MATERNAL AND FETAL OUTCOME BY INDUCING LABOUR USING DILAPAN –S, A CERVICAL OSMOTIC DILATOR.

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DISSERTATION SUBMITTED TO SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH, KOLAR, KARNATAKA

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SURGERY

IN

OBSTETRICS AND GYNECOLOGY

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2021

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Paper Title	MATERNAL AND FETAL OUTCOME BY INDUCING LABOUR USING DILAPAN S A CERVICAL OSMOTIC DILATOR.
Similarity	10%
Paper ID	190530
Submission Date	2020-12-02 11:26:03

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ACKNOWLEDGEMENT

This dissertation has been one of the most significant academic challenges I have ever had to face. Without the support, patience and guidance of the following people, this study would not have been impossible. It is to them I owe my deepest and most sincere gratitude. Firstly, I would like to thank my Guide Dr. SHEELA.S.R, Professor and HOD, Dept of OBG, SDUMC Kolar, for her utmost patience, continuous support, guidance and contribution. I would also like to thank her for her constant encouragement and guidance with respect to every aspect of my professional life.

Next I would like to thank my co-guide, DR. Krishnappa, Professor of Department of Pediatrics, who has been always there to address my queries and offer his most valued guidance..

I extend my gratitude towards all the patients who agreed to participate in this study, without their precious support it would not be possible to conduct this research.

I thank my fellow post graduates and my friends Dr. Chaitanya, Dr.Tejashree, Dr Sadana, Dr Neha and Dr. Krathika for their unflinching support. Special thanks to all labour room staff for their help and support throughout my study. Heartfelt thanks to my lovely seniors and juniors. I thank all the staff nurses who are our pillars of support.

Dr. KAMMILA SUKHINI VENKATA RATNA

LIST OF ABBREVIATIONS USED

ACOG : **The American College of Obstetricians and Gynecologists**

APGAR : **Activity, pulse, Grimace, Appearance, Respiration**

DTA : **Deep Transverse Arrest**

FDA : **U.S. Food & Drug Administration**

FHR : **Fetal Heart Rate**

IAI : **Induction to active phase interval**

IDI : **Induction to delivery interval**

IL : **Interleukin**

MCP : **Monocyte Chemotactic protein.**

NICU : **Neonatal Intensive Care Unit**

NST : **Non stress test**

PGE1 : **Prostaglandin E1**

PGE2 : **Prostaglandin E2**

RCOG : **The Royal College of Obstetricians and Gynaecologists**

WHO : **World Health Organization**

ABSTRACT

MATERNAL AND FETAL OUTCOME BY INDUCING LABOUR USING DILAPAN –S, A CERVICAL OSMOTIC DILATOR

INTRODUCTION:

Induction of labour is a widely used practice in obstetrics. It is the process of artificially stimulating the uterus to start labour and expulsion of fetus prior. Globally, in healthcare facilities, about 10% of all the deliveries involved induction of labour. The commonly used methods for induction of labour are mechanical methods such as osmotic dilators, balloon catheters, amniotomy and pharmacological methods such as oxytocin infusion and prostaglandins .

Among mechanical methods, Dilapan-S is the second generation osmotic hygroscopic dilator .It is a synthetic gel rod acting by absorbing fluid from the cells of the cervical canal, resulting in reversible cell wall dehydration and softening.By its mechanical stretch, it increases the volume of the rod(s) initiating the endogenous prostaglandin release causing collagen degradation and ripening of the cervix .

OBJECTIVES OF THE STUDY:

1. To determine the efficacy and safety of Dilapan-S, an osmotic cervical dilator in induction of labour.
2. To assess the maternal and perinatal outcome following induction with Dilapan-S.

MATERIALS AND METHODS:

It was a clinical prospective study which included 55 term pregnant women(37 weeks to 42 weeks of gestation) with cephalic presentation admitted to labour room at Sri Devaraj Urs Academy of Higher Education and Research, after obtaining written informed consent and performing routine investigations. Serial records of cardiotocography, modified BISHOP score, partograph are recorded along with monitoring contractions and performing vaginal examinations to assess the changes of the cervix. Total dose of induction, induction to delivery interval, mode of delivery, maternal and fetal outcome were recorded.

RESULTS-This study was performed on 55 pregnant women fulfilling the above inclusion and exclusion criteria admitted to SDUAHER.There was no statistical significance different in Bishop Score distribution with respect to parity. In primigravida, 12 cases(57.1%) required 2 Dilapan-S rods, 7 cases(33.3%) required 3 Dilapan-S rods. In multigravida, 15 cases(44.1%) required 2 Dilapan-S rods, 15 cases(44.1%) required 3 Dilapan-S rods. Hence there was no significant difference in the number of Dilapan-S rods distribution with respect to parity. 85.7% and 82.4% primigravida and multigravida respectively took more than 12 hours time interval in latent stage of labour. So, there was no significant difference in latent time distribution with respect to parity. 57.1% and 41.2% primigravida and multigravida respectively took more than 12 hours induction delivery time interval. This difference is not statistically significant in induction to delivery time interval distribution with respect to parity.Syntocin augmentation was required in 42(72.4%) total, among which 13(61.9%) were primigravida and 29(85%) were multigravida. There was statistical significant difference in the requirement of

syntocin augmentation distribution with respect to parity. Also, in almost all vaginal deliveries and vaccum assisted vaginal delivery there was 100% need of syntocin augmentation showing significant difference in need of syntocin augmentation distribution with respect to mode of delivery. Out of 55 cases who underwent induction,60% had vaginal delivery of which 8 were primigravida and 25 were multigravida, 38.2% had LSCS of 12 primigravida and 9 multigravida and 1.8% (one primigravida) had vaccum assisted vaginal delivery. There was a significant difference in mode of delivery distribution with respect to Parity.

APGAR score at 1st minute more than 7 was in all the cases of primigravida and 97.1% in multigravida. APGAR score at 5 minutes was more than 9 in all the cases of primigravida and 97.1% in multigravida. There was no statistical significant difference in APGAR comparison with respect to Parity. 6 neonates among primigravida and 3 neonates among multigravida mothers needed NICU admission.There was no statistical significant difference in NICU Admission comparison with respect to Parity.

CONCLUSION-

Dilapan-S was effective method of induction of labour in terms of improving cervical ripening and vaginal delivery rate(60%) and was safe with no uterine hyperstimulation or maternal infections or mortality associated.

There was need of syntocin augmentation for most of the patients(76.4%).

Dilapan S was safe with good fetal outcome, reassuring type of CTG and with reduced need of NICU admission.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

INTRODUCTION

Induction of labour is a widely used practice in obstetrics .[1] It is the process of artificially stimulating the uterus to start labour and expulsion of fetus prior.

It is done in those who are either at or after term to improve the outcome of the mother and baby minimizing maternal and fetal or neonatal morbidity and mortality by a timely intervention for termination of pregnancy .

Globally, in healthcare facilities, about 10% of all the deliveries involved induction of labour. Historically induction was done only in the events of life threatening maternal diseases. But, with the advent of safer and improved methods the threshold for intervention for induction of labour has been reduced. The commonly used methods for induction of labour are mechanical methods such as osmotic dilators, balloon catheters, amniotomy and pharmacological methods such as oxytocin infusion and prostaglandins. [2]

The method of choice may be influenced by several factors such as parity, patient preference, cervical and membranes status.[3]

Among mechanical methods, Dilapan-S is the second generation osmotic hygroscopic dilator made from patented hydrogel aquacryl**.** It is a synthetic gel rod acting by absorbing fluid from the cells of the cervical canal, resulting in reversible cell wall dehydration and softening. [4]

By its mechanical stretch, it increases the volume of the rod(s) initiating the endogenous prostaglandin release causing collagen degradation and ripening of the cervix.[5] A marker string is tied securely to the handle of the DILAPAN-S which indicates its location.It will be supplied sterile and for only single use. It is available in boxes of 10 or 25 dilators and in dimensions of 4mm x 65 mm, 4mm x 55 mm, 3mm x 55mm.

First methods developed to ripen the cervix and induce labour are the mechanical methods.[6] Induction of labour maybe indicated by several obstetric and medical complications of pregnancy such as post term, premature rupture of membranes, oligohydramnios, pre eclampsia, fetal growth restriction, intrauterine death, chronic hypertension and diabetes. [7]

In the mechanical methods, Dilapan-S is commonly inserted into the cervical canal or the extra- amniotic space and works by dilating the cervical canal and/or release of prostaglandins and oxytocin.[8]The commonly used mechanical methods for induction includes amniotomy, balloon catheters, natural and synthetic laminaria, hydroscopic cervical dilators.

Amniotomy can cause life threatening fetal blood loss and also cord compression leading to fetal decelerations. Balloon catheters results in tissue injury, inflammation and scarring due to lack of hydraulic permeation to dehydrate the cervical cells.[9] Laminaria contains high levels of iodine and potassium, which might worsen thyroid and kidney problems. Also, compaired to laminaria, Dilapan-S has maximum diameters, acted faster and more consistent.Dilapan-S, which is an osmotic cervical dilator is reported to be faster in action, which can be used as an outpatient procedure, helps in reducing hospital stay and with patient compliance. [10] The Dilapan-S rods were inserted into the cervical canal, are contained within the vagina and do not require tension and there is no protrusion from the introitus. [11]

Hence, this study can be used to know the efficacy of Dilapan-S for labour induction in SDUAHER.

This study will be helpful for cervical ripening with hygroscopic dilators and shortening the duration of labour in patients undergoing induction and to reduce the operative deliveries.

During the last decades, mechanical methods were extensively replaced by the pharmacological methods. Prostaglandins increases cell membrane permeability and decrease osmotic pressure. However it was reported that they are associated with significant side

effects such as uterine hyperstimulation, uterine rupture in previous caesarean sections, postpartum haemorrhage, fetal hypoxia, fetal heart rate changes and drug related side effects such as nausea, vomiting, diarrhea and fever. [12]

Dilapan-S, increases the cervical ripening, and is associated with less risk of uterine hyperstimulation and impact on the fetal heart rate and has no drug related side effects .As Dilapan-S, has not gained much popularity in recent days, this study will be helpful to reintroduce it for induction of labour by evaluating its efficacy.

Hence in this study, for induction of labour with dilapan-S which is an osmotic dilator and the maternal and perinatal outcome of the same are documented.

OBJECTIVES

OBJECTIVES OF THE STUDY

1. To determine the efficacy and safety of Dilapan-S, an osmotic cervical dilator in induction of labour.
2. To assess the maternal and perinatal outcome following induction with Dilapan-S.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

One more study concluded that the application of Dilapan –S was cost-effective and safe, lowering the caesarean section rate by facilitating VBAC. Dilapan-S can be used as a outpatient procedure, which is easy to apply with patient satisfaction and reducing the hospital admissions

.[4]

In an International multicentric observational study it was concluded that osmotic dilators such as Dilapan-S for cervical ripening prior to induction of labour was effective for increase in the BISHOP score regardless of caesarean in the medical history. The occurrence of excessive uterine contractions, infections were not associated by synthetic osmotic dilators .[5]

Another study conducted a prospective observational pilot study trial of 52 low risk nulliparous women with an unfavourable cervix for induction of labour with Dilapan-S and concluded that Dilapan-S was a safe and suitable option for outpatient induction method reducing the length of hospital stay and healthcare costs.[6]

In one study, 58 women who underwent cervical ripening with only Dilapan-S were compared with 69 women with Dilapan- S and concurrent pretreatment of oral mifepristone 8 hours before Dilapan-S insertion.The improvement in cervical score,vaginal delivery rate and reduced labour duration and frequency of oxytocin augmentation was more seen in combined method. It showed that combined method was safe and had no immediate side effects.[11]

In a randomized controlled study, 419 women were randomly assigned either with Foleys balloon inflation or with Dilapan –S for cervical ripening. It was found that Dilapan-S

was not inferior to the Foleys balloon, safe, has no protrusion from the introitus, no need to keep under tension and has better patient satisfaction.[13]

A study conducted to compareDilapan-S and laminaria for cervical ripening concluded that Dilapan-S compared to laminaria acts faster, more consistent, expands more against force, reaches maximum diameter as they produce biochemical ripening like changes exerting force on

the cervical cells to ripen and has higher propensity for water dehydrating surrounding more than the natural dilators.[14]

Another study comparedhydroscopic mechanical dilatorDilapan-S to prostaglandin E2 gel for cervical ripening prior to induction of labour at or near term. It concluded that both have equal efficacy, equal caesarean section rates, lower risk of hyper stimulation and thus offering a safe method for induction of labour.[15]

HISTORY-

The history of induction of labour dates back to Hippocrate's description of cervical canal mechanical dilation.In early 100's, Soranus described rupture of membranes, administration of an enema containing oil, honey waterand pouring egg whites into the vagina to relax and soften the cervix along with mechanical dilation of the cervix.[16]

In 1756, at a meeting physicians discussed the efficacy and ethics of delivery by rupturing the membranes to induce labor.[17] In 1810, in England, amniotic membrane sweeping for inducing labour was documented by James Hamilton. In the late 1800, Tarnier described a balloon device for stretching of the cervix and uterus.In 1906, Sir Henry Dale observed that myometrial contractions were caused by extracts from the infundibular lobe of the pituitary gland.[18] Later, Bell reported the use of a pituitary

extract for induction of labour.[19] In 1953, structural formula of oxytocin was discovered, and synthetic oxytocin has been in use since then.

ANATOMY OF UTERUS & CERVIX

The uterus is a pear-shaped organ consisting of two major parts-

1. upper triangularportion—the body or corpus, and
2. lower cylindrical portion—the cervix which projects into the vagina.

Isthmus is the union site of the two parts. Thelength of the fundus and cervix in nulligravidas are approximately equal, but in multiparas, the cervix is a little more than the total length.[20]

Uterine cornua is at the superolateral margin of the body, from which fallopian tube emerges. The convex upper uterine segment is called fundus which is between the points of fallopian tube insertion.Thelength of nulligravidauterus measures about 6 to 8 cm andmultiparous is 9 to 10 cm. The uterus weighs 60 grams. In nulligravidas the fundus and cervix are approximately equal in length.Whereas in multiparas, cervix is only a little more than a third of the total length. Pregnancy stimulates remarkable growth of the uterus due to muscle fiber hypertrophy. The fundus of the uterus, previously flattened convexity, now becomes as dome shaped.The cervical portion of the uterus is fusiform and open at each end by small apertures—the internal and external cervical os. The internal os is the proximal boundary and the external os is the distal boundary of cervix. Cervical stroma consists of collagen, proteoglycans,elastin and very little smooth muscle. Changes incomposition, amount and orientation of these components leads to cervical ripening .Significant degradation of the collagen and rapid acceleration in loss of tensile strength of the tissue causes increased cervical softening. This cervical remodelling of the cervix leads to effacement which allows the cervix to respond to uterine contractions with progressive dilatation of the cervix and delivery of the fetus.[10]

PHYSIOLOGY OF CERVICAL RIPENING

Cervical remodelling is divided into four overlapping phases

1. softening
2. ripening
3. dilatation and
4. postpartum repair.

Softening isdefined as a decrease in the tensile strength and tissue compliance of cervix. Cervical ripening is an accelerated phase with greater loss of tissue integrity and compliance. As labour progresses, with increase in uterine contractions, cervix undergoes dilatation andeffacement which is followed by phase of remodelling and repair of cervix with restoration of tissue integrity in the postpartum period.[21]

PHYSIOLOGY OF LABOUR

Labour is the process by which the fetus is expelled from the uterus. It is characterized by regular and effectiveuterine contractions that leadsto progressive dilationand effacement of the cervix.

During the first 36 to 38 weeks of normal gestation, the myometrium is in an unresponsive preparatory state. The transformation in boththe functions of uterus and cervix is divided into four overlapping phases during pregnancy.

The phases of parturition include:

1. Phase 1 : Uterine Quiescence and Cervical Softening
2. Phase 2 : Preparation for Labour
3. Phase 3 :Labour
4. Phase 4 : the puerperium

Phase 1 of Parturition - Uterine Quiescence and Cervical Softening

This phase is mediated by progesterone, prostacyclin, relaxin, nitric oxide, parathyroid hormone related peptide.[22]

Phase 2 of Parturition- Preparation for Labour

This is the phase of uterine activation.There are progressive uterine changes during the last 6-8 weeks of pregnancy.With initiation of labour extensive remodelling of thecervix occurs during this phase resulting in cervical ripening and dilatation.

Phase 3 of Parturition-Labour Labour is defined as the process by which regular, effective uterine contractions leads to

dilatation and effacement of the cervix which inturnleads to expulsion of the fetus from the uterus.

The ability of the fetus to successfully negotiate the pelvis during labour depends upon the interactions of uterine activity, maternal pelvis and fetus.

Phase 4 of parturition- The Puerperium

It includes the remodelling processes, uterine involution and cervical repair that restore these organs to asnonpregnant state. Early puerperium also involves initiation of lactation.

TIMING OF INDUCTION OF LABOUR

Evaluation of timing for induction of labour is important in minimizing the feto-maternal risks. ACOG recommends that the gestational age of the fetus to be of at least 39 weeks or fetal lung maturity be established prior to induction.[23]

INDICATIONS FOR INDUCTION OF LABOUR-

Induction are indicated to reduce the maternal morbidity or to minimize fetal morbidity and mortality.[24]

Hypertensive disorders, preeclampsia / eclampsia , maternal medical conditions, diabetes mellitus, chronic pulmonary disease, renal disease, fetal compromise, fetal growth restriction, isoimmunization, oligohydramnios, fetal demise, prelabour rupture of membranes, chorioamnionitis, post term pregnancy (> 42 weeks), hypercoagulable disorders, cholestasis of pregnancy, psychological factors.

CONTRAINDICATIONS FOR LABOUR INDUCTION[25]-

• Prior classical or inverted T uterine incision

• Pelvic structural deformities

• Placenta or vasa previa or cord presentation

• Abnormal fetal lie or presentation (e.g. transverse lie or footling breech) , cord presentation and prolapse

• Previous classical cesarean section or hysterotomy

• Previous uterine rupture or previous surgery for repair of vesicovaginal fistula

• Active genital herpes

• Invasive cervical carcinoma

RISKS OF INDUCTION OF LABOUR-

Maternal-Hyperstimulation of uterus, precipitate delivery resulting in cervical and vaginal lacerations, uterine rupture, infection, placental abruption, amniotic fluid embolism.

Fetal -Hypoxia, iatrogenic prematurity, neonatal jaundice.

PREINDUCTION CERVICAL ASSESSMEN[26]-

Systems of quantifying and scoring the prelabour characters of cervix were 1.to predict the duration of labour

2.to determine which patients safely can undergo labour induction

3.to determine the most appropriate method for induction of labour or ripening an unfavourable cervix.

1] In 1936-Calkins

METHOD 1-To predict the course of labour. On a scale of 1-5 involving

-intensity of contractions

-consistency

-wall thickeness

-cervical canal length

METHOD 2-Calkins proposed a dichotomous system present or absent for

-cervical effacement

-engagement

-consistency

In 1995 Cock described 5 types of cervices-

Type 1-soft,effaced and dilated enough to admit tip of finger into internal os Type 2-soft, uneffaced but admits one finger through internal os

Type 3 –firm,some what effaced, closed internal os Type 4- firm, some what effaced, closed internal os Type 5- anomalous cervix

Sacral os-cervical os directed posteriorly INFERENCE-

Ripe cervix- Type 1 and 2

Unripe cervix- Type 3,4,5 and sacral os.

According to Cocks, operatie delivery was more likely with unripe cervix and cesarean delivery was more likely in patients having sacral os.

2] CERVICALSCORING METHOD -

BISHOP'S PREINDUCTION CERVICAL SCORING SYSTEM-

In 1964,a cervical scoring system, BISHOP'S score was developed to assess the cervical status prior to induction of labour. This method is used to assess onset of labour considering the position, consistency,dilatation, effacement, and the of the cervix, the station of the presenting part of the fetus. A modified Bishop's score that replaces effacement with cervical length has been now developed. In these scoring systems, each component is assigned a score from 0 to 3.[27]

BISHOP'S SCORE

Factor 0 1 2 3

Dilatation (cm) 0 1-2 3-4 5-6

Effacement (%) 0-30 40-50 60-70>/= 80

Station -3 -2 -1 or 0 +1 or +2 Consistency-Firm Medium Soft Position -Posterior Mid Anterior

3] MODIFIED BISHOP'S SCORE[28]

Factor	0	1	2	3
Dilatation (cm)	0	1-2	3-4	5-6
Length (cm)	>4 2-	4	1-2	0
Station	-3	-2	-1 or 0	+1 or +2
Consistency-	Firm	Medium	Soft-	
	Position-	Posterior	Mid	Anterior

Bishop's score is also used to predict the likelihood of vaginal delivery with induction of labour. A higher score reflects a "favourable" cervix for induction.

A score of ≤ 6 isclassified as "unfavourable" cervix and that would benefit from cervical ripening agents during labourinduction.[29]

A score of ≤ 6 is associated with a higher probability of failed induction, while a score of> 8 probability of a vaginal delivery is same for induced or spontaneous labour.

Dilatation of the cervix at the initiation of induction is the best independent predictor of success of induction of labour.In a primiparous woman, a closed cervix is associated with a 50% caesarean section rate, whereas at 4 cm dilatation the risk for caesarean section was < 10%.

4] ULTRASOUND- Cervical length, internal cervical os, shape and assessment of angle between cervical axis and wall of the inferior uterine segment are measured.

5] Biochemical- Fibronectin concentration more than 50ng/ml.

6] Others- Electric impedence measurement across the cervical surface, serum nitrate or nitrite levels.

7]

METHODS OF INDUCTION OF LABOUR[30]-

➢ Non-pharmacological methods

▪ Breast stimulation

▪ Acupuncture

▪ Homeopathy

▪ Sexual intercourse

▪ Castor oil, hot baths and enema

▪ Mechanical methods

-Amniotomy

- Membrane stripping

- Balloon catheter

-Hydroscopic cervical osmotic dilators

-Extra amniotic saline infusion

➢ Pharmacological methods

▪ Prostaglandins- Dinoprostone and misoprostol

▪ Oxytocin

▪ Progesterone receptor antagonists- Mifepristone

▪ Relaxin

▪ Hyaluronic acid

▪ Estrogen

BREAST STIMULATION

Breast stimulation releases endogenous oxytocin which cause uterine contractions. Few studies Have been reported that breast stimulation is associated with decreased postpartum haemorrhage.

SEXUAL INTERCOURSE

The mechanism of stimulating labour by sexual intercourse remains still unclear. But it has been attributed to the presence of prostaglandins in human semen, partly due to physical stimulation of the lower uterine segment, and perhaps due to release of endogenous release of oxytocin as a result of orgasm.[31]

AMNIOTOMY

Amniotomy is artificial rupture of the membranes.[32] It promotes the release of prostaglandins and oxytocin which in turn acceleratesthe labour and expedites delivery.

MEMBRANE STRIPPING

Stretching and sweeping is done by introducing the index finger through internal os and rotating 360 degree to separate the membranes from lower uterine segment.[33]This causes a significant increase in the prostaglandin F2α and phospholipase A2 activity which increases the likelihood of spontaneous labour within 48 hours.

MECHANICAL METHODS

Mechanical ripening devices apply pressure on the cervical internal os, thus overstretching the lower uterine segment and thereby, indirectly increasing the localized secretion of prostaglandins.

Mechanical methods of induction include use offoley catheters, hydroscopic osmotic dilators, laminaria.

Naturally occurring and synthetic hygroscopic cervical dilators works by progressive extraction of water from the surrounding cervical tissue. As they absorb fluid, the dilators themselves swell in axial plane, causing a mechanical dilatation and cervical ripening.Seaweed laminariajaponicum was the first hygroscopic dilator studied.[4]

Dilapan is composed of the hydrophilic polymer polyacrylonitrile.The hydroscopic nature of this polymer causes dilator to absorb fluid and expand.Whereaslamicel is polyvinyl alcohol sponge preloaded with magnesium sulfate and composed into rod. Both Dilapan and lamicel work as same fashion as laminaria using osmosis to extract fluid from the cervical stroma and resulting in softening and dilatation.[14]

Osmotic dilators(Dilapan-S) acts by absorbing water from the cervix and making it soft and ripe. As it expands, due to its mechanical expanding dilation effect which stimulates endogenous prostaglandin release, aids in ripening process of cervix.

Foley's catheter-This is used for induction of labour indicated for unripe cervix.[34]

Primary effect could be through mechanical dilatation, but cervix does not sustain permanent or significant damage and it releases prostaglandins from decidual separation.

It works by 2 mechanisms.

1. Direct pressure and over stretching of cervix and lower uterine segment, enhances uterine activity. This mechanism is referred as ferguson reflex.

2. local separation of prostaglandins.

PHARMACOLOGICAL METHODS PROSTAGLANDINS

Prostaglandins are subfamily of eicosanoids. All prostaglandins are made up of a basic 20 carbon skeleton "prostanoic acid".

In 1930, the first prostaglandin effects were discovered, during artificial insemination

when semen that was injected into the uterine cavity was expelled.Synthetic prostaglandins have been designed to maintain a longer period of bioavailability.

Prostaglandins play an important role in the ripening of the cervix by decreasing the concentration of collagen, and increasing the sulphatedglycosaminoglycans and hyaluronic acid. Prostaglandin receptors are located in the myometrium and the cervix.[35,36]

MISOPROSTOL

Misoprostol is a synthetic prostaglandin E1 analogue.It has antisecretory and cytoprotective actions that can be administered orally, vaginally, sublingually, buccal and per rectally.[30]

Misoprostol has uterotonic and cervical softening effects in the female genital tract. It causes disintegration and dissolution of collagen in the cervix causing cervical softening.[35,37]

Misoprostol has a cervical priming effect. Less force was required for mechanical dilatation of the cervix following use of misoprostol. Along with increasing uterine contractions misoprostol also has a direct softening effect on the cervix.

Misoprostol mostly has no known drug interactions .[38]

DINOPROSTONE

It is a Prostaglandin E2 analogue effecting both cervical and myometrial activityused for cervical ripening. It is available as an intracervical gel 0.5 mg dinoprostone whichis administered every 6 to 12 hours up to a maximum of 3 doses and as a vaginal insert containing 10 mg dinoprostone releasing approximately 0.3 mg/ hour drug over a period

of 12 hours . The insert to be removed12 hours after insertion or with onset of labour.[39] Maintenance of a cold chain and proper storage in a refrigerator is necessary withdinoprostone.[40]

OXYTOCIN

Oxytocin is an octapeptide hormone secreted by posterior pituitary.It is one of the most potent endogenous uterotonicagent.It is a clear, colourless aqueous solution of synthetic oxytocin, for intravenous infusion or intramuscular injection.[41] High-dose protocols have a starting dose of 6 milliunits/min, with an incremental increase of 1 to 6 milliunits/min every 15 to 40 minutes, and a maximum dose of 40 milliunits/min. Lowdose protocols have starting doses of 0.5 to 1 milliunits/min, with an incremental increase of 1 to 2 milliunits/min every 15 to 40 minutes, and a maximum dose 20 to 40 milliunits/min.[42] Oxytocin receptors are not present in nonpregnant myometrium. They appear inmyometrial cells at approximately 13 weeks gestation and increase in concentration until term.

Mode of action :

Theoxytocin receptor protein G complex activates phospholipase c beta which hydrolyzes phosphotidylinositolbiphosphate (PIP2) and generates inositol triphosphate(IP3) and diacyl glycerol(DAG).IP3 will cause release of calcium from the endoplasmic reticulum, increasing the

concentration of cytoplasmic calcium. This increase in intracellular calcium concentrationis not adequate for a full activationof the myometrial contractile mechanism, and extracellular calcium is necessary for adequateoxytocin action.[43] In the absence of extracellular calcium, the response of myometrial cells tooxytocin is reduced and loses its rhythmic pattern.

Oxytocin may increase intracellular calcium concentration by mechanism independant Of PLC-IP3 activation, through mitogen activated protein kinase(MAPK) which will induce expression of cyclo-oxygenase ii isoform (COX ii) that will transform arachidonic acid into prostaglandin. Oxytocin also stimulates theproduction PGE and PGF.Prostaglandin released by oxytocin isnecessary for the uterine contractions to become fully efficient during labour.

Preparations:

1. Natural

2. Synthetic

1.syntocinon 5IU 1ml 11.20 2.pitocin 5IU 0.5ml 10.40

3.syntometrine 5IU syntocinon+ 0.5mg ergometrine

Mode of administration is by intravenous, intramuscular, subcutaneous, sublingual, nasal spray, continuous IV drip.

Dosages : ACOG recommends

- low dose
- high dose

a: the incremental increase is reduced to 3mu/min in presence of hyperstimulation and reduced to 1mu/min with recurrent hyperstimulation.

The dose is calculated in milli units/min. If 5 units of oxytocin is added to 500 ml of RL

- unit= 1000 milli units
- 5000 milli units- 500 ml of RL
- Macro drip 1 ml= 16 drops
- 1 ml=16 drops=10 milli units

Escalation dose:

Start with 8-10 drops/min(2 or 2.5 mU/min)

Escalation of dose every 30 min is advised as about 20-30 minutes are required for oxytocin to reach steady state plasma level. Shorter intervals may decrease the length of the induction of labour, but they are morelikely to be associated with hyperstimulation and fetal distress.

An optimal uterine activity is reached when, there are 3 painful contractions in 10 minutes for 40-90 seconds each with cervical dilatation at a rate of 1cm/hr.

Side effects of oxytocin includes-

Maternal: Gastro intestinal diarrhea and vomiting, thrombophlebitis, water intoxication, uterine rupture and cervical tear.

Fetal: Fetal distress, neonatal hyperbilirubinemia.

MATERIALS & METHODS

MATERIALS AND METHODS:

- The study will include 55 term pregnant women(37 weeks to 42 weeks of gestation) with cephalic presentation admitted to labour room at SDUAHER, after obtaining written informed consent and performing routine investigations.

- Source: The study will include 55 term pregnant women with cephalic presentation admitted to labour room at SDUAHER, after obtaining written informed consent and performing routine investigations.

- Study design: A clinical prospective interventional study.
- Study period: JANUARY 2019 TO JUNE 2020.
- Method of collection of data: A prospective interventional study will be conducted in the Department of Obstetrics and Gynaecology at Sri Devaraj Urs Academy of Higher Education and Research, Tamaka, Kolar from January 2019 to JUNE 2020.

Inclusion Criteria

- -Singleton pregnancy with cephalic presentation.
- -Gestational age of 37 completed weeks or more
- -Pregnant women where pharmacological methods are contraindicated, conditions like cardiac disorders(PDA)

Exclusion Criteria

- -Grand multiparity
- Malpresentation
- -Severe hydrocephalus of the fetus
- -Abnormally implanted placentas(including placenta previa)
- -Clinical signs of uterine, vaginal and vulvar infection. Study population and

Sample size: n=55

Sample size is estimated by the proportion of deliveries with absolute error of 12%, confidence interval of 95% and prevalence of 29.2, required sample size is 55.

$n = Z\alpha^2 PQ / d^2$

- n is the sample size,
- $Z\alpha$ is 1.96 at 95% confidence interval
- P is the prevalence ,that is 29.2
- Q is (1-P)
- d is the absolute precision, that is 12%
- α is null hypothesis

METHODOLOGY-

- Pregnant women fulfilling inclusion criteria are registered for the study.
- Detailed history regarding age, parity, gestational age, menstrual history, obstetric history and any complications in the present pregnancy was taken.
- General clinical examination, complete obstetric examination and necessary investigations were done.
- A written consent was taken.
- Vagina, cervix, perineum were prepared with an antiseptic solution.
- DILAPAN-S was removed from the sealed package using a sterile technique, moistened with sterile water or saline to lubricate the surface prior to insertion.
- It was introduced into the cervical canal with the assistance of speculum gradually so that it traverses the internal and external os, without undue force applied.

- The border of the collar should rest at external os and should not be inserted past the handle.
- -The amount of dilatation achieved depends on the amount of time insitu.One 4 mm dilator rod can increase upto 10 to 12.5 mm in 24 hours. So the dilators were progressively placed until the endocervix is full.
- - On an average 1 to 5 dilators are used. A sterile guaze pad should be placed in the vagina to maintain the position of the dilators.
- Patients were monitored for signs of progress of labour by partogram and fetal heart rate.
- Serial records of cardiotocography, modified BISHOP score, partograph are recorded along with monitoring contractions and performing vaginal examinations to assess the changes of the cervix. The dilapan is left for 24 hours (maximum of 36 hours).
- The dilator were removed by holding the handle with the forceps and pull down in longitudinal axis of the dilator and cervix.
- Postinduction Bishop score was assesed and if favourable(6 to 10) and if contractions were not adequate, augmentation of labour was done with IV oxytocin drip of 5mU/min in primigravida and 2.5mU/min in multigravida which was started at the rate of 4 drops/min and the drip was increased by 4 drops every 20 minutes till effective contractions are produced for delivery.
- Assessment of objectives were based on preinduction and postinduction Bishop score, number of Dilapan S rods used, need of augmentation with IV oxytocin drip, induction delivery time interval, mode of delivery, APGAR score and need

of NICU admission and maternal complications such as PPH, hperstimulation and fever.

RESULTS

RESULTS-

This study was performed on 55 cases who fulfilled the above mentioned inclusion and exclusion criteria admitted to SDUAHER.

Table 1: Age distribution

		Number of cases with Dilapan-S	%
AGE	<20 years	2	3.6%
	21 to 25 years	28	50.9%
	>25 years	25	45.5%
	Total	55	100.0%

Total number of patients in the study were 55. Maximum number of patients(50.5%) were aged between 21-25 years(Table 1 and figure 1).

Figure 1: Bar Diagram Showing Age distribution

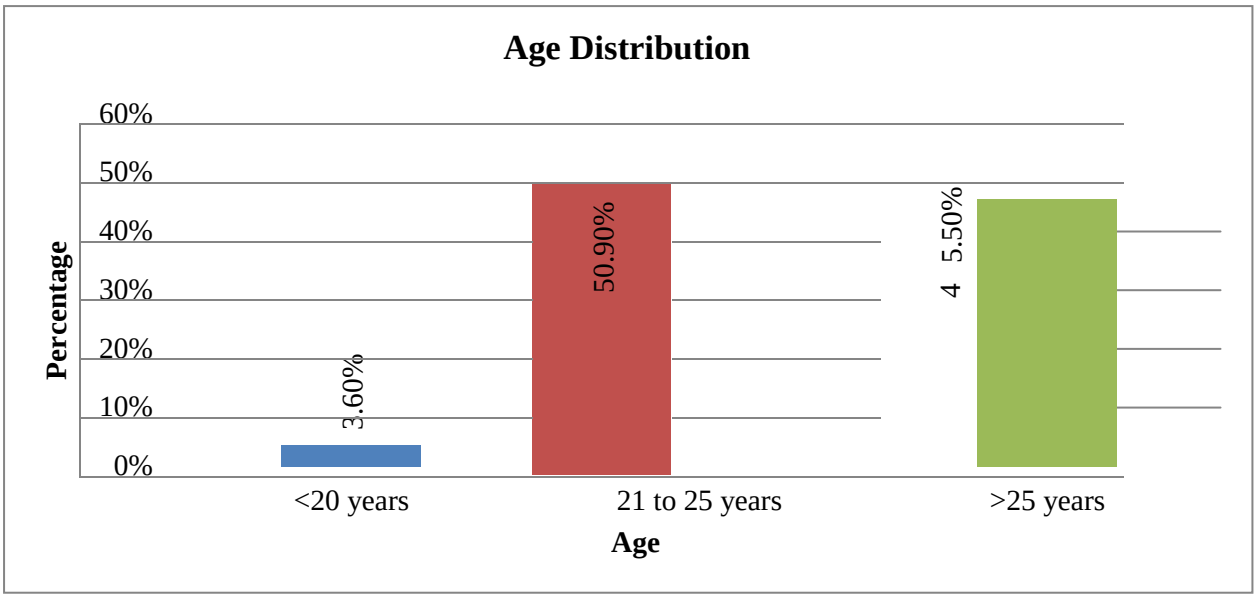

Table 2: Age distribution with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of primigravida with Dilapan-S	%	Number of multigravida with Dilapan-S	%	Number of total cases with Dilapan-S	%
Age	<20 years	1	4.8%	1	2.9%	2	3.6%
	21 to 25 years	13	61.9%	15	44.1%	28	50.9%
	>25 years	7	33.3%	18	52.9%	25	45.5%

In Primigravida, 4.8% were < 20 years, 61.9% were 21 – 25 years and 33.3% were > 25years.

In Multigravida, 2.9% were < 20 years, 44.1% were 21 – 25 years and 52.9%

were > 25years. There was no significant difference in Age distribution with

respect to parity

Pearson Chi-Square Tests

		Parity
AGE	Chi-square	2.023
	Df	2
	Sig.	.364[a,b]

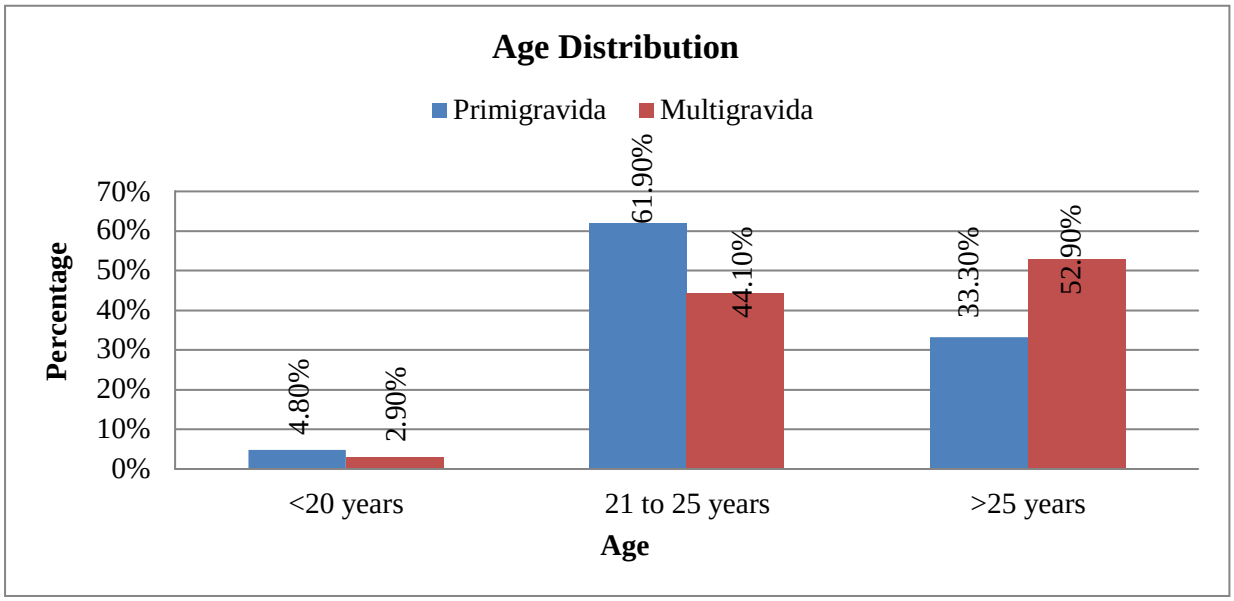

Figure 2: Bar Diagram Showing Age distribution with respect to parity

Table 3: Parity distribution

		Number of cases with Dilapan-S	%
Parity	Primigravida	21	38.2%
	Gravida 2	20	36.4%
	Gravida 3	11	20.0%
	Gravida 4	3	5.5%
	Total	55	100.0%

Maximum number(38.2%) of patients were primigravida.

There was no significant difference in age distribution with respect to parity **($\chi 2$ = 2.023, df = 2, p = 0.364).**

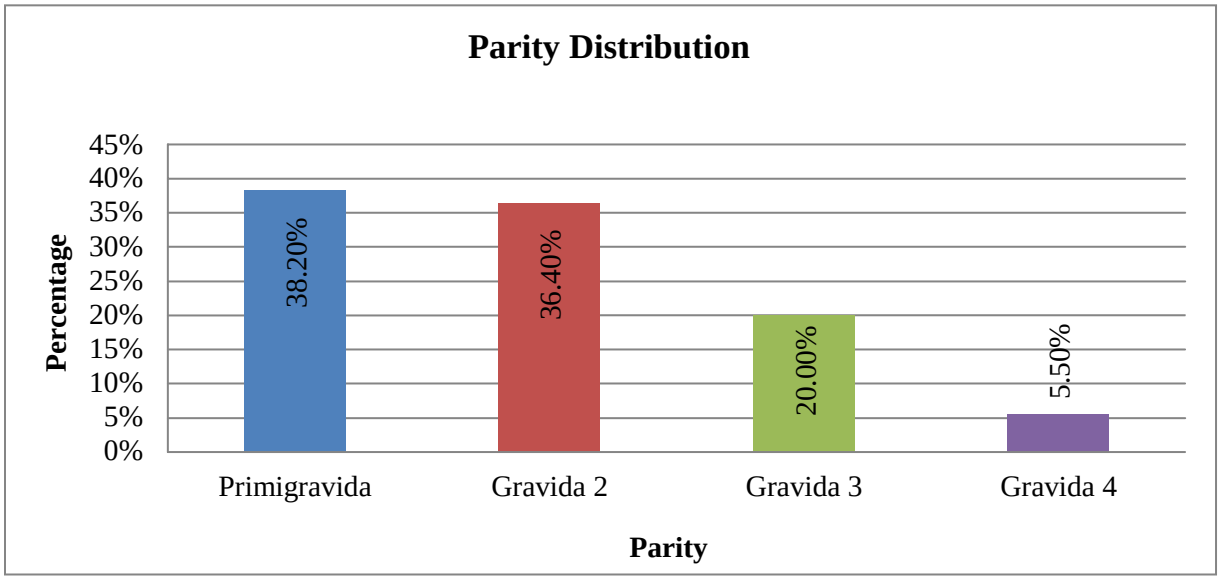

Figure 3: Bar Diagram Showing Parity distribution

Table 4: Period of Gestation Comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of primigravida with Dilapan-S	%	Number of multigravida with Dilapan-S	%	Number of total cases with Dilapan-S	%
Period of gestation	37 TO 38+6 WEEKS	2	9.5%	3	8.8%	5	9.1%
	39 to 39+6 WEEKS	5	23.8%	11	32.4%	16	29.1%
	40 to 41+6 Weeks	14	66.7%	20	58.8%	34	61.8%

$\chi 2 = 0.462$, df = 2, p = 0.794

In Primigravida, 9.5% had 37 TO 38+6 weeks period of gestation, 23.8% had 39 to 39+6 weeks and 66.7% had 40 to 41+6 weeks period of gestation.

In Multigravida, 8.8% had 37 TO 38+6 weeks period of gestation, 32.4% had 39 to 39+6 weeks and 58.8% had 40 to 41+6 weeks period of gestation.

There was no significant difference in period of gestation distribution with respect to parity.

Pearson Chi-Square Tests

		Parity
Period of gestation	Chi-square	.462
	Df	2
	Sig.	.794[a]

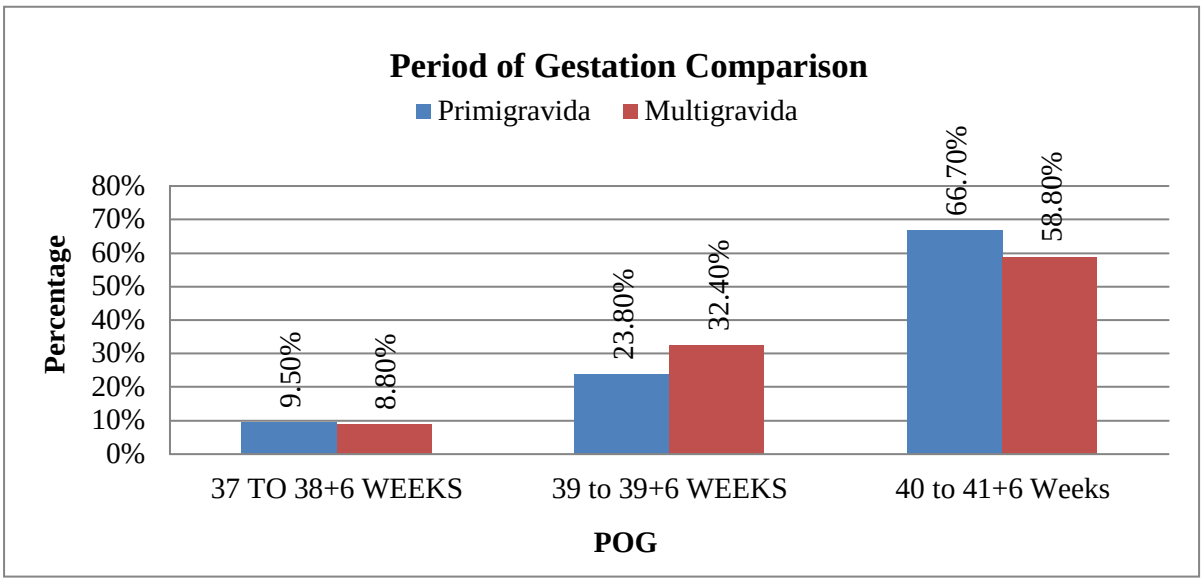

Figure 4: Bar Diagram Showing Period of Gestation Comparison with respect to Parity

Table 5: Bishop Score(Pre induction) comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
Pre induction Bishop Score	2	3	14.3%	5	14.7%	8	14.5%
	3	13	61.9%	20	58.8%	33	60.0%
	4	5	23.8%	9	26.5%	14	25.5%

Pearson Chi-Square Tests

		Parity
PRE INDUCTION BISHOP SCORE	Chi-square	.058
	Df	2
	Sig.	.971[a]

$\chi 2 = 0.058$, df = 2, p = 0.971

In Primigravida, 14.3% had Bishop Score of 2, 61.9% had 3 and 23.8% had 4.

In Multigravida, 14.7% had 2, 58.8% had 3 and 26.5% had 4.

There was no significant difference in Bishop Score distribution with respect to parity.

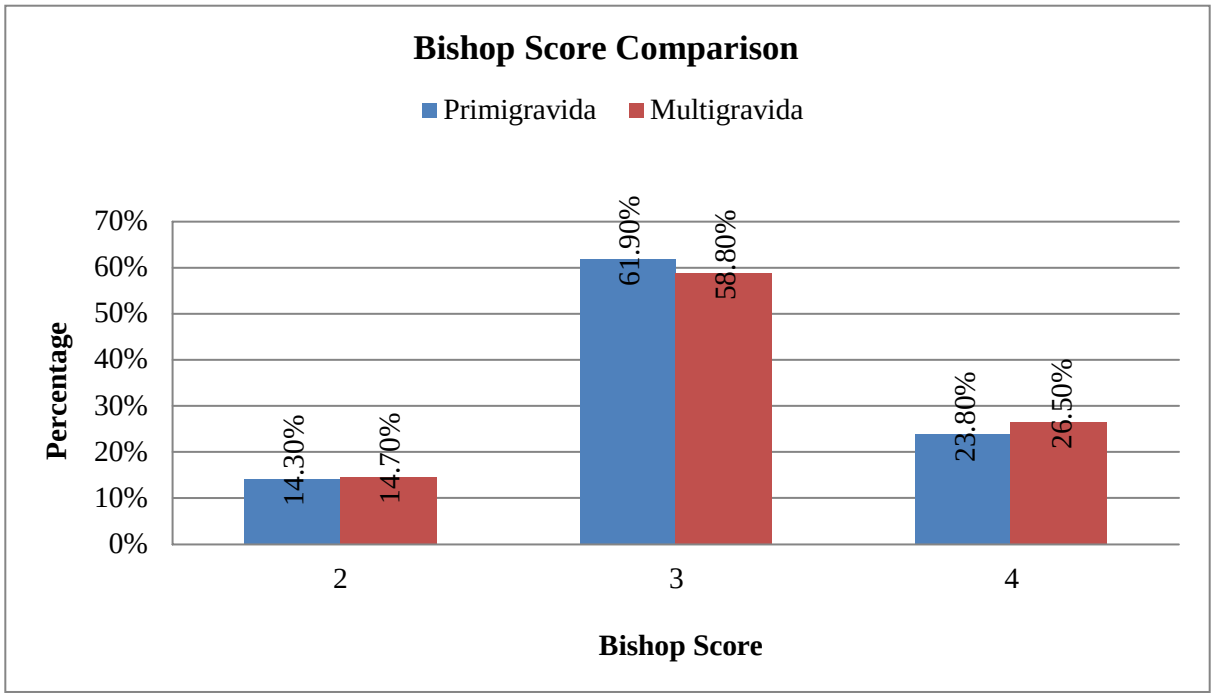

Figure 5: Bar Diagram Showing Bishop Score comparison with respect to Parity

Table 6: Post induction Bishop Score comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
Postinduction Bishop score	<4	3	14.3%	2	5.9%	5	9.1%
	>4	18	85.7%	32	94.1%	50	90.9%

Pearson Chi-Square Tests

		Parity
POSTINDUCTION BISHOP SCORE	Chi-square	1.109
	df	1
	Sig.	.292[a]

$\chi 2 = 1.109$, df = 1, p = 0.292

In Primigravida, 14.3% had less than 4 and 85.7% had more than 4postinduction Bishop score. In Multigravida, 5.9% had less than 4 and 94.1% had more than 4postinduction Bishop score.

There was no significant difference in Post Induction Bishop distribution with respect to parity.

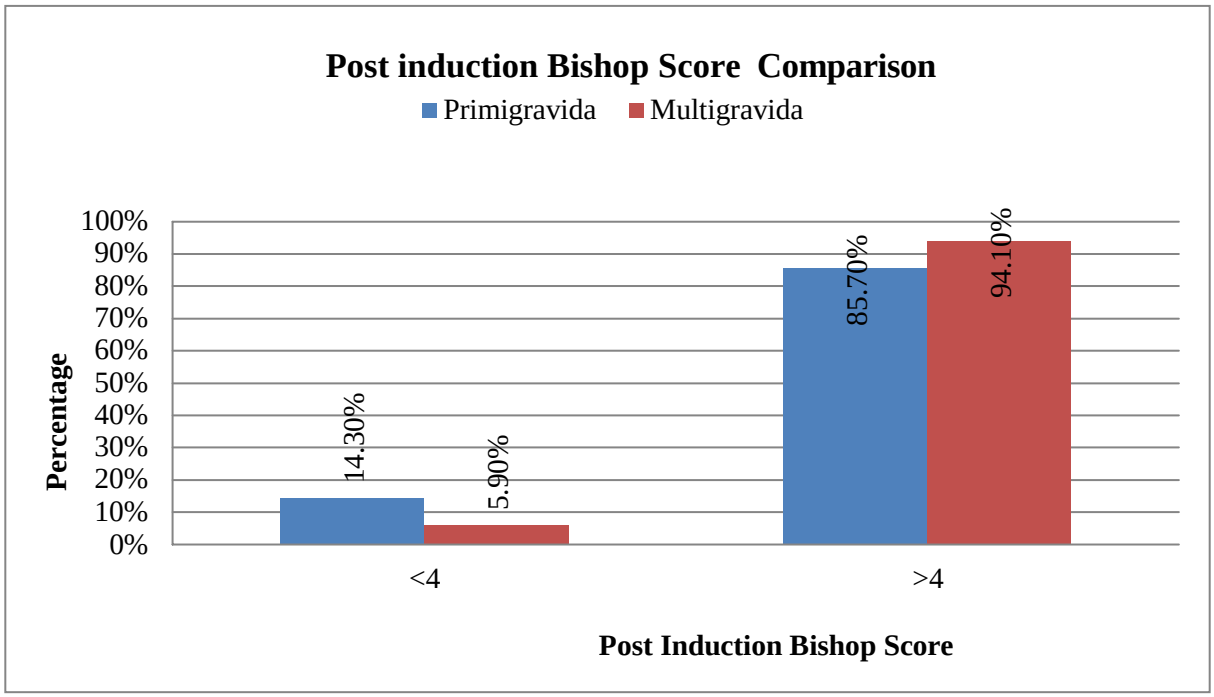

Figure 6: Bar Diagram Showing Post induction Bishop Score comparison with respect to Parity

Table 7: Indication for Induction of labour comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
Indication for Induction	Post dated	13	61.9%	20	58.8%	33	60.0%
	Oligohydramnios	5	23.8%	11	32.4%	16	29.1%
	PROM	3	14.3%	3	8.8%	6	10.9%

Pearson Chi-Square Tests

		Parity
INDICATION FOR INDUCTION	Chi-square	.701
	df	2
	Sig.	.704[a]

$\chi 2 = 0.701$, df = 2, p = 0.704

In primigravida, 61.9% had post dated, 23.8% had oligohydramnios and 14.3% had premature rupture of membranes as indication for induction of labour.

In multigravida, 58.8% had post dated, 32.4% had oligohydramnios and 8.8% had premature rupture of membranes as indication for induction of labour.

There was no significant difference in induction for induction of labour distribution with respect to parity.

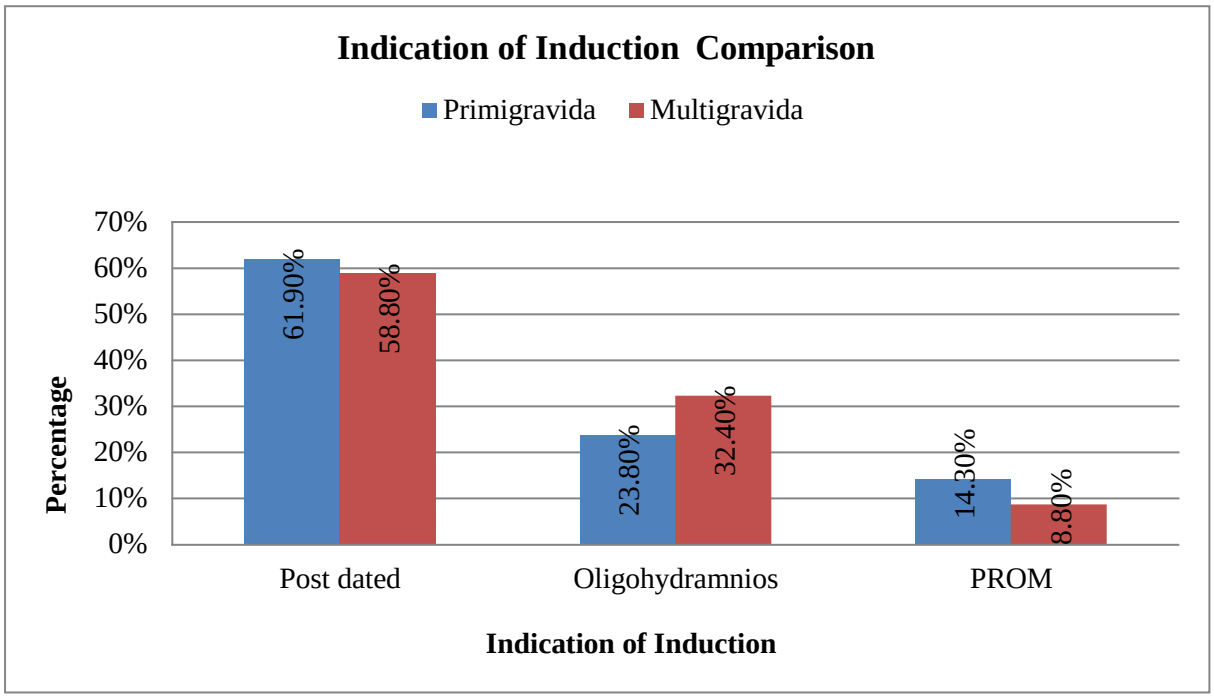

Figure 7: Bar Diagram Showing Indication of Induction of labour comparison with respect to Parity

Table 8:Number of Dilapan-S Rods induced comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
Dilapan-S Rods Number	1	1	4.8%	0	0.0%	1	1.8%
	2	12	57.1%	15	44.1%	27	49.1%
	3	7	33.3%	15	44.1%	22	40.0%
	4	1	4.8%	4	11.8%	5	9.1%

In primigravida, total 1 case(4.8%) required 1 Dilapan-S rod, 12 cases(57.1%) required 2 Dilapan-S rods, 7 cases(33.3%) required 3 Dilapan-S rods, 1 case(4.8%) required 4 Dilapan-S rod.

In multigravida, 15 cases(44.1%) required 2 Dilapan-S rods, 15 cases(44.1%) required 3 Dilapan-S rods, 4 cases(11.8%) required 4 Dilapan-S rods.

Pearson Chi-Square Tests

		Parity
Dilapan-S rods number	Chi-square	3.145
	df	3
	Sig.	.370[a,b]

$\chi 2 = 3.145$, df = 3, p = 0.370

There was no significant difference in the number of Dilapan-S rods distribution with respect to parity

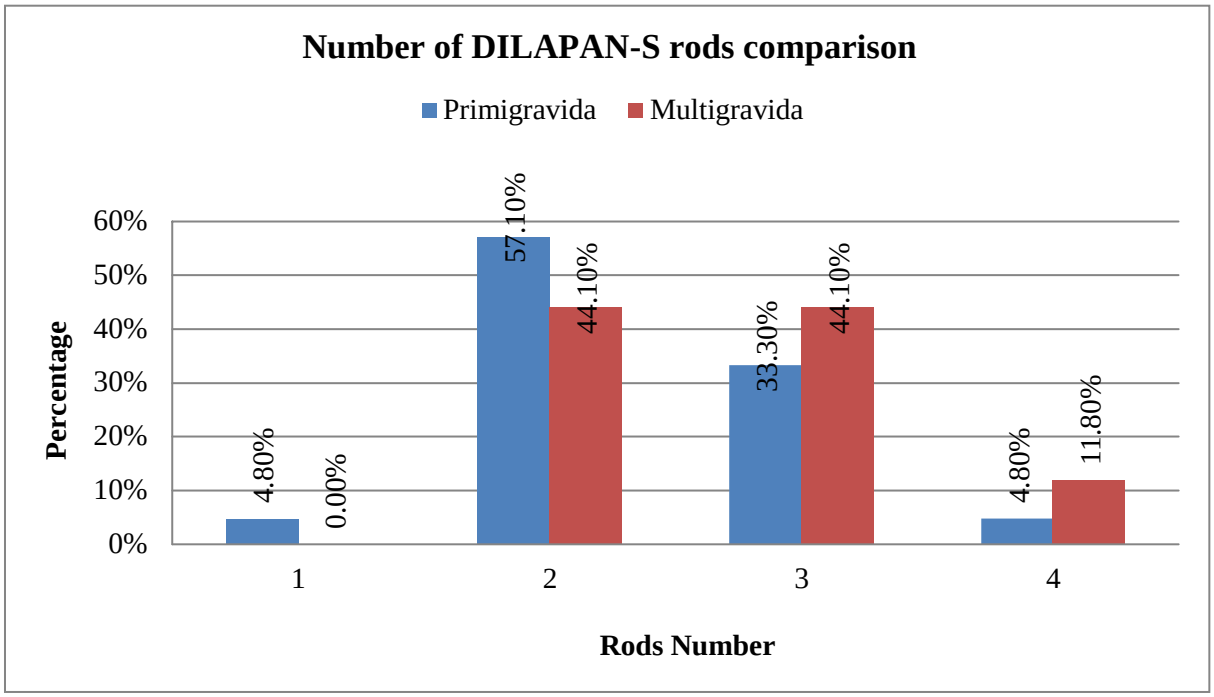

Figure 8: Bar Diagram Showing Number of Dilapan-S rods comparison induced with respect to Parity

Table 9: Latent Labour Time interval comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
Latent LabourTime interval	<12 hours	3	14.3%	6	17.6%	9	16.4%
	>12 hours	18	85.7%	28	82.4%	46	83.6%

85.7% and 82.4% primigravida and multigravida respectively took more than 12 hours time interval in latent stage of labour.

Pearson Chi-Square Tests

		Parity
LATENT LABOUR TIME INTERVAL	Chi-square	.107
	Df	1
	Sig.	.743[a]

$\chi 2 = 0.107$, df = 1, p = 0.743

There was no significant difference in Latent Time distribution with respect to parity.

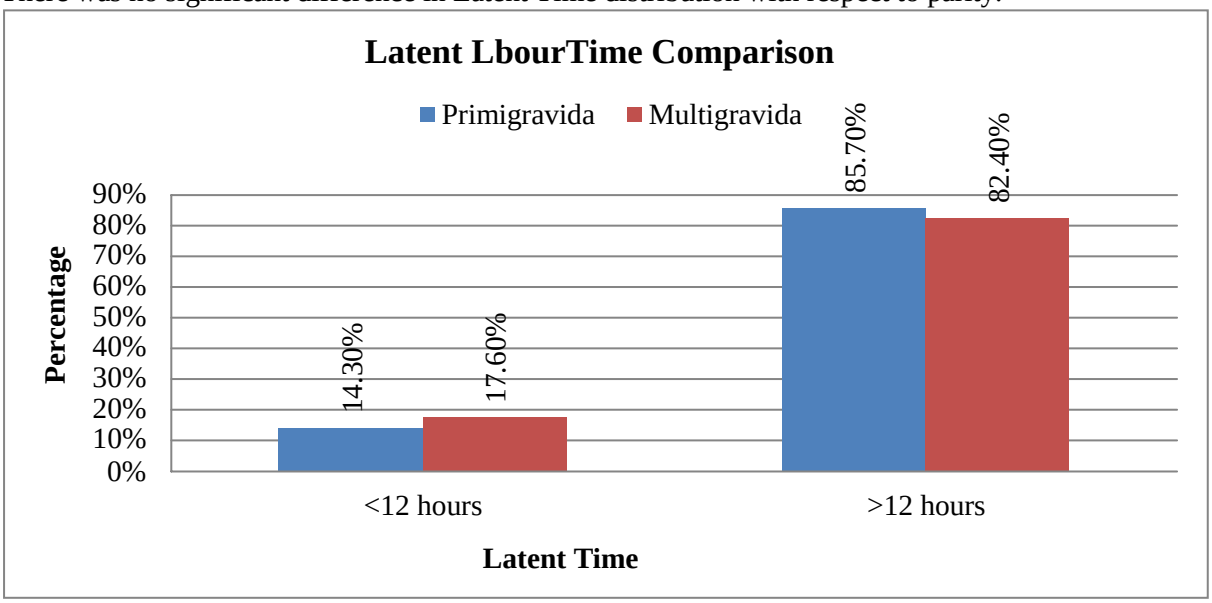

Figure 9: Bar Diagram Showing Latent Labour Time comparison with respect to Parity

Table 10: Induction delivery time interval comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Count	%	Count	%	Count	%
Induction delivery time interval	<12 hours	0	0.0%	8	23.5%	8	14.5%
	>12 hours	12	57.1%	14	41.2%	26	47.3%
	24 hrs	9	42.9%	12	35.3%	21	38.2%

57.1% and 41.2% primigravida and multigravida respectively took more than 12 hours induction delivery time interval.

Pearson Chi-Square Tests

		Parity
INDICATION INTERVAL TIME	Chi-square	5.836
	Df	2
	Sig.	.054[a]

$\chi 2 = 5.836$, df = 2, p = 0.054

There was no significant difference in induction to delivery time interval distribution with respect to parity.

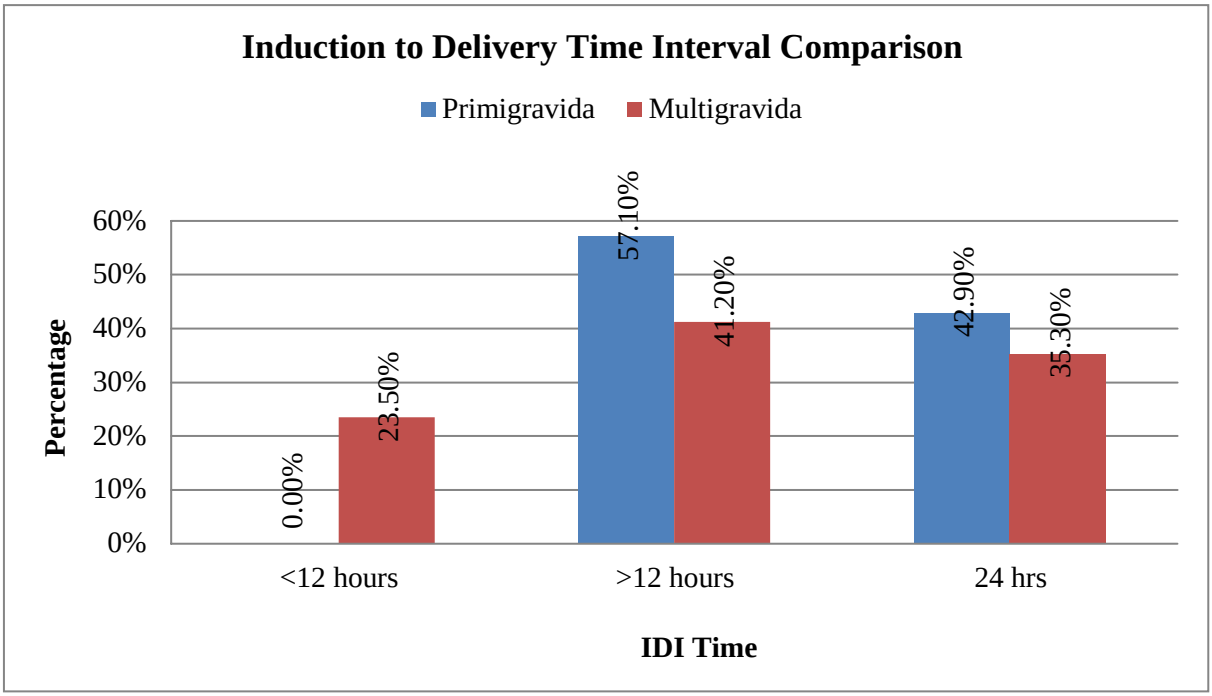

Figure 10: Bar Diagram Showing IDI time comparison with respect to Parity

Table 11: Syntocin Augmentation comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
Syntocin Augmentation required	Required	13	61.9%	29	85.3%	42	76.4%
	Not required	8	38.1%	5	14.7%	13	23.6%

Syntocin augmentation was required in 42(72.4%) total, among which 13(61.9%) were primigravida and 29(85%) were multigravida.

Pearson Chi-Square Tests

		Parity
SYNTOCIN AUGMENTATION REQUIRED	Chi-square	3.935
	df	1
	Sig.	.047*,b

$\chi 2 = 3.935$, df = 1, p = 0.047*

There was a significant difference in the requirement of syntocin augmentation distribution with respect to parity.

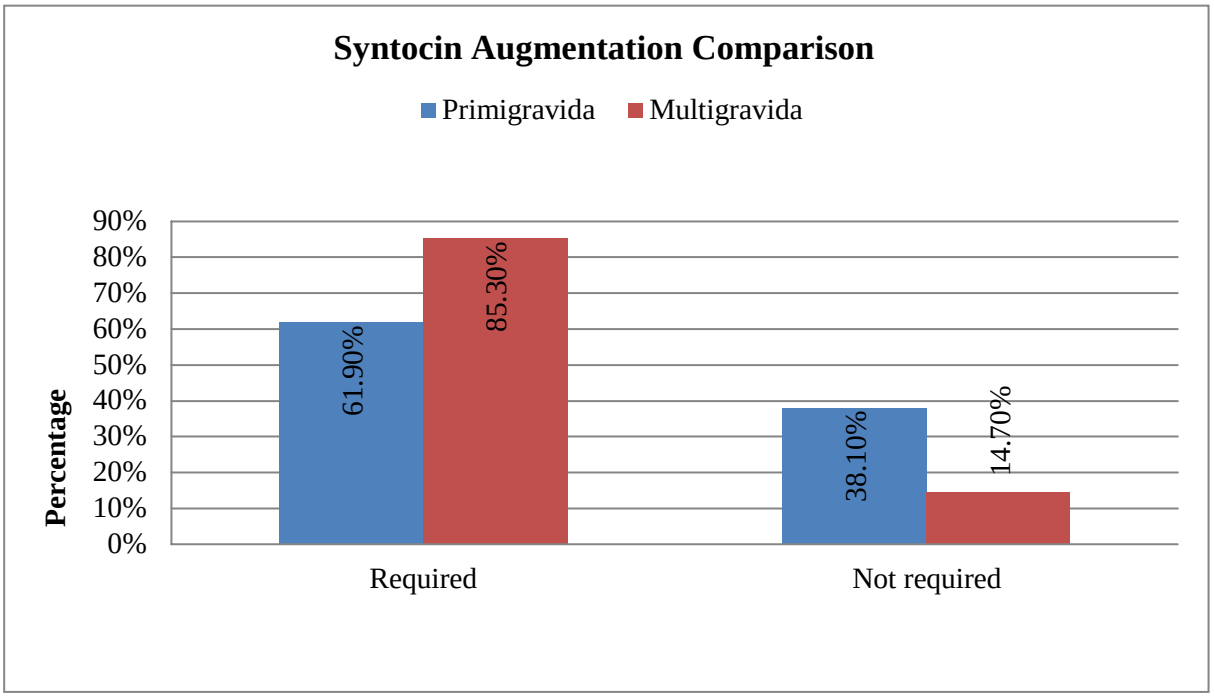

Figure 11: Bar Diagram Showing Syntocin Augmentation requirement comparison with respect to Parity

Table 12: Vaginal delivery and LSCS Syntocin Augmentation required comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
VAGINAL DELIVERY SYNTOCIN AUGMENTATION REQUIRED	Required	8	100.0%	22	88.0%	30	90.9%
	Not required	0	0.0%	3	12.0%	3	9.1%
LSCS SYNTOCIN AUGMENTATION REQUIRED	Required	8	61.5%	6	66.7%	14	63.6%
	Not required	5	38.5%	3	33.3%	8	36.4%

Among primigravida, 8 cases(100%) requiring syntocin agumentation had vaginal delivery and 8 cases(61.5%) underwent lower section cesarean section.

Among multigravida, 22 cases(88%) requiring syntocin augmentation had vaginal delivery and 6 cases(66.7%) underwent LSCS.

In vaginal delivery syntocin augmentation : $\chi 2 = 1.056$, df = 1, p = 0.304

In LSCS synocin augmentation :$\chi 2 = 0.06$, df = 1, p = 0.806

Pearson Chi-Square Tests

		Parity
VAGINAL DELIVERY SYNTOCIN AUGMENTATION REQUIRED	Chi-square	1.056
	Df	1
	Sig.	.304[a,b]
LSCS SYNTOCIN AUGMENTATION REQUIRED	Chi-square	.060
	Df	1
	Sig.	.806[a]

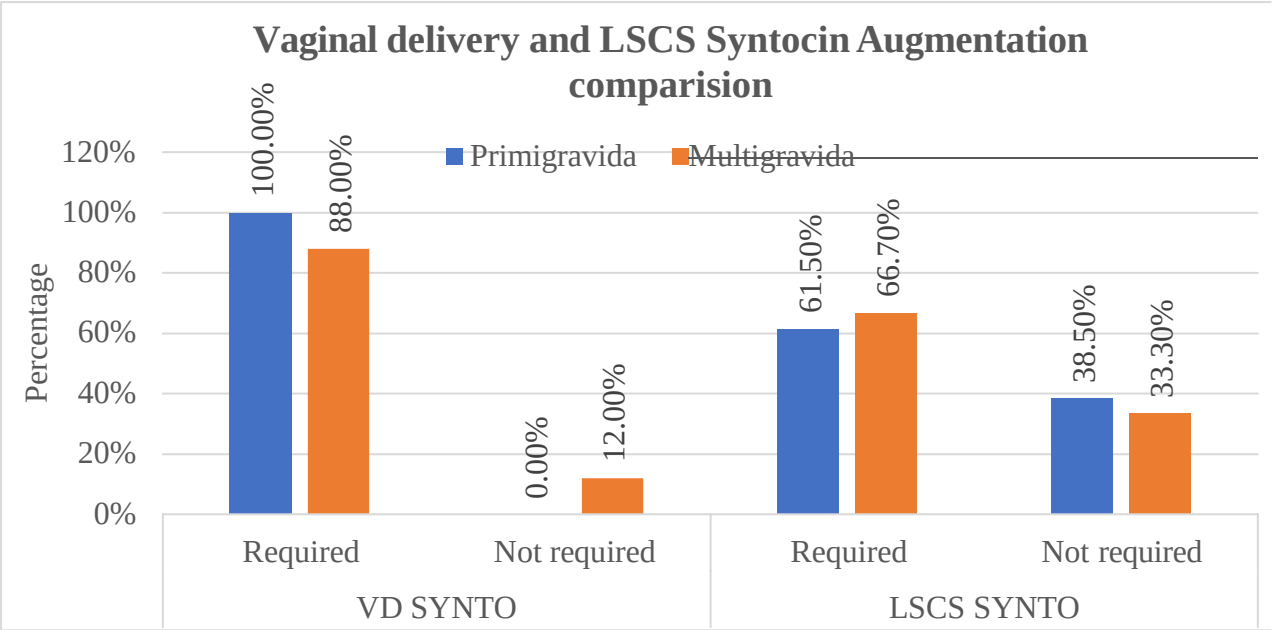

Figure 12: Bar Diagram Showing Vaginal delivery and LSCS Syntocin Augmentation comparison with respect to Parity

Table 13: Syntocin Augmentation required comparison with respect to modes of delivery

		MOD							
		Vaginal		LSCS		Vacuum		Forceps	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
Syntocin Augmentation required	Required	33	100.0%	8	38.1%	1	100.0%	0	0.0%
	Not required	0	0.0%	13	61.9%	0	0.0%	0	0.0%

$\chi 2 = 27.562$, df = 2, p = < 0.001

In almost all vaginal deliveries and vaccum assisted vaginal delivery there was 100% need of Syntocin Augmentation.

There was a significant difference in need of Syntocin Augmentation distribution with respect to Mode of delivery.

Pearson Chi-Square Tests

		MOD
SYNTOCIN AUGMENTATION	Chi-square	27.562
	Df	2
	Sig.	.000*,b,c

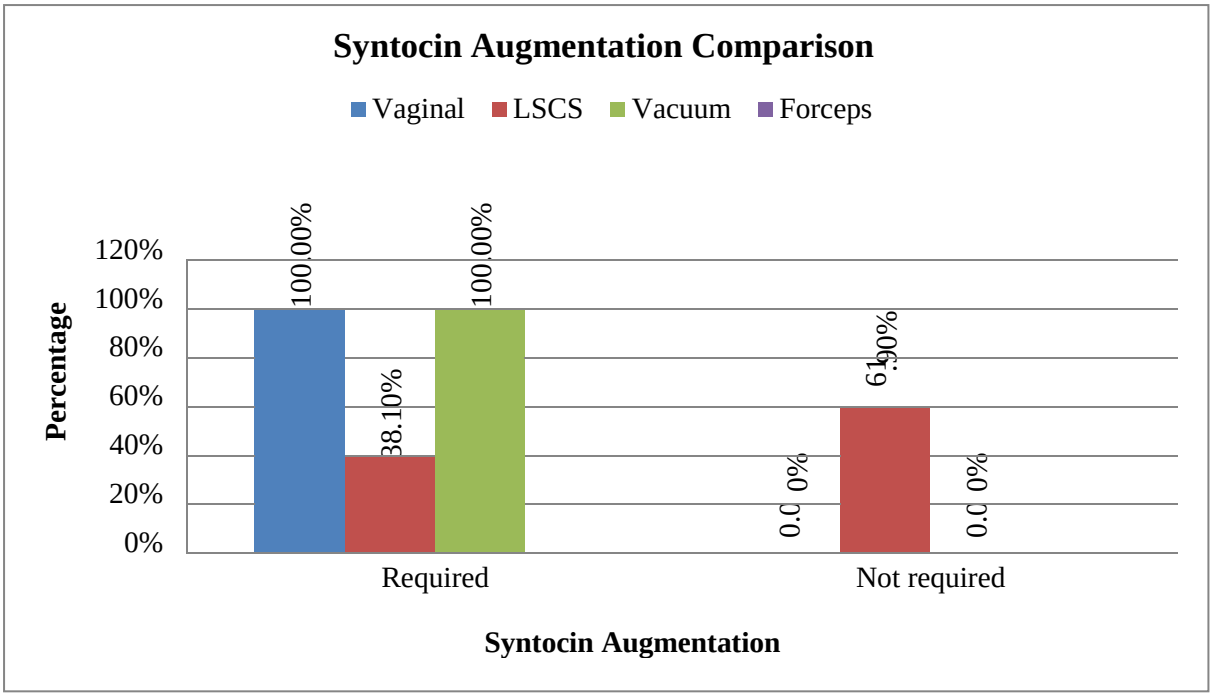

Figure 13: Bar Diagram Showing Syntocin Augmentation comparison with respect to Parity

Table 14: Mode of delivery comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
MODE OF DELIVERY	Vaginal	8	38.1%	25	73.5%	33	60.0%
	LSCS	12	57.1%	9	26.5%	21	38.2%
	Vaccum	1	4.8%	0	0.0%	1	1.8%
	Forceps	0	0.0%	0	0.0%	0	0.0%

Out of 55 pregnant women who underwent induction,60% had vaginal delivery of which 8 were primigravida and 25 were multigravida, 38.2% had LSCS of 12 primigravida and 9 multigravida and 1.8% (one primigravida) had vaccum assisted vaginal delivery.

$\chi 2 = 7.534$, df = 2, p = 0.023*

There was a significant difference in Mode of Delivery distribution with respect to Parity.

Pearson Chi-Square Tests

		Parity
MOD	Chi-square	7.534
	Df	2
	Sig.	.023*,b,c

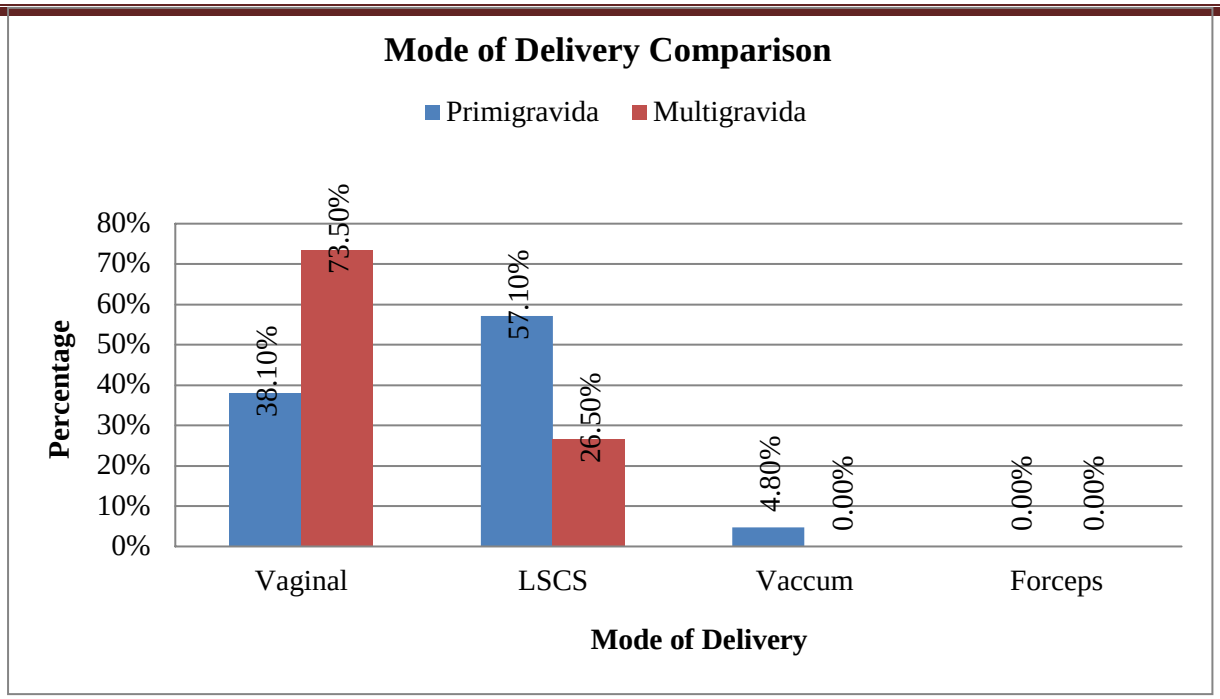

Figure 14: Bar Diagram Showing Mode of delivery comparison with respect to Parity

Table 15: LSCS indication comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
LSCS Indication	Fetal Distress	11	84.6%	5	62.5%	16	76.2%
	Maternal Desire	1	7.7%	2	25.0%	3	14.3%
	Cephalopelvic disproportion	1	7.7%	1	12.5%	2	9.5%
	Deep transverse arrest	0	0.0%	0	0.0%	0	0.0%

Primigravida and multigravida who underwent LSCS had fetal distress as an indication among 84.6% and 62.5% respectively.

$\chi 2 = 1.477$, df = 2, p = 0.478

There was no significant difference in LSCS indication comparison with respect to Parity.

Pearson Chi-Square Tests

		Parity
LSCS INDICATION	Chi-square	1.477
	Df	2
	Sig.	.478[a,b]

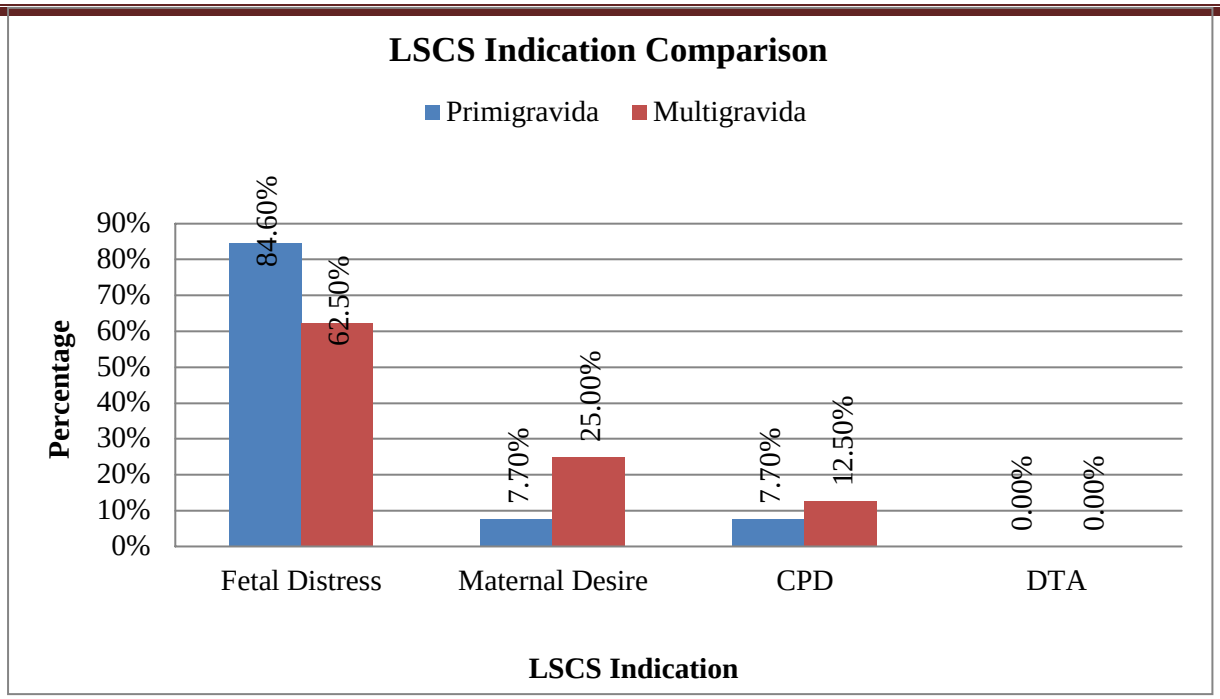

Figure 15: Bar Diagram Showing LSCS indication comparison with respect to Parity

Table 16: Colour of Liquor comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
Liquor	Clear	16	76.2%	30	88.2%	46	83.6%
	Meconium	5	23.8%	4	11.8%	9	16.4%

Liquor was clear in 76.2% primigravida and 88.2% multigravida.

$\chi 2 = 1.376$, df = 1, p = 0.241

There was no significant difference in Liquor comparison with respect to Parity

Pearson Chi-Square Tests

		Parity
COLOUR OF LIQUOR	Chi-square	1.376
	Df	1
	Sig.	.241[a]

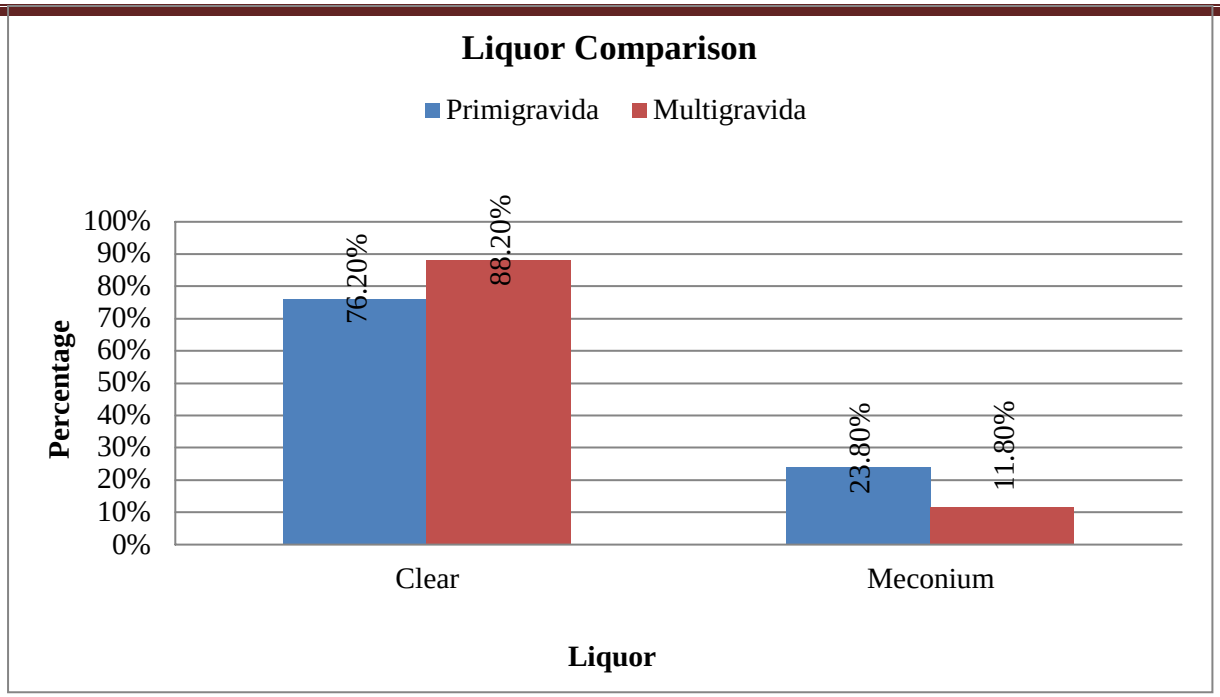

Figure 16: Bar Diagram Showing Liquor colour comparison with respect to Parity

Table 17: APGAR SCORE comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
APGAR AT 1MINUTE	<7	0	0.0%	1	2.9%	1	1.8%
	>7	21	100.0%	33	97.1%	54	98.2%
APGAR AT 5MINUTES	<9	0	0.0%	1	2.9%	1	1.8%
	>9	21	100.0%	33	97.1%	54	98.2%

APGAR score at 1st minute was more than 7 in all the cases of primigravida and 97.1% in multigravida. APGAR score at 5 minutes was more than 9 in all the cases of primigravida and 97.1% in multigravida.

Apgar at1minute :$\chi 2 = 0.629$, df = 1, p = 0.428

Apgar at 5 minutes :$\chi 2 = 0.629$, df = 1, p = 0.428

There was no significant difference in Apgar comparison with respect to Parity.

Pearson Chi-Square Tests

		Parity
APGAR 1MIN	Chi-square	.629
	Df	1
	Sig.	.428[a,b]
APGAR 5MIN	Chi-square	.629
	Df	1
	Sig.	.428[a,b]

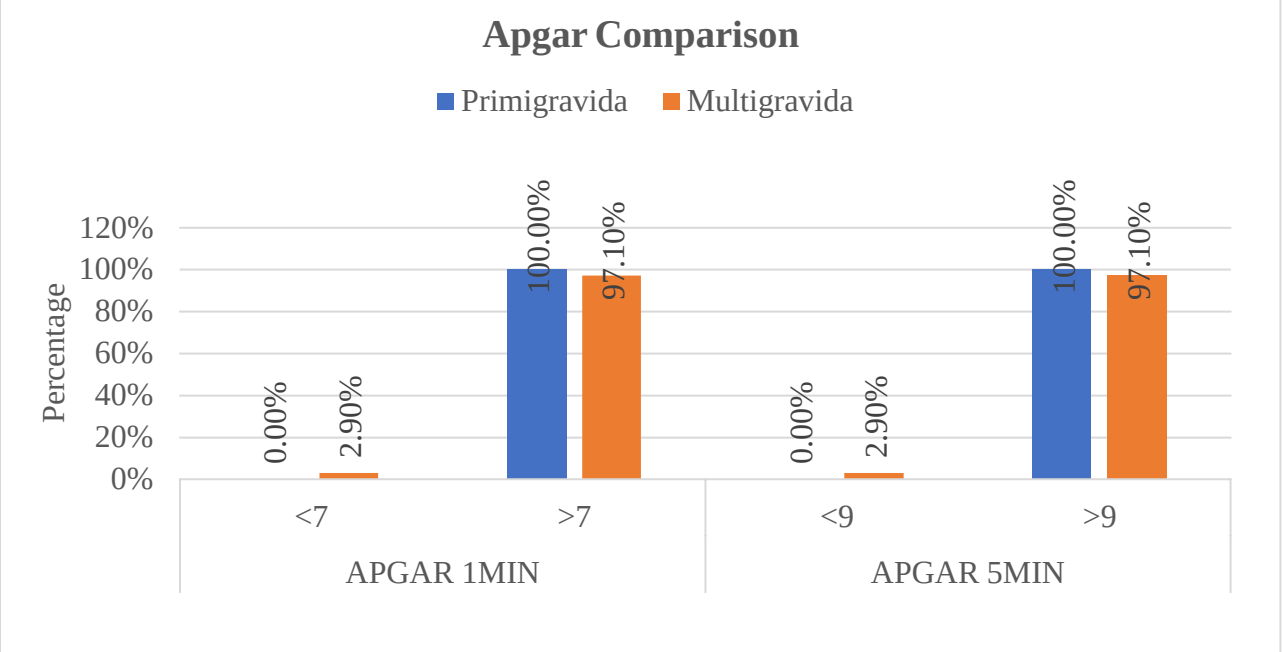

Figure 17: Bar Diagram Showing APGAR score comparison with respect to Parity

Table 18: CARDIO TOCO GRAPHY(CTG) comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
CTG	Reassuring	11	52.4%	27	79.4%	38	69.1%
	Non Reassuring	10	47.6%	7	20.6%	17	30.9%
	Abnormal	0	0.0%	0	0.0%	0	0.0%

Among primigravida, CTG was reassuring in 52.4% and non reassuring in 47.6% cases. Among multigravida, CTG was reassuring in 79.4% and non reassuring in 20.6% cases.

$\chi 2 = 4.442$, df = 1, p = 0.035*

There was no significant difference in CTG comparison with respect to Parity

Pearson Chi-Square Tests

		Parity
CTG	Chi-square	4.442
	Df	1
	Sig.	.035*,b

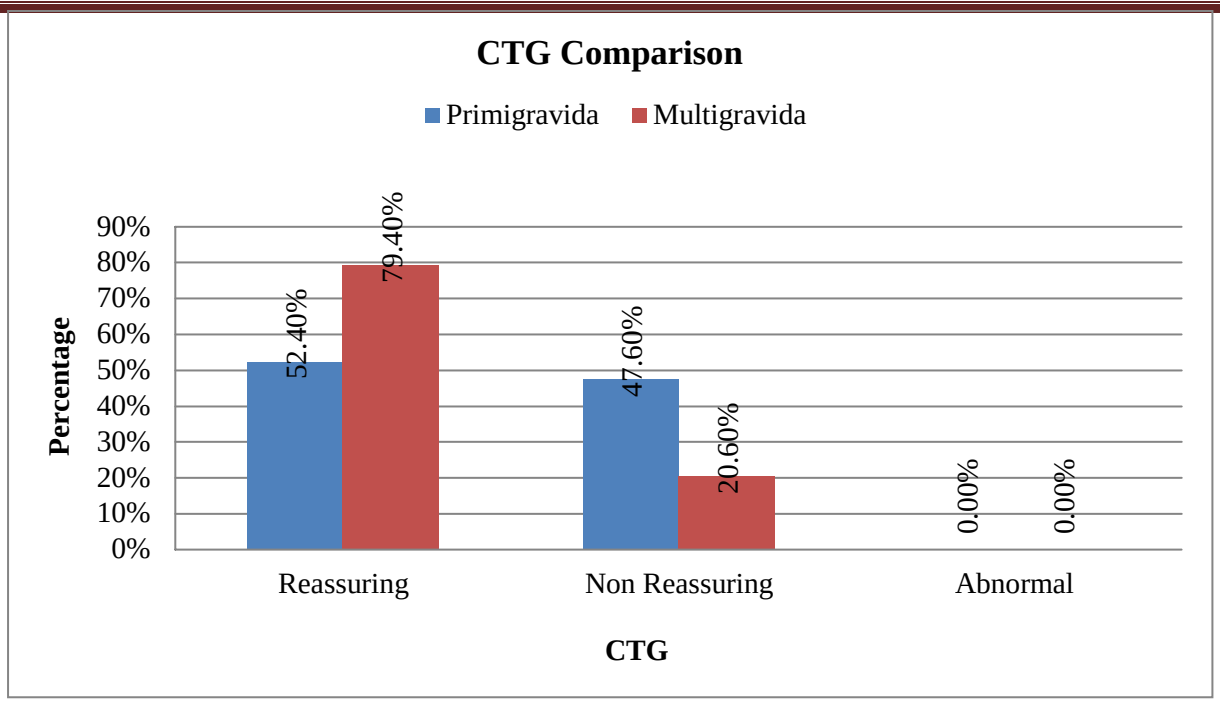

Figure 18: Bar Diagram Showing CTG comparison with respect to Parity

Table 19: NICU admission comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%	Number of cases with Dilapan-S	%
NICU	Admitted	6	28.6%	3	8.8%	9	16.4%
	Not	15	71.4%	31	91.2%	46	83.6%

6 neonates among primigravida and 3 neonates among multigravida mothers needed NICU admission.

$\chi 2 = 3.699$, df = 1, p = 0.054

There was no significant difference in NICU Admission comparison with respect to Parity.

Pearson Chi-Square Tests

		Parity
NICU	Chi-square	3.699
	Df	1
	Sig.	.054[a]

Results are based on nonempty rows and columns in each innermost subtable.

a. More than 20% of cells in this subtable have expected cell counts less than 5. Chi-square results may be invalid.

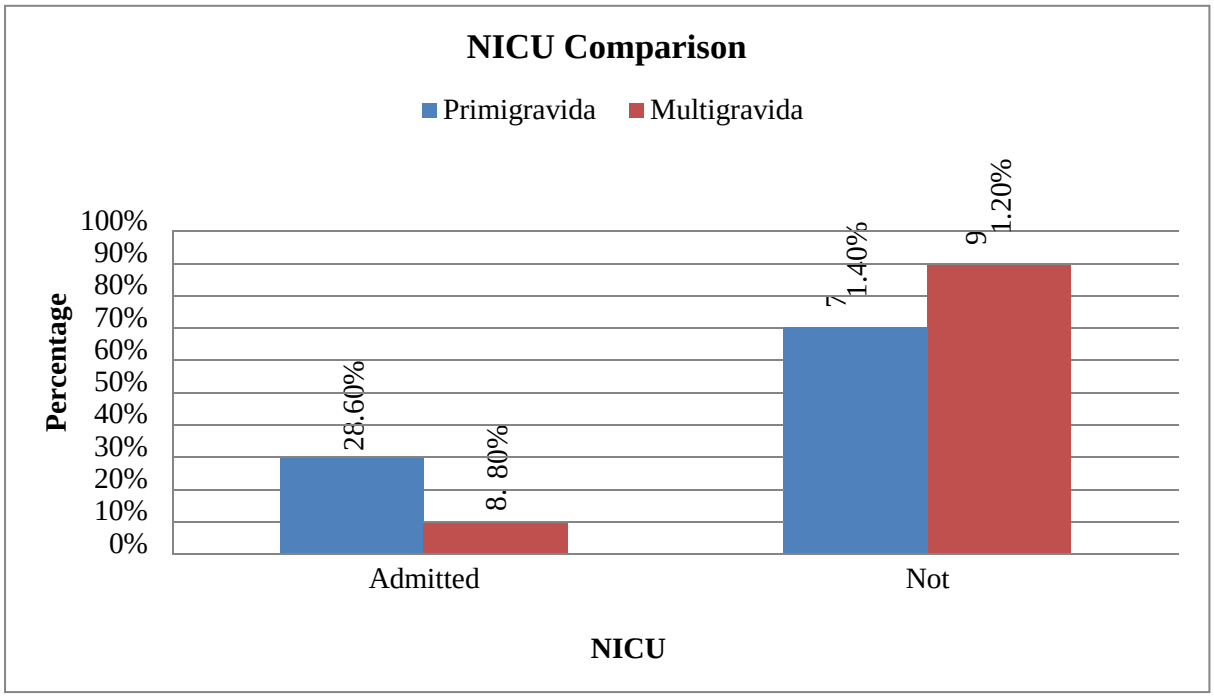

Figure 19: Bar Diagram Showing NICU admission comparison with respect to parity

Table 20: Cause for NICU admission comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Count	%	Count	%	Count	%
CAUSE OF NICU ADMISSION	Fetal distress	6	100.0%	2	100.0%	8	100.0%
	Asphyxia	0	0.0%	0	0.0%	0	0.0%

Fetal distress was the cause of NICU admission in all the cases.

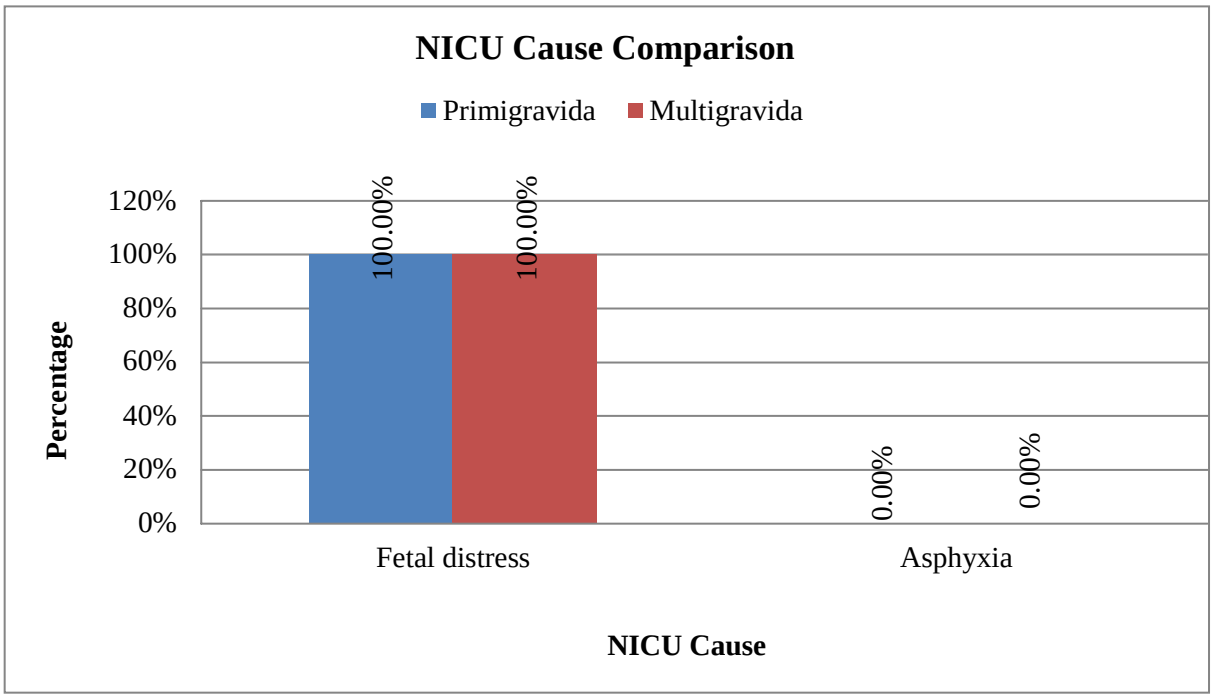

Figure 20: Bar Diagram Showing Cause for NICU admission comparison with respect to Parity

Table 21: Maternal complication comparison with respect to Parity

		Parity					
		Primigravida		Multigravida		Total	
		Count	%	Count	%	Count	%
MATERNAL COMPLICATION	Fever	0	0.0%	0	0.0%	0	0.0%
	PPH Atonic	0	0.0%	0	0.0%	0	0.0%
	Traumatic PPH	0	0.0%	0	0.0%	0	0.0%
	Hyperstimulation	0	0.0%	0	0.0%	0	0.0%
	Precipitate Labour	0	0.0%	0	0.0%	0	0.0%
	Uterine Rupture	0	0.0%	0	0.0%	0	0.0%
	Cord Prolapse	0	0.0%	0	0.0%	0	0.0%
	No	0	0.0%	0	0.0%	0	0.0%

There were no maternal complications seen.

DISCUSSION

DISCUSSION

This was a prospective interventional study to determine the safety and efficacy of Dilapan-S for induction of labour and to compare the maternal and perinatal outcome.

In the present study, maximum number of patients were aged between 21-25 years with p value of 0.364. According to a study conducted by Oleg R et al the mean maternal age was 28 years. Where as in a study by Antonio F et al mean maternal age was 25 years.

In the present study of 55 patients at term gestation, 21 were primigravida and 34were multigravida. However, in a study of 210 patients conducted by Antonio F et al, nulliparous were 88 and multiparous were 122. In another study of 127 women by Oleg et al nulliparous were 88 and multiparous were 122.

In our study, the pre-induction Bishop's Score with less than 4 was seen in 76.2 % primigravida and 73.5% multigravida, with p value of 0.971. Post induction Bishop's score was more than 4 in 85.7% and 94.1%among primigravida and multigravida respectively with p valve of 0.292.

According to the study of Vlk.R et al, successful pre induction Bishop score was achieved in about 86.5% of women.In a study conducted by Oleg R et al, the mean initial BISHOP score was 3.6 and in another study conducted by Antonio F et al, the mean initial BISHOP score was 3 seen in 193 patients.

Postinduction Bishop score was improved in about 90% in the present study with significance value of 0.292.In the study done by David.A et al, postinduction Bishop score was improved with significance value of 0.557.

The most common indication for induction of labour was post-dated pregnancy(60%) in our study. Similarly in a study by Oleg.R et al also, the commonest indication of labour was also

postdated pregnancy.

NUMBER OF DILAPAN S RODS INSERTED-

In the present study, for most of the women (total 49.1%,57.1%in primigravida and 44.1% in multigravida) average number of Dilapan-S rods needed was 2. Similarly in the study conducted by David.A et al also mean number of dilators used were 2.

INDUCTION DELIVERY TIME INTERVAL-

The mean induction to delivery interval time in our study was more than 12 hours but less than 24 hours with significant value of 0.37.

David.A et al concluded that the mean induction to delivery interval was more than 24 hours with standard deviation of 14.6 in his study.

OXYTOCIN AUGMENTATION

In the present study, percentage of cases requiring oxytocin augmentation was 76.4% which was statistically significant with a value of 0.047.

	REQUIREMENT OF SYNTOCIN AUGMENTATION	P VALUE
Oleg. R et al	11	0.047
David. A et al	17	1

MODE OF DELIVERY -In the present study, the rate of achieving vaginal delivery was 60%, LSCS 38.2% and vacuum assisted vaginal delivery 1.8%. The route of delivery was statistically significant with p value of 0.23.

Various studies	MODE OF DELIVERY	Percentage
R.Vlk et al	Vaginal delivery Caesarean section	71.6% 28.4%
Oleg R et al	Vaginal delivery Caesarean section	60.3% 39.7%
David A et al	Vaginal delivery Caesarean section Instrumental delivery	34.7% 26.9% 38.4%

INDICATIONS FOR CAESAREAN SECTION

The commonest indication for caesarean section was fetal distress with 76.2% (p=0.47) .In the study conducted by Antonio et al, failure to progress was the commonest indications for caesarean section followed by non reassuring fetal heart rate.

NEONATAL ADVERSE EFFECTS

In the present study, APGAR score at 1st minute was 7 and 5th minute was in almost all the cases which was similar to a study by Oleg R et al and Antonio F et

al. The cause for neonatal NICU admission in all the NICU admitted neonates (16.4%) was respiratory distress.

The CTG in our present study was statistically significant with p value of 0.035, in which 69.15% showed reassuring type of CTG with no abnormal CTG.According to the studies conducted by Oleg.R et al and Antonio.F, abnormal fetal heart rate patterns were seen in 2 cases with p value of 0.35.and 13 cases with p value of 0.55 respectively.

SUMMARY

SUMMARY

This is a prospective interventional study of 55 pregnant women who received Dilapan –S for induction of labour. This study was done from January 2019 to June 2020 at Sri Devaraj Urs Academy of Higher Education and Research, Tamaka, Kolar.

- There was no significant difference in the maternal age distribution, gestational age, pre- induction modified and post induction Bishop's score.
- The most common indication for induction of labour was postdated pregnancy.
- The mean induction delivery interval was more than 12 hours.
- There was statistical significance in the cases requiring oxytocin augmentation with 76.4%.
- The rate of vaginal delivery was 60% and LSCS was 38.2% which was statistically significant.
- Mean 1 min APGAR score was7 with 5 min APGAR score was 9 in 97.1%.
- Rate of neonatal admission to NICU was 16.4% .
- In the present study there were no maternal complications

CONCLUSION

CONCLUSION

Dilapan-S was effective method of induction of labour in terms of improving cervical ripening and vaginal delivery rate(60%)and was safe with no uterine hyperstimulation or maternal infections or mortality associated.

There was need of syntocin augmentation for most of the patients(76.4%).

Dilapan S was safe with good fetal outcome, reassuring type of CTG and with reduced need of NICU admission.

BIBLOGRAPHY

REFERENCES:

1. Batinelli L, Serafini A, Nante N, Petraglia F, Severi F and Messina G et al. Induction of labour, clinical predictive factors for success and failure. Journal of Obstrectics and gynecology. 2017;38(3):352-358.

2. Chodankar R, Sood A and Gupta J. An overview of the past, current and future trends for cervical ripening in induction of labour.The Journal of Obstrectics and gynecology. 2017;19(3):219-226.

3. Mozurkewich E, Chilimigras J, Berman D, Perni U, Romero V et al. Methods of induction of labour-A systematic review. BMC Pregnancy and childbirth. 2011;1:1-3.

4. Maier J, Schalinski E, Gauger U, Hellmeyer L et al. Cervical ripening with an osmotic dilator (Dilapan –S)in term pregnancies –An observational study. Journal of Gynecology and Neonatal Biology. 2015;1(3):1-6.

5. Gupta J, Chodankar R, Baev O, Bahlmann F, Brega E, Gala A et al. Synthetic osmotic dilators in the induction of labour—An international multicentre observational study. European Journal of Obstetrics & Gynecology and Reproductive Biology. 2018;229:70-75.

6. Crosby D, O Reilly C, McHale H, McAuliffe F and Mahony R et al. A prospective pilot study of Dilapan-S compared with Propess for induction of labour at 41+ weeks in nulliparous pregnancy. Irish Journal of Medical Sciences. 2017;187:693-699.

7. Lawani O, Onyebuchi A, Iyoke C, Okafo C, Ajah L et al. Obstectic outcome and significance of labour induction in a health resource poor setting. Obstetrics and Gynecology International. 2014;419621:1-5.

8. Drunecky T, Reidingerova M, Plisova M, Dudic M, Gdovinova D, Stoy V et al. Experimental comparison of properties of natural and synthetic osmotic dilators. Archives of Gynecology and Obstetrics. 2015;292(2):349-354.

9. Arias F. Pharmacology of oxytocin and prostaglandins. 2000;43(3):455-68.

10. SciscioneA.C.Methods of cervical ripening and labor induction:mechanical. Clinical ObstetGynecol.2014;57(2):359-376.

11. Oleg B, Dmitriy B, Andrey P, Oleg T, Sukhikh G et al.Acomparision between labor induction with only Dilapan-S and a combination of mifepristone and Dilapan-S in nulliparous women-A prospective pilot study.The Journal of Maternal-Fetal and Neonatal Medicine.2019;1671340

12. Eriksson A, Jeppesen S, Krebs L et al. Induction of labour in nulliparous women-quick or slow: a cohort study comparing slow-release vaginal insert with low-dose misoprostol oral tablets.BMC pregnancy and childbirth.2020;79:393.

13. Saad A, Villarreal J, Eid J et al.A randomized controlled trial of Dilapan-S vs Foley balloon for preinduction cervical ripening.AM J Obstet Gynecol.2019;220(3):275-276

14. Chambers D, Willcourt R, Laver A et al. Comparision of Dilapan-S and Laminaria for cervical priming before surgical pregnancy termination at 17-22 weeks gestation.International Journal of Women's Health.2011;vol(3):347-352.

15. Vlk R, Hruban L, Janku P, Simetka O, Michalec I, Zahumensky J, Toman A, Doubek R et al. Efficacy and safety of the osmotic dilator Dilapan-S for cervical ripening in women with or without caesarean section. Department of Gynecology and Obstrectics,Czech Republic.2012;232:2-5.

16. York R.et al.The history of induction. Midwife Health Visit Community Nurse. 1984;20:109-116.
17. Sanchez-Ramos, L, Kaunitz, A. Induction of labour. Glob.libr. women's med. 2009; 1756-2228. Available from: DOI 10.3843/GLOWM.10130.
18. Dale HH. On some physiological actions of ergot. J Physiol. 1906;34:163–206. 19.Bell WB. The pituitary body and the therapeutic value of the infundibular extract in shock, uterine atony, and intestinal paresis. Br Med J. 1909;2:1609-13.
20. Cunnigham FG, Leveno KJ, Bloom SL, Spong CY, Dashe JS, Hoffman BL et al (Ed). Williams Obstetrics.24th Ed. New York: McGraw-Hill Education; 2014.
21. Timmons B, Akins M, Mahendroo M. Cervical Remodeling during Pregnancy and Parturition. Trends EndocrinolMetab. 2010;2:353–61.
22. Gabbe SG, Niebyl JR, Simpson JL, Landon MB, Galan HL, Jauniaux E et al (Ed). Obstetrics Normal and Problem Pregnancies. 7th Ed. Philadelphia: Elsevier; 2017.
23. Bacak SJ, Olson-Chen C, Pressman E. Timing of induction of labor.Semin Perinatol. 2015;39:450-8.
24. Mozurkewich E, Chilimigras J, Koepke E, Keeton K, King VJ. Indications for induction of labour: a best-evidence review. BJOG. 2009;116:626-36.
25. Society of Obstetricians and Gynaecologists of Canada. SOGC clinical practice guidelines. Guidelines for vaginal birth after previous cesarean birth.No. 296. J ObstetGynaecol Can 2013;35:840-57.
26. Penfield C, Wing DA. Labor Induction Techniques:Management of labour and delivery.ObstetGynecolClin N Am. 2017; 44:567 82.
27. Pennell CE, Henderson JJ, O'Neill MJ, McChlery S, Doherty DA, Dickinson JE. Induction of labour in nulliparous women with an unfavourable cervix: a randomised

controlled trial comparing double and single balloon catheters and PGE2 gel.BJOG. 2009;116:1443-52.

28. Calder AA, Brennand JE. Labor and normal delivery: Induction of labor. Curr OpinObstet Gynecol. 1991;3:764.
29. Ramirez MM. Labor induction: a review of current methods. ObstetGynecol Clin North Am. 2011;38:215-25.
30. Royal College of Obstetricians and Gynaecologists. Induction of labour - Evidence-based Clinical Guideline Number 70. London: RCOG press; 2008.
31. Kavanagh J, Kelly AJ, Thomas J. Sexual intercourse for cervical ripening and induction of labour. Cochrane Database Syst Rev. 2001;(2):3093.
32. Bala A, Bagga R, Kalra J, Dutta S. Early versus delayed amniotomy during labor induction with oxytocin in women with Bishop's score of ≥6: a randomized trial. J Matern Fetal Neonatal Med. 2018;31:2994-3001.
33. Boulvain M1, Stan C, Irion O. Membrane sweeping for induction of labour. Cochrane Database Syst Rev. 2001;2: 451.
34. Van Baaren GJ, Jozwiak M, Opmeer BC, Rengerink KO, Benthem M, Dijksterhuis MG et al. Cost-effectiveness of induction of labour at term with a Foley catheter compared to vaginal prostaglandin E_1 gel (PROBAAT trial). BJOG. 2013;120:987-95.
35. Aronsson A, Fiala C, Stephansson O, Granath F, Watzer B, Schweer HW et. Pharmacokinetic profiles up to 12 hours after administration of vaginal, sublingual and slow-release oral misoprostol. Hum Reprod. 2007;22:1912-8.
36. Yount SM, Lassiter N. The Pharmacology of Prostaglandins for Induction of Labor.J Midwifery Womens Health. 2013;58:133-44.
37. Nanda S, Singhal SR, Papneja A. Induction of labour with intravaginal misoprostol and prostaglandin E2 gel: a comparative study. Trop Doct. 2007;37:21-4.

38. Chong YS, Su LL, Arulkumaran S. Misoprostol: a quarter century of use, abuse, and creative misuse. ObstetGynecolSurv. 2004;59:128-40.
39. Sharma P, Sharma S, Shergill HK. Comparative evaluation of low dose-vaginal misoprostol and intra-cervical dinoprostone for cervical ripening and induction oflabour in term pregnancy. Int J ReprodContraceptObstet Gynecol. 2016;5:4303-7.
40. Abdelaziz A, Mahmoud A, Ellaithy M et al.Pre-induction cervical ripening using two different dinoprostone vaginal preparations.Taiwan J Obstet Gynecol.2018;57(4):560-66.
41. Leake RD, Weitzman RE, Fisher DA. Pharmacokinetics of oxcytocin in the human subject. Obstet Gynecol. 1980;56:701–4.
42. Clark SL, Simpson KR, Knox E, Garite T. Oxytocin: new perspectives on an old drug. Am J Obstet Gynecol. 2009;200:35e1-35e6.
43. Dystocia and augmentation of labor. ACOG Practice Bulletin No. 49. American College of Obstetricians and Gynecologists.Obstet Gynecol. 2003;102:1445-54.

ANNEXURES

PROFORMA

- Name :
- I.P.No:
- Age:
- Occupation:
- Address:
- Husband's Occupation:
- Socio-economic Status:
- History of presenting illness:

- Menustral history:

- Obstetric history:
- Past Medical history
- Family History:
- Personal History:
  Sleep:
  Appetite:
  Diet:
  Bowel & Bladder:

- General physical examination:
- Weight
- Height
- BMI
- Build

- Nourishment:
- Pallor- Icterus- Cyanosis- Clubbing- Lymphadenopathy- Pedal edema-
- Pulse: B.P.: Temp:
- Breast: Thyroid: Spine-

Systemic examination:

- CVS:
- RS:
- CNS:

- Abdominal Examination:

- Per speculum examination:

- Per vagina :

  - Modified BISHOP SCORE:-

  - Investigations:

  Complete blood picture BT, CT,BLOOD GROUP
  Serology with consent Random Blood sugar
  USG OF ABDOMEN AND PELVIS-OBS

  - Indication for induction of labour with Dilapan-S:

  - Mode of induction

  - Route of delivery

  - Baby details- Birth weight:

  APGAR score

PATIENT INFORMATION SHEET

MATERNAL AND FETAL OUTCOME BY INDUCING LABOUR USING DILAPAN –S, A CERVICAL OSMOTIC DILATOR

Study location: R.. L .Jalappa Hospital and Research Centre attached to Sri Devaraj Urs Medical College, Tamaka, Kolar.

Please read the following information and discuss with your family members.

- Patients who are visiting Labour room of OBG department at R L Jalappa hospital attached to Sri Devaraj Urs medical college are recruited in the study after obtaining patient information consent.
- You can ask any question regarding the study. If you agree to participate in the study, we will collect information (as per proforma) from you or from a person responsible for you or both.
- Relevant history will be taken. This information collected will be used only for dissertation and publication.
- All information collected from you will be kept confidential and will not be disclosed to any outsider. Your identity will not be revealed. This study has been reviewed by the Institutional Ethics Committee and you are free to contact the member of the Institutional Ethics Committee. There is no compulsion to agree to this study. The care you will get will not change if you don‘t wish to participate. You are required to sign/ provide thumb impression only if you voluntarily agree to participate in this study.

For further information contact

Dr. K. SUKHINI.V.R, Post graduate, Department of obstetrics and Gynaecology, R .L. Jalappa Hospital, Kolar. Phone NO:9901388592.

PATIENT CONSENT FORM

MATERNAL AND FETAL OUTCOME BY INDUCING LABOUR USING DILAPAN –S, A CERVICAL OSMOTIC DILATOR.

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I have been explained about all the complications associated like chorioamnionitis, need of emergency cesarean section, hyperstimulation, postpartum hemorrhage, uterine atony and the alternate methods of induction such as prostaglandin E1, E2,oxytocin, amniotomy, balloon catheters. I have understood that I have the right to refuse consent or withdraw it at any time during the study and this will not affect my treatment in any way. I consent voluntarily to participate in this study

Name of Participant_____

Signature/ thumb print of Participant _____ Date ___

Statement by the researcher/person taking consent:

I have accurately read out the information sheet to the potential participant and to the best of my ability made sure that the participant understands that the following will be done: Dilators will be introduced into the endocervix till it becomes full and cardiotocography, modified BISHOP score along with contractions will be monitored.

I confirm that the participant was given an opportunity to ask questions about the study and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Name of Researcher/person taking the consent: Dr. Sukhini K.

Signature of Researcher /person taking the consent_____ Date _

Name and Address of Principal Investigator: Dr.SUKHINI. K

R.L Jalappa Hospital Tamaka, Kolar.

ರ◌ೋಗಿಯತಿಳ◌ುವಳಿಕೆಸಮ್ಮ ತಿನಮೂನೆ

ಸ◌ಂಶ◌ೋಧಕರ ಹ◌ೆಸರ◌ು: ಡ◌ಾ. ಸ◌ುಖಿನಿ .ಕೆ
ಸ◌ಂಸ್ಥೆ ಯ ಹ◌ೆಸರ◌ು: ಆರ◌್. ಎಲ◌್. ಜ◌ಾಲಪ್ಪ ಆಸಪ ತ್ರೆ ಮತ್ತು
ಸ◌ಂಶ◌ೋಧನ◌ಾಕ◌ೇಂದ್ರ –
ಶ್ರೀ ◌ದೇವರಾಜ◌್ ಅರಸ್ ಮೆಡ◌ಿಕಲ್ ಕ◌ಾಲೇಜ◌ು ಜ◌ೋಡ◌ಿಸಲ◌ಾಗ◌ಿದ◌ೆ. ಪಾಲ್ಗೊ ಳ್ಳು
ವವರ ಹ◌ೆಸರ◌ು: ಕ◌ೆ ಮಸಂಖ್ಯೆ :

ನಾನ◌ುಶ್ರೀ ◌ /ಶ್ರೀ ◌ಮತ◌ಿನನಗ◌ೆಆರ◌್. ಎಲ◌್.
ಜ◌ಾಲಪ್ಪ ಆಸಪ ತ್ರೆ ಯಲ್ಲಿ ನಡ◌ೆಸಲ◌ಾಗುತ್ತಿ ರ◌ುವಅಧ◌್ಯ
ಯನ"ಮಟರ◌್ನಲ್ಅ◌ಂಡ್ ಟಲ್ಔಟ್ಕಮ್ಸ್ ಡ್ಯೂ ಸ್ಟ್ ಲ ◌ೇಬರ್ಯನಸ◌ಂಗೂ
ಲ◌ಾಪ◌ಂ–
ಸ◌್ಆಸರ್ವನಕಲ್ಓಸ◌್ಮ ◌ೇಟ◌್ಟ್ ಲ◌ಾಟ◌ೇರ◌್"ದ್ಲ್ಲಿ ನನನ ನುನ ಸ◌ೇರಿಸಲಪ
ಡಲ◌ಾಗುವುದ◌ುಎ◌ಂದ◌ುನನಗೆ ಅ ರ್ಥವ◌ಾಗುವಭಾಷೆಯಲ್ಲಿ ವ◌ಿವರಿಸಲ◌ಾಗ◌ಿದ◌ೆ.

ಈ ಸ◌ಂಶ◌ೋಧನ◌ಾ ಅಧ◌್ಯ ಯನದ್ಲ್ಲಿ ಪಾಲ್ಗೊ ಳ್ಳು ಲುನನನ ನ್ನು ಆಹ್ವಾ
ನಿಸಲ◌ಾಗ◌ಿದೆ. ಈದ◌ಾಖಲ◌ೆಯಲ್ಲಿ ರುವಮಾಹಿತ◌ಿಯ◌ುಅಧ◌್ಯ ಯನದ್ಲ್ಲಿ ಪಾಲ್ಗೊ ಳ್ಳು
ಬೇಕಅರ್ವ◌ಾಬೇಡವೇಎ◌ಂಬುದ◌್ನುನ ನಿರ್ಧರಿಸಲು ನನಗ◌ೆನ◌ೆರವ◌ಾಗುವುದು.ಪ್ರ
ಧ◌ಾನಸ◌ಂಶ◌ೋಧಕನ◌ೊಂದ◌ಿಗೆ ನಾನು ಈಅಧ◌್ಯ ಯನಕ್ಕೆ ಸ◌ಂಬಂಧಿಸ◌ಿದ◌ಂತ್ರ
ನನನ ಅನ◌ುಮಾನಗಳ◌್ನುನ ಸಪ ಷ◌್ಟ ಪ◌್ಡ◌ಿಸ◌ಿಕೇ◌ಂಡ◌ಿದ್ದೇ ನ◌ೆ.ಈ ಅಧ◌್ಯ
ಯನದ್ಲ್ಲಿ ಪಾಲ್ಗೊ ಳ್ಳು ಮತ್ತುನನ◌ಿಸ◌ೂಚ◌ಿಸಲ◌ಾಗ◌ಿದೆ ಏಕ◌ೆಂದ್ರ◌ೆನಾನ◌ುಅರ◌್ಥತಾ
ಮಾನದ◌ಂಡಗಳ◌್ನುನ ಪ◌ೂರೈಸ◌ುತ್ತು ◌ನೆ.ನನನ ರಕು ದ್ ಮಾದ್ರಿಯನುನ ಗೊತ್ತು
ಪ◌್ಡ◌ಿಸ◌ಿದ್ದ◌್ರ◌ೋಕ್ಷ ಗಳಿಗ◌ೆನಿವರ್ಹ◌ಿಸಲುನ◌ಾನ◌ುಡ◌ಾ.ಸ◌ುಖಿನಿಅವರನುನ ವಿನಂ
ತ◌ಿಸ◌ುತ್ತು ◌ನೆ ಮತ್ತು ಅಧಿಕ◌ಾರವನುನ ನ◌ೀಡುತ್ತು ◌ನ◌ೆ.ಕಳ◌್ಗ◌ೆನ ನನನ
ಸಹ◌ಿಯು ಅರ◌್ಥಆರ◌ೋಗ◌್ಯ ವ◌ೃತ್ತಿ ಪ◌್ರ ರಿ◌ಂದ್ವ◌್ರ◌ೋಕ್ಷ ಯ
ಅನ◌ುಕಲಗಳ್ಳ,ಅಪಾಯಗಳ್ಳ ಮತ್ತು ಮಿತ◌ಿಗಳ◌್ನುನ ನನನ ತ◌ೃಪ್ತು
ಗ◌ೆವ◌ಿವರಿಸಲ◌ಾಗಿ ದೆ ಎ◌ಂದು ನನನ ಅ◌ಂಗ◌ೀಕ◌ಾರವನುನ ರ◌ೂಪ್ತಸ◌ುತ್ತು
ದ◌ೆ.ಭ◌ಾಗವಹ◌ಿಸ◌ುವ◌ಿಕ್ಕೆ ಸಂಪೂರ್ಣವಾಗಿಸಾ ಯಂಪ್ರ ◌ೇರಿತ್ವಾಗಿರುತ್◌ು ಡೆಮತ್ತು ಮಾದ್ರಿಸಂಗೆ
ರ್ಣಗೆ ಯಾವುದೇ ರ◌್ರ◌್ಕ◌ಾಸ◌ಿನಪಾವತ◌ಿಯ◌ಿಲ್ಲ .ಎಲ್ಲಾ ಪ◌್ರ◌ೋಕ್ಷ
ಫಲ್ಲತಾ◌ಂಶಗಳ◌್ನುನ ವೈದ◌್ಯ ಕ◌ೀಯ ಗ◌ೌಪ್ಯ◌್ತ ಯ◌ೊಂದಿಗ◌ೆಪ◌್ರಿಗಣ◌ಿಸಲ◌ಾಗುತ್ತು

ದೆ ಮತ್ತು ಕಾನೂನಿನ ಅಗತ್ಯ ವಿದ್ಯಾ ರ್ಥಿ
ಹೊರತ್ತಪ್ಪಿಸಿಯಾವುದೇಹೊರಗಿನವರಿಗೆಬಹಿರಂಗಪ್ಪಿಸುವುದಿಲ್ಲ .

ನನನ ಗೌಪ್ಯ ತ್ರ ನಿವಥಹಿಸಲಪ ಡುವವರೆಗೆವೈದ್ಯ ಕೋಯ ಪ್ರೊಫೆಸ್ಸರ್ ಪ್ರೊಫೆಸ್ಸರ್ ಯಮೌಲಿ ಮಾಪ್ಪ ಅರ್ವಾ ಶ್ಯಕ್ತಾ ಗಿ ನನನ ಮಾದರ್ರಿಯನುನ ಬಳಸ್ಲುನನನ ಒಪ್ಪಪ ಗೆಯನುನ ನೀಡುತ್ತಾ ನೆ.ನಾನು ಈ ಅಧ್ಯ ಯನದಿಂದ ಯಾ ವುದೇಸಮಯದಲ್ಲಿ ಹಿಂತೆಗೆದುಕೊಳ್ಳು ಲುಮುಕು ವಾಗಿರುತ್ತಾ ನೆ ಮತ್ತು ಇದು ನನನ ಮುಂದಿನಕಾಳ್ಜಿಯನುನ ಬದಲ್ಲಿಸುವುದಿಲ್ಲ ಎಂದು ಅರ್ಥಮಾಡಿಕೊಂಡಿದೆ ನೆ.ಅಧ್ಯಯನ ಮಾಹಿತಿಪತ್ರ ವನುನ ನಾನುಓದಿದೆ ನೆ ಮತ್ತು ಪ್ರ ತಿಯನುನ ಸಿಗಾ ಗಿರಿಸಿದೆ ನೆ.ಈದಾಖಲೆಯಲ್ಲಿ ಒದ್ದಿಸಿದ್ಮಾಹಿತಿಯನುನ ನಾನುಅರ್ಥಮಾಡಿಕೊಂಡಿದೆ ನೆ ಮತ್ತು ಪ್ರೊಫೆಸ್ಸರ್ ,
ಪ್ರ ಕ್ರ ಯೆ, ಸಂಬಂಧಿಸಿದ ಅಪಾಯ ಮತ್ತು ಪ್ರಾಥಯಗಳ ಬಗ್ಗೆ ನಾನು

ಹೊಂದಿರುವಪ್ರ ಶ್ನ ಗಳನುನ ಕೇಳುನನಗೆ ಅವಕಾಶಕಲ್ಪಿಸಲಾಗಿದೆ.

ಹೆಸರು ಮತ್ತು ಸಹಿ / ಹೆಬ್ಬೆ ರಳ್ಳಗುರುತ್ತ: ದಿನಾಂಕ:

ಪೋಷ್ಕರ / ಪಾಲಕರ ಹೆಸರು /ಹೆಬ್ಬೆ ರಳ್ಳ ಗುರುತ್ತ: ದಿನಾಂಕ:

ಒಪ್ಪಪ ಗೆ ತೆಗೆದುಕೊಳ್ಳು ವ ವ್ಯ ಕು ಯ ಸಹಿ: ದಿನಾಂಕ:

KEY TO MASTER CHART

B) IP.No : In-patient hospital number

C) AGE- 1- </=20YEARS

2-21-25

3->/=26

D) PARITY- 1-PRIMIGRAVIDA

2-GRAVIDA 2

3-GRAVIDA 3

4-GRAVIDA 4

E) AGE DISTRIBUTION IN PRIMIGRAVIDA -1- </=20YEARS

2-21-25

3->/=26

F) AGE DISTRIBUTION IN MULTIGRAVIDA-1- </=20YEARS

2-21-25

3->/=26

G) PERIOD OF GESTATION-1-37 WEEKS TO

38+6 WEEKS 2- 39 WEEKS TO 39+6

WEEKS

3-40 WEEKS TO 41+6

WEEKS H)BISHOP SCORE-1-2

2-3

3-4

I)BISHOP SCORE IN PRIMIGRAVIDA-1-2

2-3

3-4

J)BISHOP SCORE IN MULTIGRAVIDA 1-2

2-3

3-4

K)POSTINDUCTION BISHOP SCORE-1- LESS THAN 4

2- MORE

THAN 4 L)INDICATION FOR INDUCTION OF

LABOUR-1-POSTDATED

2-OLIGOHYDRAMNIOUS

3PROM

M)INDICATION OF INDUCTION OF LABOUR IN PRIMIGRAVIDA-1-POSTDATED

2-OLIGOHYDRAMNIOUS

3PRO

M N)INDICATION OF LABOUR IN MULTIGRAVIDA-

1-POSTDATED

2-OLIGOHYDRAMNIOUS

3

PROM

O)NUMBER OF DILAPAN S RODS

INDUCED-1-1

2-2

3-3

4-4

P)NUMBER OF DILAPAN S RODS INDUCED IN PRIMIGRAVIDA-1-1

2-2

3-3

4-4

Q)NUMBER OF DILAPAN S RODS INDUCED IN MULTIGRAVIDA-1-1

2-2

3-3

4-4

R) LATENT LABOUR TIME INTERVAL-1-LESS THAN 12 HOURS

2-MORE THAN 12 HOURS

S) INDUCTION DELIVERY TIME INTERVAL-1- LESS THAN 12 HOURS

2- MORE THAN 12 HOURS BUT WITHIN 24 HOURS

3- MORE THAN 24 HOURS

T) INDUCTION DELIVERY TIME INTERVAL IN PRIMIRAVIDA-1- LESS THAN 12 HOURS

2- MORE THAN 12 HOURS BUT WITHIN 24 HOURS

3- MORE THAN

24 HOURS U)INDUCTION DELIVERY TIME

INTERVAL IN MULTIGRAVIDA-

1- LESS THAN 12 HOURS

2- MORE THAN 12 HOURS BUT WITHIN 24 HOURS

3- MORE

THAN 24 HOURS V)SYNTOCIN

AUGMENTATION REQUIRED 1-YES

2-NO

W) SYNTOCIN AUGMENTATION REQUIRED (VAGINAL DELIVERY)

1-YES

2-N

O X)SYNTOCIN AUGMENTATION

REQUIRED(LSCS) 1-YES

2

-NO Y)MODE OF DELIVERY-1-

VAGINAL DELIVERY

2-LSCS

3-VACCUM ASSISTED VAGINAL DELIVERY

4-FORCEPS

Z)MODE OF DELIVERY AMONG PRIMIGRAVIDA-1-VAGINAL DELIVERY

2-LSCS

3-VACCUM ASSISTED VAGINAL DELIVERY

4-FORCEPS

AA)MODE OF DELIVERY AMONG MULTIGRAVIDA-1-

VAGINAL DELIVERY 2-LSCS

3-VACCUM ASSISTED VAGINAL DELIVERY

4-FORCEPS

AB)INDICATION OF LSCS-1-

FETAL DISTRESS

2-MATERNAL DESIRE

3-CEPHALO PELVIC DISPROPORTION

4-DEEP

TRANSVERSE ARREST AC)COLOUR OF

LIQUOR-1-CLEAR

2-MECONIUM

STAINED AD)APGAR SCORE AT 1^{ST}

MINUTE-1-LESS THAN 7

2-MORE

THAN 7 AE)APGAR SCORE AT 5^{TH}

MINUTE-1-LESS THAN 9

2-MORE THAN 9

AF)CTG-1-

REASSUR

RING 2-

NON

REASSUR

RING

3-ABNORMAL

AG)NICU ADMITTED-1-

1ADMITTED

2-NOT ADMITTED

AH)CAUSE FOR NICU ADMISSION-1-FETAL DISTRESS

2

-ASPHYXIA AI)MATERNAL

COMPLICATIONS-1-FEVER

2-ATONIC PPH

3-TRAUMATIC PPH

4- UTERINE HYPERSTIMULATION

MASTER CHART

S NO	UHID NO	AGE	PARITY	AGE IN PRIMI	AGE IN MULTI	POG	BISHOP SCORE	PRIMI BISHOP	MULTI BISHOP	POSTINDUCTION BISHOP	INDICATION OF INDUCTION	PRIMI	MULTI	RODS NUMBER	RODS IN PRIMI	RODS IN MULTI	LATENT TIME	IDI TIME	IDI PRIMI	IDI MULTI	SYNTOCIN AUGMENT	VD SYNTO	LSCS SYNTO	MOD	MOD PRIMI	MOD MULTI	LSCS INDICATION	LIQUOR	APGAR 1MIN	APGAR 5MIN	CTG	NICU	NICU CAUSE	MATER COMPLI
1	732993	2	1	1		3	1	1		2	1	1		2	2		2	3	3		1		1	2	2		1	1	2	2	2	2	1	
2	740958	2	2		2	3	1		1	1	1		1	2		2	1	1		1	2		2	2		2	2	1	2	2	1	2		
3	717336	2	1	2		2	2	2		2	3	3		3	3		1	2	2		2		2	2	2		1	2	2	2	2	1	1	
4	764852	2	1	2		2	3	3		2	3	3		4	4		1	3	3		1	1		1	1			1	2	2	1	2		
5	757468	2	1	2		1	2	2		1	2	2		3	3		2	3	3		1		1	2	2		1	1	2	2	2	1	1	
6	786486	2	1	2		3	3	3		2	1	1		3	3		2	2	2		1	1		1	1			1	2	2	1	2		
7	793250	2	3		2	3	3		3	2	1		1	4		4	1	1		1	1		1	1		1		1	2	2	1	2		
8	795106	2	2		2	2	2		2	2	1		1	2		2	2	2		2	1	1		1		1		1	2	2	1	2		
9	795110	2	3		2	2	3		3	2	2		2	4		4	1	1		1	1	1		1		1		2	2	2	1	2		
10	730402	3	1	3		3	1	1		2	1	1		1	1		2	3	3		1	1		1	1			1	2	2	1	2		
11	794998	2	2		2	2	2		2	2	2		2	2		2	2	2		2	1	1		1		1		1	2	2	1	2		
12	777468	3	2		3	2	2		2	2	3		3	3		3	2	3		3	1	2		1		1		1	2	2	1	2		
13	797866	3	4		3	2	2		2	2	2		2	2		2	2	2		2	1	1		1		1		1	2	2	2	2		
14	801772	3	4		3	3	2		2	2	1		1	2		2	2	1		1	1	1		1		1		1	2	2	1	2		
15	732873	2	2		2	2	2		2	2	2		2	3		3	2	2		2	1	1		1		1		1	2	2	1	2		
16	806552	2	1	2		2	2	2		2	3	3		2	2		2	3	3		1	1		1	1			1	2	2	1	2		
17	838525	2	2		2	2	2		2	2	2		2	3		3	2	2		2	1	1		1		1		1	2	2	1	2		
18	744017	3	3		3	3	2		2	2	1		1	2		2	2	3		3	1	1		1		1		1	2	2	1	2		
19	805482	3	1	3		2	2	2		2	2	2		2	2		2	3	3		2		1	2	2		1	1	2	2	2	2		
20	730471	3	3		3	3	2		2	1	1		1	2		2	2	2		2	2		2	2		2	3	1	2	2	1	2		
21	809451	2	1	2		3	1	1		2	1	1		2	2		2	2	2		1	1		3	3			2	2	2	1	2		
22	813488	3	1	3		3	2	2		1	1	1		2	2		2	3	3		2		1	2	2		2	1	2	2	1	2		
23	821308	2	3		2	2	3		3	2	3		3	3		3	1	1		1	1	1		1		1		1	2	2	1	2		
24	821382	2	1	2		3	3	3		2	1	1		3	3		1	2	2		1	1		1	1			1	2	2	1	2		
25	410679	1	2		1	3	2		2	2	1		1	3		3	2	2		2	1	1		1		1		1	2	2	1	2		
26	825038	3	2		3	3	1		1	2	1		1	2		2	2	3		3	1	1		1		1		1	2	2	1	2		
27	760223	2	1	2		3	2	2		2	1	1		2	2		2	2	2		1		1	2	2		3	1	2	2	1	2		
28	780395	2	2		2	2	2		2	2	2		2	3		3	2	3		3	1		1	2		2	1	2	2	2	2	1	1	
29	835454	2	2		2	3	2		2	2	2		2	3		3	2	2		2	1	1		1		1		1	2	2	1	2		
30	792057	3	3		3	3	3		3	2	1		1	3		3	2	2	2		1	2		1		1		1	2	2	1	2		
31	770395	3	1	3		3	2	2		2	2	2		3	3		2	3	3		1	1		1	1			1	2	2	1	2		
32	757325	3	3		3	3	1		2	2	2		2	3		3	2	2		2	2	2		2		2		1	2	2	1	2		
33	839678	2	1	2		3	2	2		2	1	1		3	3		2	2	2		2		2	2	2		1	1	2	2	2	2		
34	841964	3	1	3		1	2	2		2	2	2		3	3		2	2	2		2		1	2	2		1	2	2	2	2	1	1	
35	841650	3	2		3	3	1		2	2	1		1	2		2	2	3		3	1	1		1		1		1	2	2	1	2		
36	833000	3	1	3		3	2	2		2	1	1		2	2		2	2	2		2		2	2		1	1	2	2	2	2	1	1	
37	843860	2	1	2		2	2	2		1	2		2	2		2	2	3		3	1		2	1	2		1	1	2	2	2	2		
38	842287	3	2		3	2	1		2	2	1		1	2		2	2	1		1	2		2	2		2	1	1	1	1	2	1	1	
39	847173	3	2	3		3	2		2	2	1		1	2		2	2	2		2	2		1	2		2	1	2	2	2	2	2		
40	846869	2	1	2		3	3	3		2	1	1		2	2		2	2	2		1		1	2	2		1	2	2	2	2	1	1	
41	848208	2	2		2	3	2		2	2	1		1	2		2	2	3		3	1	1		1		1		1	2	2	2	1		
42	813352	2	3		2	2	3		3	2	2		2	4		4	2	1	1		1	1		1		1		1	2	2	2	2		
43	848640	3	2		3	3	2		2	2	1		1	2		2	2	2		2	1		1	2		2	1	1	2	2	2	2		
44	848767	2	2		2	1	2		2	2	2		2	2		2	2	3		3	1		1	2		2	2	1	2	2	1	2		

S NO	UHID NO	AGE	PARITY	AGE IN PRIMI	AGE IN MULTI	POG	BISHOP SCORE	PRIMI BISHOP	MULTI BISHOP	POSTINDUCTION BISHOP	INDICATION OF INDUCTION	PRIMI	MULTI	RODS NUMBER	RODS IN PRIMI	RODS IN MULTI	LATENT TIME	IDI TIME	IDI PRIMI	IDI MULTI	SYNTOCIN AUGMENT	VD SYNTO	LSCS SYNTO	MOD	MOD PRIMI	MOD MULTI	LSCS INDICATION	LIQUOR	APGAR 1MIN	APGAR 5MIN	CTG	NICU	NICU CAUSE	MATER COMPLI
45	850242	3	3		3	3	3		3	2	1		1	3		3	1	3		3	1	1		1		1		1	2	2	1	2		
46	851981	3	3		3	3	2		2	2	1		1	3		3	2	3		3	1	1		1		1		1	2	2	1	2		
47	851987	2	2		2	1	2		2	2	1		1	3		3	2	3		3	1	1		1		1		1	2	2	1	2		
48	848069	3	1	3		3	2	2		2	1	1		2	2		2	2	2		2		2	2	2		1	1	2	2	2	1		
49	866019	2	2		2	3	3		3	2	1		1	4		4	2	3		3	1	1		1		1		2	2	2	1	2		
50	840444	2	1	2		3	3	3		2	1	1		2	2		2	2	2		2		1	2	2		1	1	2	2	1	2		
51	862347	1	1	1		3	2	2		2	1	1		2	2		2	2	2		1	1		1	1			1	2	2	1	2		
52	860940	3	2		3	3	3		3	2	1		1	3		3	2	3		3	1	1		1		1		1	2	2	1	2		
53	868926	3	2		3	3	2		2	2	1		1	3		3	2	2		2	1	1		1		1		1	2	2	1	2		
54	639613	3	3		3	1	2		2	2	2		2	2		2	2	2		2	1		1	2		2	1	1	2	2	1	2		
55	849032	3	4		3	3	3		3	2	3		3	3		3	1	1		1	1	1		1		1		1	2	2	1	2		