latent phase	
75	29	1	1	24.6	2	7	2	NA	NA	0	0	2	NA	0	1	6.25	0	2	0	2	pathological trace	6.46	2	8	9	2	NA	6	380		
76	26	2	1	22.2	3	7	2	NA	NA	0	0	2	NA	0	1	1	1.15	1	1	0	0	2.23	2	8	9	2	NA	5	100		
77	21	1	1	23.7	1	5	2	NA	NA	0	0	2	NA	0	1	8	0.5	2	0	2	pathological trace	9.29	1	7	9	1	LBW	6	450		

78	23	1	1	21.7	1	4	2	NA	NA	0	0	2	2	0	1	22	1.3	1	1	0	0	23.58	2	7	8	2	NA	6	100	prolonged latent phase	
79	24	2	1	22.8	3	5	2	NA	NA	0	0	2	NA	0	1	3.4	0	2	0	1	NON REASSURING NST	3.4	2	6	8	2	NA	6	370	left uterine angle ligation	
80	19	1	2	24.1	1	1	2	NA	NA	0	0	2	2	0	1	17	2	1	1	0	0	17.18	2	7	8	2	NA	6	250		
81	18	2	1	22.6	3	7	2	NA	NA	0	0	2	2	0	1	2.3	1.3	1	1	0	0	4.27	2	7	9	2	NA	4	100		
82	19	2	1	23.6	1	4	2	NA	NA	0	0	2	1	FETAL DISTRESS	1	19	1.45	1	1	0	0	20.54	2	7	8	2	NA	5	150		
83	25	1	1	25.4	1	3	2	NA	NA	0	0	2	2	0	1	29.3	4	1	1	0	0	33.37	2	7	8	2	NA	5	200	prolonged latent phase	
84	22	1	2	23.8	1	3	2	NA	NA	0	0	2	2	0	1	3.11	0	2	0	1	SEVERE OLIGOHYDRAMNIOS	3.11	2	7	8	2	NA	5	550		
85	22	1	1	23.1	3	7	2	NA	NA	0	0	2	2	0	1	10.3	3.3	1	1	0	0	14	2	7	8	2	NA	5	350		
86	19	1	1	22.8	3	6	2	NA	NA	0	0	2	1	INADEQUATE CONTRACTION	1	3	2.3	1	1	0	0	5.47	2	4	6	1	PERINATAL ASPHYXIA	8	100		
87	23	1	2	22.6	2	5	2	NA	NA	0	0	2	2	0	1	8	3	1	1	0	0	11.6	2	8	9	2	NA	4	350		
88	22	2	1	24.2	2	5	1	INADEQUATE CONTRACTION	3	0	1	2	NA	0	1	10.48	0	2	0	1	PATHOLOGICAL TRACE	10.48	1	7	9	2	NA	6	510		
89	26	1	1	24.6	3	8	2	NA	NA	0	0	2	NA	0	1	2.5	0	2	0	1	NON REASSURING NST	2.5	1	7	8	2	NA	5	470		
90	28	1	2	26.3	2	3	1	INADEQUATE CONTRACTION	3	0	2	2	2	0	1	20	5.45	1	2	0	POOR MATERNAL BEARING DOWN EFFORTS	26	2	7	8	2	NA	4	550	prolonged latent phase	atonic PPH
91	20	2	2	23.2	1	5	2	NO PROGRESS	1	1	0	2	2	0	1	28.3	1.3	1	1	0	0	30.19	1	7	9	2	NA	6	150	prolonged latent phase	
92	22	1	1	22.8	1	1	1	POST DATISM	2	3	1	2	2	0	1	22.3	3	1	1	0	0	25.46	2	7	8	2	NA	5	400	prolonged latent phase	
93	20	2	1	22.4	1	1	1	PROM	3	0	3	2	NA	0	1	12.3	1.2	1	1	0	0	13.59	2	8	9	2	NA	4	350		
94	22	1	1	20.6	3	3	2	NA	NA	0	0	2	2	0	2	0.4	0	2	0	2	THICK MSL	1.3	1	7	8	2	NA	6	510		
95	26	2	1	21.4	3	7	2	NA	NA	0	0	2	2	0	1	1	2.15	1	1	0	0	3.31	2	7	8	2	NA	4	200		
96	21	1	1	23.2	2	2	2	NA	NA	0	0	2	2	0	1	5.3	1.15	1	1	0	0	6.56	2	7	8	2	NA	4	350		
97	24	2	1	22.8	2	4	2	NA	NA	0	0	2	NA	0	2	0.35	0	2	0	1	THICK MSL	0.35	2	7	8	2	NA	5	450		
98	25	1	2	22.1	1	6	2	NA	NA	0	0	2	2	0	2	2	0	2	0	1	THIN MSL UNFAVOURABLE CERVIX	2.57	2	7	8	2	NA	5	390		
99	27	2	1	20.2	1	2	1	NO PROGRESS	1	3	0	2	2	0	1	18	1	1	1	0	0	19.14	1	8	9	2	NA	6	350		
100	21	1	1	23.8	2	6	2	NA	NA	0	0	2	2	0	1	7.3	4	1	1	0	0	11.41	1	7	8	2	NA	4	250		
101	21	1	1	23.1	1	5	2	NA	NA	0	0	2	2	0	1	9.15	1.45	1	1	0	0	10.54	1	7	8	2	NA	5	150		
102	35	1	1	23.2	1	4	2	NA	NA	0	0	2	NA	0	1	8	0	2	0	1	ANAMNIOS	10.57	2	7	8	2	NA	5	450		
103	21	1	1	23.6	1	3	2	NA	NA	0	0	2	2	0	2	8	0	2	0	2	THICK MSL	10.25	1	7	8	2	NA	6	430		
104	23	1	1	22.6	1	2	1	PROM	3	0	4	2	NA	0	1	19.12	0	2	0	1	PROLONGED PROM	19.12	1	7	8	2	NA	6	390		
105	21	1	1	22.8	1	6	1	PROM	3	0	1	2	NA	0	1	4	0	2	0	1	PATHOLOGICAL TRACE	5.37	1	7	8	2	NA	5	650		
106	23	1	2	22.1	1	1	1	POST DATISM	1	2	0	2	NA	0	1	8.15	0	2	0	1	ANAMNIOS	9.27	2	7	8	2	NA	6	410		
107	22	1	1	21.6	1	5	2	NA	NA	0	0	2	2	0	1	12	1.5	1	1	0	0	13.58	2	8	9	2	NA	4	350		
108	22	1	1	22.8	2	8	1	NO PROGRESS	3	0	3	2	2	0	1	17.3	2	1	1	0	0	19.44	2	7	9	2	NA	4	200		
109	25	1	1	24.6	1	5	2	NA	NA	0	0	2	2	0	2	10	0	2	0	2	THICK MSL	10.34	2	7	8	2	NA	4	410		
110	25	1	1	20.8	1	1	1	PROM	3	0	1	2	NA	0	1	6	2.2	1	1	0	0	8.31	2	7	8	2	NA	4	750	atonic PPH	
111	22	1	1	23.8	1	5	1	PROM	3	0	2	2	NA	0	1	10	2.15	1	1	0	0	12.4	2	7	8	1	PROLONGED PROM	5	100		
112	24	1	1	20.6	1	5	1	NADEQUATECONTRACTIONS	3	0	2	2	2	0	2	23	0	2	0	1	THICK MSL	23.35	2	7	8	2	NA	6	440	prolonged latent phase	
113	22	1	1	21.2	2	6	2	NA	NA	0	0	2	1	INADEQUATE CONTRACTION	1	8	7.2	1	1	0	0	15.28	2	8	9	2	NA	4	350		
114	24	1	1	22.6	2	5	1	EROM	3	0	1	2	NA	0	1	2.3	2.35	1	1	0	0	5.3	1	8	9	2	NA	4	250		
115	27	1	1	22.4	2	5	2	NA	NA	0	0	2	2	0	1	8	2.2	1	1	0	0	10.2	2	7	8	2	NA	4	300		
116	28	1	1	22.1	3	3	2	NA	NA	0	0	2	2	0	1	4.3	1.5	1	1	0	0	6.37	1	7	8	2	NA	4	100		
117	23	1	1	20.8	2	4	1	INADEQUATE CONTRACTION	3	0	1	2	2	0	1	4.3	3.2	1	1	0	0	8.22	2	8	9	2	NA	4	150		
118	20	1	1	21.2	2	5	2	NA	NA	0	0	2	2	0	1	5	1.45	1	1	0	0	7	1	7	8	2	NA	4	300		
119	27	1	2	23.8	1	7	2	NA	NA	0	0	2	2	0	1	1	2.15	1	1	0	0	3.28	2	7	8	2	NA	4	350		
120	23	1	1	22.4	2	5	1	NO PROGRESS	1	1	0	2	2	0	1	7.3	2	1	1	0	0	9.56	2	7	8	2	NA		200		
121	18	1	1	21.6	1	12	2	NA	NA	0	0	2	2	0	1	2	1	1	1	0	0	3.16	1	8	9	2	NA	3	100		
122	23	1	1	20.8	2	5	1	INADEQUATE CONTRACTION	3	0	1	2	2	0	1	9.3	1.3	1	1	0	0	11.5	2	8	9	2	NA	3	300		
123	22	1	1	23.8	2	5	1	PROM	3	0	2	2	NA	0	1	12.3	2.3	2	0	2	msl with CPD	15.2	2	8	9	2	NA	5	450		
124	27	1	2	21.8	3	3	2	NA	NA	0	0	2	NA	0	2	0.4	0	2	0	1	THICK MSL	0.4	2	7	8	2	NA	5	460		
125	26	2	1	22.8	1	3	2	NA	NA	0	0	2	2	0	1	3	2.25	1	2	0	POORMATERNAL BEARING EFFORTS	5.37	2	7	8	1	RESPIRATORY DISTRESS	3	350		
126	24	1	1	20.8	1	5	2	NA	NA	0	0	2	2	0	1	8	1.45	1	2	0	POORMATERNAL BEARING EFFORTS	10.6	1	7	8	2	NA	3	100		
127	25	1	1	23.8	3	9	2	NA	NA	0	0	2	NA	0	1	0.3	2.3	1	1	0	0	3.3	2	7	8	2	NA	5	350		
128	27	1	1	22.8	1	5	1	EROM	3	0	1	2	NA	0	1	4.3	2.34	1	1	0	0	7.34	1	7	8	2	NA	5	100		
129	21	2	2	23.2	1	5	1	POST DATISM	1	2	0	2	2	0	2	18.45	0	2	0	2	PATHOLOGICAL TRACE	19.2	1	7	8	2	NA	7	470		
130	21	1	1	22.6	2	5	2	NA	NA	0	0	2	2	0	1	2	2.3	1	1	0	0	4.41	2	7	8	2	NA	4	350		
131	19	1	2	21.6	1	2	1	POST DATISM	2	3	2	2	NA	0	2	31.26	0	2	0	1	NPL	31.26	2	7	8	2	NA	7	450	prolonged latent phase	
132	27	1	1	22.4	1	3	1	PROM	3	0	3	2	NA	0	1	12.3	0.45	1	1	0	0	13.25	2	7	8	2	NA	5	300		
133	28	1	1	21.8	3	8	2	NA	NA	0	0	2	2	0	1	8.3	6	1	1	0	0	13.46	2	7	8	2	NA	5	150		
134	21	1	1	22.2	3	8	2	NA	NA	0	0	2	NA	0	1	4	2.15	1	1	0	0	6.23	2	7	8	2	NA	5	350		
135	19	1	1	20.8	3	3	1	PROM	3	0	2	2	NA	0	1	7.4	0	2	0	1	PATHOLOGICAL TRACE	7.52	1	7	8	2	NA	6	470		
136	20	1	1	22.1	2	5	2	NA	NA	0	0	2	2	0	1	3.3	15	1	1	0	0	4.43	1	7	8	2	NA	4	300		
137	29	2	2	21.8	2	5	2	NA	NA	0	0	2	2	0	1	2.3	3	2	0	2	PATHOLOGICAL TRACE	20.41	2	7	8	2	NA	6	550	left uterine angle extention	
138	21	1	1	22.2	2	2	1	PROM	3	0	1	2	NA	0	1	6.3	0.45	1	1	0	0	7.22	2	8	9	2	NA	4	200		
139	20	1	1	21.6	2	6	2	NA	NA	0	0	2	NA	0	1	3	2.45	1	1	0	0	6.24	2	7	8	2	NA	5	100		
140	20	2	3	21.2	2	4	2	NA	NA	0	0	2	2	0	1	6.3	1.3	1	1	0	0	8.11	1	7	8	2	NA	5	150		
141	28	1	1	22.1	1	4	1	PROM	3	0	1	2	NA	0	1	5	2	1	1	0	0	7.19	1	8	9	2	NA	4	300		
142	24	1	2	22.4	1	4	2	NA	NA	0	0	2	2	0	1	3	1.45	1	2	0	POOR MATERNAL BEARING EFFORTS	4.35	2	7	8	2	NA	4	350		
143	22	1	2	23.8	1	3	2	NA	NA	0	0	2	NA	0	1	10.3	0	2	0	1	PATHOLOGICAL TRACE	11.42	1	7	8	2	NA	5	370		
144	26	1	1	22.4	2	5	2	NA	NA	0	0	2	2	0	1	4	3.3	2	0	2	NPL	8	2	7	8	2	NA	6	450		
145	22	1	2	23.1	1	5	1	OLIGOHYDRAMNIOS	1	2	0	2	1	INADEQUATE CONTRACTION	1	18	1.3	1	1	0	0	19.59	2	8	9	2	NA	5	200		
146	20	1	1	22.6	1	2	2	NA	NA	0	0	2	2	0	1	11	1	1	1	0	0	12.9	2	7	8	1	RESIPIRATORY DISTRESS	6	300		
147	20	1	1	22.1	2	5	2	NA	NA	0	0	2	1	INADEQUATE CONTRACTION	1	4	1.3	1	1	0	0	5.46	1	7	8	2	NA	5	200		
148	24	1	1	23.4	2	5	1	PROM	3	0	1	2	NA	0	1	5.3	1.2	1	2	0	POOR MATERNAL BEARING EFFORTS	7.2	2	7	8	1	PROM	5	300		
149	24	1	1	22.6	2	6	2	NA	NA	0	0	2	NA	0	1	8	4	1	1	0	0	12.31	2	8	9	2	NA	6	350		
150	24	2	1	22.4	1	5	2	NA	NA	0	0	2	NA	0	1	7.3	1.2	1	1	0	0	9.15	2	7	8	2	NA	5	350		
151	23	1	1	22.6	3	7	2	NA	NA	0	0	2	2	0	1	3	1.15	1	2	0	POOR MATERNAL BEARING EFFORTS+	4.26	2	8	9	2	NA	5	200		
152	20	1	1	21.8	2	4	1	NO PROGRESS	1	2	0	2	2	0	1	18.3	1.15	1	2	0	POOR MATERNAL BEARING EFFORTS	20.15	1	7	8	2	NA	5	350		
153	27	1	1	22.4	1	4	1	LESS LIQUOR	1	1	0	2	2	0	1	15.3	1.3	1	1	0	0	17.16	1	7	8	2	NA	5	350		
154	20	2	2	21.6	2	5	2	NA	NA	0	0	2	1	INADEQUATE CONTRACTION	1	5	1	2	0	2	PERSISTENT ROP	6.35	2	7	8	2	NA	7	650		
155	22	1	1	22.4	1	3	1	NO PROGRESS	1	1	0	2	NA	0	1	20	0	2	0	1	PERSISTENT FETAL TACHYCARDIA	20.52	2	8	9	2	NA	6	440	prolonged latent phase	
156	25	2	2	21.8	2	6	2	NA	NA	0	0	2	NA	0	1	4.45	0	2	0	1	PATHOLOGICAL TRACE	4.45	2	8	9	2	NA	6	370		
157	22	1	2	22.4	1	4	2	NA	NA	0	0	2	2	0	1	7.3	2.3	1	1	0	0	10.22	2	8	9	2	NA	5	250		
158	25	1	1	22.7	2	6	1	PROM	3	0	1	2	NA	0	1	5	1	1	1	0	0	6.27	2	7	8	2	NA	4	300		
159	26	2	2	21.9	1	5	2	NA	NA	0	0	2	2	0	2	22.2	0	2	0	1	THICK MSL	22.44	1	7	8	2	NA	7	530	prolonged latent phase	
160	25	1	1	22.8	1	4	2	NA	NA	0	0	2	1	NONREASSURINGNST	1	21	4.45	1	1	0	0	26.2	2	8	9	2	NA	5	150	prolonged latent phase	

161	27	2	1	21.5	1	3	2	NA	NA	0	0	2	2	0	1	9	2.3	1	1	0	0	12.5	1	8	9	2	NA	4	300		
162	24	2	1	21.8	2	2	2	NA	NA	0	0	2	2	0	1	4	2.45	1	1	0	0	7.39	2	8	9	2	NA	5	350		
163	26	1	1	22.4	1	3	2	NA	NA	0	0	2	NA	0	1	0.5	0	2	0	1	SUSPICIOUS TRACE	0.5	2	7	8	2	NA	6	460		
164	29	2	1	23.5	3	6	2	NA	NA	0	0	2	2	0	1	2	2.15	1	1	0	0	4.49	1	8	9	2	NA	4	100		
165	24	1	1	21.4	2	7	2	NA	NA	0	0	2	2	0	1	15.15	0.35	1	1	0	0	16.15	1	2	4	1	RESPIRATORY DISTRESS	5	300		
166	23	1	1	23.3	1	3	1	EROM	3	0	3	2	NA	0	1	14.3	3.3	1	2	0	FETAL DISTRESS	18.15	2	8	9	2	NA	4	350		
167	25	2	1	23.4	2	8	2	NA	NA	0	0	2	NA	0	1	14	4	2	0	2	CPD	20.39	2	7	8	2	NA	6	460		
168	24	1	1	24.4	1	5	1	PROM	3	0	1	2	NA	0	1	2.3	2.5	1	1	0	0	5.53	2	7	8	1	respiratory DISTRESS	6	350		
169	26	1	1	24.2	2	5	2	NA	NA	0	0	2	2	0	2	14	1.45	2	0	2	THICK MSL	15.58	2	7	8	2	NA	6	380		
170	20	1	1	24.8	1	5	1	PROM	3	0	2	2	NA	0	1	9	1	1	1	0	0	10.17	2	8	9	2	NA	8	350		
171	24	1	1	23.2	2	5	2	NA	NA	0	0	2	1	NON REASSURING NST	1	24.3	1	2	0	2	pathological trace	26.1	2	5	9	2	NA	6	450	prolonged latent phase	
172	26	1	1	23.2	1	5	2	NA	NA	0	0	2	2	0	2	6.2	0	2	0	1	thick MSL	6.57	2	7	8	2	NA	5	470		
173	25	1	1	23.8	1	3	2	NA	NA	0	0	2	NA	0	1	19.34	0	2	0	1	SUSPICIOUS TRACE	19.34	2	8	9	2	NA	6	480		
174	20	2	1	23.5	2	5	2	NA	NA	0	0	2	NA	0	2	0.52	0	2	0	1	MSL WITH UNFAVOURABLE CERVIX	0.52	2	7	8	2	NA	5	450		
175	23	2	1	24.6	2	5	2	NA	NA	0	0	2	2	0	1	15.3	4.3	1	1	0	0	20.33	2	7	8	2	NA	5	300		
176	22	1	2	22.8	2	5	2	NA	NA	0	0	2	2	0	1	5	3.3	1	1	0	0	8.48	3	7	8	2	NA	5	150		
177	20	1	1	23.5	1	5	2	NA	NA	0	0	2	2	0	1	15.3	2.4	1	1	0	0	18.34	2	5	6	1	RESPIRATORY DISTRESS	8	350		
178	25	1	3	24.2	3	6	2	NA	NA	0	0	2	1	PERSISTENT FETAL TACHYCARDIA	2	8	1.22	2	0	2	THICK MSL	9.22	1	6	8	2	NA	6	470		
179	24	2	1	24.1	3	6	2	NA	NA	0	0	2	2	0	1	1	1.4	1	1	0	0	2.58	1	7	8	2	NA	5	300		
180	22	2	1	24.9	2	6	2	NA	NA	0	0	2	NA	0	2	0.38	0	2	0	1	THICK MSL	0.38	2	7	8	2	NA	5	550		
181	23	1	1	22.6	2	4	2	NA	NA	0	0	2	2	0	1	8	3.1	1	2	0	POOR MATERNAL BEARING EFFORT	11.31	2	7	8	2	NA	5	200		
182	19	1	2	23.1	2	6	2	NA	NA	0	0	2	1	SUSPICIOIS TRACE	1	9.3	0	2	0	2	SUSPICIOUS TRACE	10.56	2	8	9	2	NA	7	430		
183	24	1	1	23.8	2	5	2	NA	NA	0	0	2	NA	0	1	12.16	0	2	0	1	SUSPICIOUS TRACE	12.16	2	7	8	2	NA	6	410		
184	20	1	1	21.8	2	4	1	NO PROGRESS	1	2	0	2	2	0	1	18.3	1.15	1	2	0	POOR MATERNAL BEARING EFFORTS	20.15	1	7	8	2	NA	5	350		
185	20	1	1	22.1	2	5	2	NA	NA	0	0	2	1	INADEQUATE CONTRACTION	1	4	1.3	1	1	0	0	5.46	1	7	8	2	NA	5	200		
186	23	1	1	20.2	1	1	1	FGR	2	3	1	2	1	INADEQUATE CONTRACTION	1	23	2.45	1	1	0	0	26.15	2	7	7	2	NA	5	150	prolonged latent phase	
187	21	1	2	20.4	2	5	2	NA	NA	0	0	2	1	INADEQUATE CONTRACTION	1	6	5.45	1	1	0	0	12.22	2	7	8	2	NA	4	250		
188	25	1	1	21.7	3	7	2	NA	NA	0	0	2	1	INADEQUATE CONTRACTION	1	4	3	1	1	0	0	7.37	2	8	9	2	NA	4	200		
189	24	1	2	21.8	2	6	2	NA	NA	0	0	2	2	0	1	2	2.3	1	1	0	0	4.5	2	8	9	2	NA	5	100		
190	36	1	1	21.4	2	7	2	NA	NA	0	0	2	2	0	1	7.3	0.4	1	1	0	0	8.13	1	7	8	2	NA	4	300		
191	21	2	1	21.9	3	7	2	NA	NA	0	0	2	1	inadequate contraction	2	3	1.15	1	1	0	0	4.48	2	8	9	2	NA	4	100		
192	21	1	1	22.4	1	4	2	NA	NA	0	0	2	2	0	1	10.3	2.45	1	1	0	0	13.32	1	7	8	2	NA	4	200		
193	19	2	1	23.6	1	4	2	NA	NA	0	0	2	1	FETAL DISTRESS	1	19	1.45	1	1	0	0	20.54	2	7	8	2	NA	5	150		
194	23	1	2	22.6	2	5	2	NA	NA	0	0	2	2	0	1	8	3	1	1	0	0	11.6	2	8	9	2	NA	4	350		
195	22	1	1	22.8	1	1	1	POST DATISM	2	3	1	2	2	0	1	22.3	3	1	1	0	0	25.46	2	7	8	2	NA	5	400	prolonged latent phase	
196	22	1	1	21.6	1	5	2	NA	NA	0	0	2	2	0	1	12	1.5	1	1	0	0	13.58	2	8	9	2	NA	4	350		
197	25	1	1	20.8	1	1	1	PROM	3	0	1	2	NA	0	1	6	2.2	1	1	0	0	8.31	2	7	8	2	NA	4	450		
198	27	1	1	22.4	2	5	2	NA	NA	0	0	2	2	0	1	8	2.2	1	1	0	0	10.2	2	7	8	2	NA	4	300		
199	23	1	1	20.8	2	4	1	INADEQUATE CONTRACTION	3	0	1	2	2	0	1	4.3	3.2	1	1	0	0	8.22	2	8	9	2	NA	4	150		
200	27	1	2	23.8	1	7	2	NA	NA	0	0	2	2	0	1	1	2.15	1	1	0	0	3.28	2	7	8	2	NA	4	350		
201	23	1	1	20.8	2	5	1	INADEQUATE CONTRACTION	3	0	1	2	2	0	1	9.3	1.3	1	1	0	0	11.5	2	8	9	2	NA	3	300		
202	26	2	1	22.8	1	3	2	NA	NA	0	0	2	2	0	1	3	2.25	1	2	0	POORMATERNAL BEARING EFFORTS	5.37	2	7	8	1	RESPIRATORY DISTRESS	3	350		
203	24	1	2	22.4	1	4	2	NA	NA	0	0	2	2	0	1	3	1.45	1	2	0	POOR MATERNAL BEARING EFFORTS	4.35	2	7	8	2	NA	4	350		
204	22	1	2	23.1	1	5	1	OLIGOHYDRAMNIOS	1	2	0	2	1	INADEQUATE CONTRACTION	1	18	1.3	1	1	0	0	19.59	2	8	9	2	NA	5	200		
205	24	1	1	22.6	2	6	2	NA	NA	0	0	2	NA	0	1	8	4	1	1	0	0	12.31	2	8	9	2	NA	6	350		
206	21	2	2	23.2	1	5	1	POST DATISM	1	2	0	2	2	0	2	18.45	0	2	0	2	PATHOLOGICAL TRACE	19.5	1	7	8	2	NA	7	470		
207	24	1	3	20.4	1	3	1	POST DATISM	2	2	2	2	2	0	1	25	4	2	0	2ND STAGE	Deep Transverse arrest	29.51	2	7	8	2	NA	6	750	prolonged latent phase	
208	24	1	1	20.6	1	5	1	INADEQUATECONTRACTIONS	3	0	2	2	2	0	2	23	0	2	0	1	THICK MSL	23.35	2	7	8	2	NA	6	440	prolonged latent phase	
209	24	2	1	22.8	2	4	2	NA	NA	0	0	2	NA	0	2	0.35	0	2	0	1	THICK MSL	0.35	2	7	8	2	NA	5	450		
210	21	1	1	23.6	1	3	2	NA	NA	0	0	2	2	0	2	8	0	2	0	2	THICK MSL	10.25	1	7	8	2	NA	6	430		
211	21	1	1	22.8	1	6	1	PROM	3	0	1	2	NA	0	1	4	0	2	0	1	PATHOLOGICAL TRACE	5.37	1	7	8	2	NA	5	650		
212	29	1	1	24.6	2	7	2	NA	NA	0	0	2	NA	0	1	6.25	0	2	0	2	pathological trace	6.46	2	8	9	2	NA	6	380		
213	24	2	1	22.8	3	5	2	NA	NA	0	0	2	NA	0	1	3.4	0	2	0	1	NON REASSURING NST	3.4	2	6	8	2	NA	6	370		
214	25	1	1	22.4	2	5	1	EROM	3	2	2	2	NA	0	1	13.2	0	2	0	1	SUSpicious trace	13.52	2	1	4	1	Respiratory distress	6	550		
215	27	1	1	21.7	3	7	2	NA	NA	0	0	2	1	SUSPICIOUSTRACE	1	4	0	2	0	2	PATHOLOGICALTRACE	7.15	2	8	9	2	NA	5	350		