"A COMPARATIVE STUDY OF THE PREGNANCY OUTCOME WITH INDUCTION AT 40 WEEKS AND BEYOND 40 WEEKS OF GESTATIONAL AGE"

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TAMILNADU

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BONAFIDE CERTIFICATE

This is to certify that this dissertation entitled "**A COMPARATIVE STUDY OF THE PREGNANCY OUTCOME WITH INDUCTION AT 40 WEEKS AND BEYOND 40 WEEKS OF GESTATIONAL AGE "** is the bonafide work done by **Dr. R.PAVITHRA ,**Post Graduate in the Department of Obstetrics and Gynaecology, Madras Medical College, Chennai, towards partial fulfilment of the requirements of The Tamil Nadu Dr. M.G.R University for the award of M.S Degree in Obstetrics and Gynaecology.

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INTRODUCTION

Human Birth is a gift from God , and He has empowered the obstetricians, the duty of delivering a good , healthy well fetus to make a strong backbone of our country and healthy future generation.

India being the second largest population country next to China , in the world , has implemented national family welfare program in a very large scale and now the acceptance rate of nuclear family norm has gained increased popularity in India. So each and every pregnancy is important, and every baby is precious baby. The definition of prolonged pregnancy according to international guidelines is 42 completed weeks or more than that from the first date of the last menstrual period.

Although 42 completed weeks is used as a cut off it is not an absolute threshold.

In Indian population , fetus matures earlier 1 week than the western population and the risk of still birth begins to rise 1 week earlier.

So as per this evidence in our population it is necessary to apply postdated terminology to 41 completed weeks itself.

Prolonged pregnancy always causes anxiety and distress for parents , their families, and also the obstetricians. The main reason quoted for this is the risk of late IUD . Despite many trials and studies , there is still no consensus and clear decision regarding the most appropriate management of this difficult situation.

As per dyson et al study the post maturity problem sets earlier in some ethnic groups. So the management of patient as per international guidelines will not be universally applicable and will vary to all population.

There are 2 categories of patients to identify postdated pregnancy

1. Patients with real postdatism and
2. Those that are termed as postdatism due to incorrect calculation of gestational age.

According to Benet and josephs 2007 studies most cases of postdated pregnancy is due to inaccurate calculation of EDD.

Why only some mothers is having postdated pregnancy? Is it really biologically determined? The question is UN answered.

Accurate estimation of gestational age and expected date of delivery is important for successful outcome of pregnancy.

Herein this study we compare the pregnancy outcome of those intervened at forty weeks of gestation and those beyond forty weeks and thereby we are arriving at an optimum period for intervention in these pregnancies.

We split them into two groups- group A- Induction of pregnancy beyond 40 weeks and group B- Induction of pregnancy at 40 weeks.

The problems associated with postdated pregnancy are

1. Mother fears any danger for the fetus and becomes anxious.
2. Mother is at increased risk of instrumental and operative delivery
3. Fetus is at increased risk for , fetal distress, fetal heart rate abnormalities, Meconium stained Amniotic fluid, Meconium Aspration Syndrome, post maturity.

In this study the outcome of pregnancies that crossed the expected date of delivery have been studied in Institute of Obstetrics and gynaecology, lying in Egmore Hospital, Chennai.

AIM OF THE STUDY

To compare the pregnancy outcome with induction at 40 weeks and beyond 40 weeks of gestational age.

OBJECTIVE OF THE STUDY

1. To analyse and evaluate the optimum period of intervention in pregnancies without compromising the Fetomaternal outcome.

2. To evaluate the maternal and perinatal outcome when induction of labour is done at 40 weeks of gestation.

3. To evaluate the maternal and perinatal outcome when induction of labour is done beyond 40 weeks of gestation.

REVIEW OF LITERATURE

As long ago as 399 BC Aristole appreciated that the gestation period for human pregnancy varied considerably and that prolonged pregnancy was not uncommon. He wrote:

"Now all other animals bring the time of Pregnancy to an end in an uniform way; in other words, one single term pregnancy is defined for each of them. But in the case of mankind alone of all animals, the times are diverse for pregnancy may be seven months duration or of eight months or of nine and still more commonly of ten (10) months. Whilst some women go ever into the eleventh month" (Aristole works Vol. II).

In 1883, a woman who was pregnant for 476 days, gave birth to a boy baby weighing 13 Ib (5.8 kg).

In 1958, Wrigley said , there can be no more an exact time for gestation than an exact height or an exact weight for everyone. The reason why the subject generates so much heat and debate is because of increased perinatal morbidity and mortality that is associated with prolonged pregnancies.

The expressions post datism and post term are used synonymously to describe a pregnancy which exceeds 294 days from LMP assuring a 28 days cycle (according to FIGO 1980).

However, confusion exists because the term post maturity, which is often used synonymously with prolonged pregnancy, which is actually used to describe the state of the baby.

Normal Duration of Pregnancy

The Modern obstetrics still supports Naegele' s rule which adds 280 days or 9 months plus 7 days to the last menstrual period (Naegele 1812)

Average Duration of Pregnancy

Other studies showing some variation in the mean length of gestation are

S.No.	Author	Method of Assessment	Days from LMP
1.	Naegele (1812)	LMP	280
2.	Cary (1948)	Artificial Insemination	85 (271 from conception)
3.	Kortenoever (1950)	LMP	282 (280 – 284)
4.	Stewart (1952)	Basal Body Temp.	266-270 from conception
5.	Park (1968)	LMP	287 – 289
6.	Guerrero and Florex	Basal Body Temp	280
7.	Nakono (1972)	LMP	278

Postdated pregnancy definition was revised by ACOG in its latest updates.

Most cases of post dated pregnancy are due to inaccuracy in estimating the gestational age.

1. According to study of nelson JP; Cochrane data base 2000 routine early first trimester scan seems to be better calculator of EDD. It also reduces the rate of induction of labor in prolonged gestation It's a randomized controlled trial. This study proved the benefit of early dating scan.

2. According to bukowski R; 2001 decrease in the rate of postdated pregnancy is the additional benefit of first trimester screening for aneuploidy.

3. Genetic factors play an important role in postdated pregnancy.

This is proved from the study olesen ; 2004.23 to 30 % genetic factors liable for postdated pregnancy.

4. Both maternal and paternal factors related to the recurrence of post dated pregnancy. The study was conducted by morken 2o11; 118. In this study they stated both factors plays role in recurrence.

5. Maternal weight play an important role in postdated pregnancy. Scotland;Washington; 2007 found that higher BMI is associated with prolonged gestation.Achieving optimal BMI before conception may reduce the postdated pregnancy rate.

6. Male gender predisposes to prolong pregnancy. This was proved from the DIVON MY; 2002; study.

7. STOKES HJ 1991; 31(1); 27 found that Doppler velocity wave

form analysis's unlikely to be benefited in routine assessment of postdated pregnancy. Doppler analysis is not as influential in prolong pregnancy when compared to IUGR

8. According to NACKLING J, BACB B 2006 prolong pregnancy is associated with both increase perinatal mortality and morbiditythis was proved from various studies.

9. U-B Wennerholm et al - induction of labour at 41 weeks versus expectant management and induction of labour at 42 weeks (SWEdish Post-term Induction Study, SWEPIS): multicentre, open label, randomised, superiority trial This study comparing induction of labour at 41 weeks with expectant management and induction at 42 weeks does not show any significant difference in the primary composite adverse perinatal outcome. However, a reduction of the secondary outcome perinatal mortality is observed without increasing adverse maternal outcomes.

10. JUDIT KJ KEULEN et al;66;110-18;2018 nov Timing of induction of labor at 41 or 42 weeks In total 22 trials were included which had all different timeframes of comparison. There was no significant difference in the Caesarean section rate 93/629 (induction) versus 106/629 (expectant

management), RR 0.88; 95%CI 0.68-1.13. Evidence is lacking for the recommendation to induce labour at 41 weeks instead of 42 weeks for the improvement of perinatal outcome

11. *Ranjana Patil, Anupama Dave, vol 5, no 8, 2016* A study of maternal and perinatal outcome in induction of labour at 40 weeks and 41 weeks of gestation in 150 pregnant women Prolongation of pregnancy is observed frequently in nulliparous women in both the groups (74% vs 62%).Caesarean rates were more in 41 week group compared to 40 week group (30% vs 12%, p=0.007). Maternal outcome in terms of PPH, perineal tears and sepsis are observed more in 41 week group though it was not statistically significant (p=0.493). Birth asphyxia, MAS and MSL are factors responsible for worse perinatal outcome in 41 week group that was statistically significant (p=0.009). Age and duration of labour showed no difference in both groups. Labour induction should be done at 40 weeks - it is reasonable option because it prevents a lot of maternal and perinatal complications.
12. Dr Poonam Kumari , Dr Sipra Singh , Shazia Iqbal Induction of Labour vs Expectant Management for Pregnancies beyond

40 Weeks of Gestation , a Prospective Comparative Randomised Study The study suggests that induction of labour should be reserved for cases where maternal and perinatal benefits outweigh the complications. Elective induction of labour with unfavourable cervix should be discouraged and waiting till 41 weeks with proper feto-maternal surveillance and then inducing has been seen to improve maternal and fetal outcome.

DEFINITION

The standard internationally recommended definition of prolonged pregnancy endorsed by American College of obstetricians and gynecology (ACOG) is 42 completed weeks (294 days) or more from the first day of Last Menstrual Period (LMP).

There are various terminologies used for the crossed dates pregnancy and these should not be used as interchangeable terms.

- Postdated - 40 completed weeks
- Late term - 41 weeks to 41+6 weeks
- Post term - 42 completed weeks (294 days)
- Post maturity- it is features of fetus with 42 completed weeks .

INCIDENCE

Prolonged pregnancy occurs in 5-10% of pregnancies.

According to martin et al the post term pregnancy incidence is 7%.

But the incidence of postdated pregnancy is in a decreasing trend now a days due to accurate estimation of gestational age and early dating scan.

- Incidence beyond 41 weeks 8 to 10%
- Incidence beyond 42 weeks 6 to 8% in western countries

- But in India its only about 2 to 3%
- Post maturity syndrome incidence is 18 to 22%.

According to eleven at al post term pregnancy is associated with increased risk of mortality and morbidity to the fetus

The incidence of postterm pregnancy depends on

- Criteria for dating of pregnancy
- Approach to management
- The population being studied

Criteria for dating of pregnancy:

In populations where the due date is calculated based on an ultrasound examination before 24 weeks gestation , the rate of postterm pregnancy has been shown to drop by 40%. This is because due date calculated with recall of the last menstrual period (LMP) is not as accurate.

Approach to management:

If the practice patterns in a population include a high rate of planned caesarean delivery and / or elective labour induction at term , the incidence of postterm pregnancy will obviously be low.

The population being studied:

Since the median gestation is shorter in Indian women, approximately 10% of pregnancies go beyond 41 weeks and only 1 -2 % beyond 42 weeks.

The incidence of post term pregnancy (> 42 weeks varies from 0.5- 7% in western countries.

Boyd and co workers found an incidence of post term pregnancy of 7.5% when the diagnosis was based on menstrual history and 2.6% when diagnosis was based on early ultrasound examination and 1.1% when the diagnosis was based on concurrent menstrual history and ultrasound examination.

AETIOLOGY OF POSTTERM PREGNANCY:

The exact cause of post dated pregnancy is unknown in majority of the cases. The various causes are

1. **Hereditary and Racial Factors**

The most consistent risk factor for post term pregnancy is a previous post term pregnancy. There is a twofold to threefold increase in the risk of another postterm pregnancy following a previous postterm pregnancy. This risk of recurrence becomes fourfold after two postterm pregnancies.

Prolonged pregnancy tends to recur in successive pregnancies in the same woman and the condition after runs in families. Genetic predisposition has been found in some ethnic groups , and the risk is higher if the mother of women had postterm pregnancies.

The most common cause for prolonged pregnancy- error of LMP and inaccurate prediction of gestational age. Therefore accurate dating of pregnancy plays a very important role in the management of these patients.

2. **Maternal obesity**

Maternal obesity is an independent predictor of post term pregnancy. Prepregnancy BMI greater than 25 kg/m2 had a higher risk of

postterm pregnancy.

In obese patients there is increased adipose tissues which was harmonically dependent.

Altered metabolic status leads to delay in the initiation of labour which is due to altered environment. Obesity is one of the modifiable risk factors.

3. Improved living Standard

High living standard may lead to prolonged pregnancy with the knowledge that poor nutrition leads to prematurity.

Instead of true causal relationship, the association of lower socioeconomic status with an increased incidence of postdatism may reflect delayed access to the prenatal care in this group of people.

4. Seasonal Variation

Longer in summer than in the winter with an average difference of 2.5 – 4 days

5. Hormonal Influence

Fetal adrenal hypoplasia and anencephaly can also result in prolonged pregnancy, since in these fetuses the hypothalamo-pituitary - adrenal axis is dysfunctional leading to lower corticotrophin releaesing hormones (CRH) levels.

CRH through complex pathways increases PG and oestrogen and decrease progesterone , which is necessary for labour initiation. However, there is little evidence of endocrinological defects in the majority of prolonged pregnancies.

6. Paternal role

There are some studies supporting the paternal role in postdated pregnancy. The rate of postdated pregnancy will be reduced from 20 to 14% if the paternity changes for 1^{st} pregnancy and 2^{nd} pregnancy role.

7. Other causes:

Nulliparity, male fetus, older maternal age.

8. Rare cause

Placental sulfatase deficiency (an X – linked recessive disorder) results in reduced placental oestrogen synthesis. This leads to poor expression of oxytocin and prostaglandins receptors in myometrium.

Some surveys have showed a significantly shorter mean length of gestation and lower frequencies of pregnancies which continues beyond 42 weeks of gestation in black than in white women. This difference has not been observed in Asian Women.

PATHOPHYSIOLOGY

PHYSIOLOGICAL CHANGES ASSOCIATED WITH PROLONGED GESTATION/ AMNIOTIC FLUID CHANGES:

The exact mechanism of postdated pregnancy is not very clearly understood until now.

To understand the mechanism of postdated pregnancy the normal parturition mechanism should be enlightened.

PLACENTA

↓

Corticotrophin releasing hormone production from placenta peaks at the time of labour

↓

Leads to increase DHEAS from the fetal adrenals

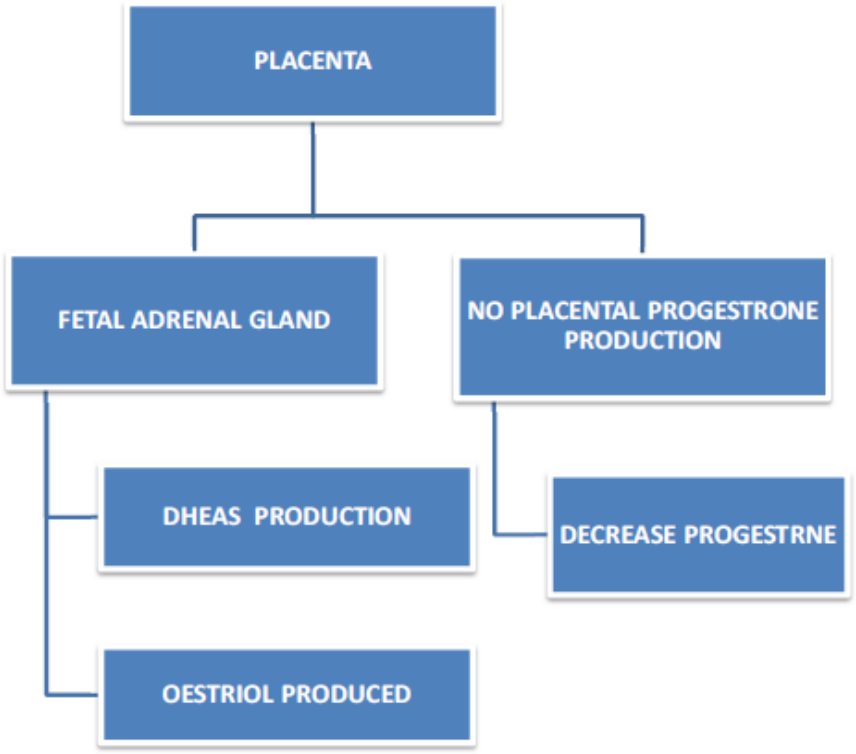
(DHEAS- Dehydroepiandrosterone)

↓

Increase in estriol production

↓

Leading to initiation of labour.



THE myometrium is rendered more response to harmonic changes by the placenta at term.

The uterus is transfored from a quiescent organ to an active organ leading to expulsion of the fetus by labour mechanism.

It leads to production of high frequency high amplitude uterine contraction following which cervix undergoes metabolic changes. The significant changes for cervical ripening starts occurring such as rearrangement of the collagen , elastin, and smooth muscle cells.

POSTDATED PREGNANCY

Placenta

↓

Genetic polymorphism

↓

Alteration in the production of corticotrophin production.

↓

No alteration in the harmonic environment

↓

No spontaneous onset of labour

As gestational age increases placental function starts decreasing

- Uterine blood flow is decreased by 45% to 50%
- Placental blood flow is decreased by 45% to 50%

Post maturity syndrome is due to the imbalance between the nutrients between the placenta and the fetus.

Impairment of Placental function

↓

Impairment of the transfer of oxygen to the fetus,

↓

As the number of capillaries and intervillous space decreases,

fibrin deposits and calcification start occuring

↓

Hypoxia and acidosis

↓

Placental blood flow decreases

↓

Renal blood flow decreases

↓

Renal perfusion decreases

↓

Fetal urine output decreases

↓

Olighydraminos

PLACENTAL CHANGES

1. Decrease in the diameter of the placenta and length of chorionic villi.
2. Fibrinoid Necrosis.
3. Accelerated atherosclerosis of chorionic and decidual blood vessels .
4. Appearance of hemorrhagic infarcts and calcifications which are foci of calcium deposition and formation of white infarcts. These are present in 10-25% of term placentas and 60-80% of post term placentas, and are common in placental borders. The incidence of placental infarcts significantly increases after 42 weeks of gestation
5. Placental apoptosis - programmed cell death was significantly increased in pregnancies reaching 41 weeks or more, compared with 36 to 39 weeks. Cord plasma erythropoietin level is significantly increased in pregnancies reaching 41 weeks or more and is due to some decreased fetal oxygenation in some post term gestations.

GRADING OF PLACENTA

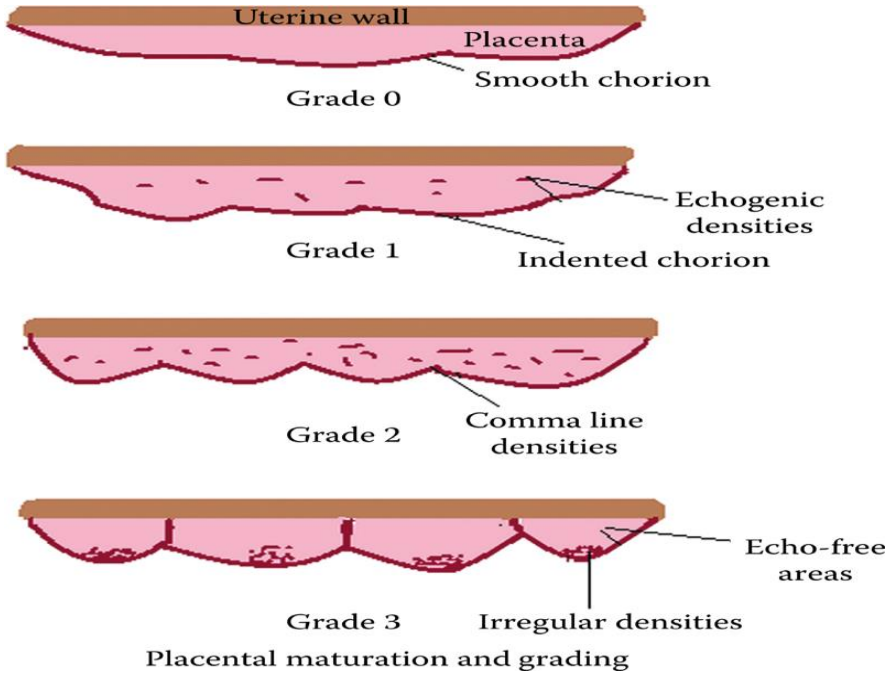
Placental grading (Grannum classification) refers to **an ultrasound grading system of the placenta based on its maturity**.

Grannum and co used ultrasonography to grade the severity of placental senescence on a scale of 0–3.

- Grade 0 - smooth chorionic plate and homogenous placental tissue.
- Grade 1 - slight indentation chorionic plate with randomly dispersed echogenic areas in placental surfaces. These echoes are bright white and linear to comma shaped.
- Grade 2 - comma shaped density from placental substance, presence of basal echogenic, marked indentations in chorionic plate that do not reach the basilar plate.
- Grade 3 - marked indentations of chorionic plate linear echogenic densities, probably calcium deposition, dividing the placental bed into many compartments

. Echo lucent areas are seen in the central portion of the compartments. The incidence of grade 3 placenta increases after 40 weeks, but its presence alone cannot be used to predict the fetal distress or the post maturity syndrome**.**

However, Yeh and colleagues found that the postmaturity syndrome was more common when both oligohydramnios and a grade 3 placenta were present



Placental maturation and grading

AMNIOTIC FLUID CHANGES

A number of changes takes place in the amniotic fluid and placenta in prolonged pregnancy and these changes play an important role in the management and outcome of these cases.

Amniotic fluid which serves as a cushion and protects the fetus, has the following changes in the volume at each particular age of gestation.

At 16 weeks - 200 ml

At 28 weeks - 1000 ml

At 36 weeks - 900 ml

At 40 weeks - 800 ml

At 42 weeks - 480 ml

At 43 weeks - 250 ml

At 44 weeks - 160 ml

The amniotic fluid reaches its peak at around 38 weeks of gestation after which there is gentle decline of 125 ml/ week . The fluid then reduces every week , and has a massive reduction by 33% per week after 42 weeks gestation.

Oligohydramnios is defined as Amniotic fluid index of 5 cm or less by ultrasound or a largest vertical pool $\leq$ 2cm excluding the loop of cord. The major determinants of amniotic fluid in mature fetus being fetal urine output and fetal swallowing.

The drop in the amniotic fluid is attributed to a reduced urine output by the fetus, which in turn is caused by the redistribution of fetal circulation and reduction in renal perfusion. Inadequate placental function in post term pregnancy may cause fetal hypoxemia followed by decreased fetal urine production leading to Oligohydramnios.

Veille *et al.,* used pulsed Doppler wave forms and reported that renal blood flow is reduced in post term pregnancy resulting in oligohydramnios which is associated with fetal hypoxia which is caused by placental dysfunction.

Renal artery Doppler was more predictive of oligohydramnios than umbilical RI, the reduced renal artery end diastolic velocity suggest increased arterial impedance and an important factor in development of oligohydramnios in prolonged pregnancies.

The qualitative changes in Amniotic fluid are

1. Amniotic fluid becomes thick , milky and cloudy because of increased flakes of vernix caseosa.
2. The phospholipids composition changes because of the presence of large number of lamellar bodies which is released from fetal lungs and L:S ratio becomes 4:1.
3. The color of amniotic fluid becomes green as fetus passes meconium.

DRISCOLL'S CLASSIFICATION OF MECONIUM STAINED AMNIOTIC FLUID

Grade I - Lightly meconium stained that is transparent when collected in test tube. There is slight greenish or yellowish tinge of meconium. It is usually not related to fetal distress and does not causes meconium aspiration syndrome.

Grade II - Opaque and green coloured meconium in Amniotic fluid.

Grade III - Meconium undiluted with Amniotic fluid. Thick green or black in colour. Thick meconium is a sign of fetal distress.

COMPLICATIONS OF POSTDATED PREGNANCY;

- Maternal complication
- Fetal complication

FETAL COMPLICATION

1. Post maturity syndrome
2. Macrosomia

3. Meconium stained amniotic fluid
4. Meconium aspiration syndrome
5. IUGR
6. NICU care and admission rate
7. Fetal distress
8. Oligohydramnios
9. Perinatal death

FETAL COMPLICATIONS

1. **Post maturity syndrome**

Placental insufficiency can lead to post maturity syndrome. This occurs in 10-20 % of pregnancies.

Post maturity is used to describe the features of neonate who appears to have been in uterus longer than 42 weeks of gestation.

Clifford described the postmaturity syndrome in detail

He used this staging system to quantify increasingly severity of clinical manifestations of placental dysfunction.

Stage I

Is typified by a long, lean infant with wrinkled, peeling skin.

Stage II

Includes the clinical findings of stage I and adds greenish meconium staining of amniotic fluid, fetal skin, and placental membranes.

Stage III

Is characterized by a high incidence of fetal distress and yellow-brown meconium staining, indicative of the presence of meconium for several days.

Features of Post maturity Syndrome As described by Clifford

- Absence of vernix Caseosa
- Absence of Lanugo Hair
- Abundance of scalp hair
- Long Finger Nails
- Dry Cracked desquamated skin
- Body Length increased in relation to body weight
- Alert and apprehensive facies.
- Meconium staining of skin and Membranes.
- Loss of subcutaneous fat reserves
- skin parchment like and peeling
- skin loose over the thighs and buttocks and prominent creases.

- These infants are more predisposed to metabolic disturbances such as hypoglycemia,
- hypothermia and polycythaemia due to low stores of fat and glucose.

Dysmaturity in

41 – 42 weeks 2-3%

> 42 weeks 20 – 43%

and 44-45 weeks 75%

2. Macrosomia

The risk of macrosomia is associated with maternal and fetal trauma during delivery.

Large babies are often associated with difficult vaginal deliveries and these have a higher incidence of shoulder dystocia , which in turn increases the risk of birth asphyxia, clavicle or humerus fracture and brachial plexus injury.

There is higher incidence of operative vaginal deliveries.

Incidence of shoulders dystocia for a macrosomic infant is 2%.

Formulas for fetal weight estimation are

Chart 1. Clinical formulas for fetal weight estimation.

Johnson's formula:
Fetal Weight in grams* = 155 x (Fundal height in cm† – K)
K = 11 (fetal head at plus stations)
K = 12 (fetal head at zero station)
K = 13 (fetal head at minus stations)
Dare's formula:
Fetal weight in grams = fundal height in cm x abdominal girth in cm

**Johnson's original formula converted to grams, where ounces were multiplied by 28.34 and pounds were multiplied by 0.453; †for patients over 90 kg, subtract 1 from the fundal height.*

Also ,

AG x SFH method- Abdominal girth (AG)(in cm) x Symphysiofundal height (SFH)(in cm) = weight (in grams)

3. Meconium stained amniotic fluid

Incidence MSAF at 40 weeks - 30%

Incidence MSAF at 42 weeks - 50%

The passage of meconium appears to be physiological in a mature fetus, as the Amniotic fluid decreases, the meconium that is passed, become

thick and viscous and leads to meconium below the level of vocal cords of infant which leads to meconium aspiration syndrome. The presence of meconium in the amniotic fluid warrants continued fetal monitoring.

4. Meconium aspiration syndrome

Meconium in post dated pregnancies is dangerous, since the fluid becomes scanty and more viscous and the presence of meconium can lead to severe complication of meconium aspiration syndrome(MAS).

Meconium aspiration is eight times more common in prolonged and postdated pregnancy and its complication includes pneumonia, pneumothorax, a requirement for assisted ventilation, and the development of pulmonary hypertension.

The meconium as it contains particulate matter like lanugo cells and hair that sets up chemical pneumonitis in fetus , and vicious cycle sets up leading to hypoxemia and pulmonary hypertension.

Post term pregnancy peruse independent risk of low umbilical cord pH, low apgar, neonatal encephalopathy, (kitlinske et al study)

According to Bruckner et al 200l study neonatal acedemia and meconium aspiration syndrome increase beyond 40 weeks of pregnancy.

Path physiology of meconium aspiration syndrome

Placental blood flow decrease (placental insufficiency)

↓

Renal blood flow decrease

↓

Renal perfusion decrease

↓

Fetal urine output decrease

↓

Olighydraminos

↓

Umbilical cord compression

↓

Presence of variable decelerration

↓

Stimulation of vagal reflex

↓

Passage of meconium

↓

Meconium aspiration syndrome.

5. **Intra uterine growth restriction**

Fetal weight estimation by ultrasound is a useful test and accurate test in predicting IUGR in prolonged pregnancy. IUGR is independently associated with increased Perinatal Mortality Rate in these pregnancy.

6. **Neonatal intensive care and admission rate**

Neonatal intensive care and admission rate is increased due to the main problem they face in intrapartum asphyxia, MAS, MSAF.

7. **Fetal distress**

Antepartum and intrapartum variation in FHR due to cord compression is partly due to oligohydramnios and partly due to decrease in whartons jelly

Electronic Fetal Monitoring Shows

1. Variable deceleration with slow recovery.
2. Fetal Bradycardia with loss of beat to beat variability.
3. Repetitive late deceleration.
4. Salutatory Baseline.

Silver and colleagues reported that decrease in umbilical cord diameter ultrasonographiically was indicative of intrapartum fetal distress, especially if associated with oligohydramnios.

MATERNAL COMPLICATION

- Labour dystocia
- Perineal laceration
- Postpartum hemorrhage
- Instrumental delivery
- Cesarean section
- Parental anxiety

According to Eden et al study caesarean section is associated with endometritis, and higher thromboembolic episodes.

According to McCaughey et al study there is increase in maternal complication beyond 40weeks of gestation.

DIAGNOSIS OF POSTDATED PREGNANCY

It is difficult to diagnose the post term pregnancy

The method of diagnosing post dated pregnancy is by history taking, clinical examination and by the investigation.

CLINICAL METHOD

HISTORY

It plays an important role in predicting post term pregnancy, EDD should be corrected.

1. Menstrual history - regularity of cycle,
   Duration of cycle and regular menstrual flow
   Last 3 regular cycles and periods.
   no H/o recent contraceptive usage or oral pills

CLINICAL FINDING

2. Early palpation of uterine size,
3. Quickening
4. Doppler auscultation of fetal heart sounds
5. Regular follow up of fundal height in relation to gestational age
6. Feel of head in per abdomen examination.

These are less accurate but are valuable methods used to determine the estimated date of delivery

Investigation

This is done toconfirm

- The fetal maturity and
- To detect the placental insufficiency.

For assessment of fetal maturity

- Non invasive method
- Invasive method

NON INVASIVE METHODS

Ultrasound

1. First trimester dating scan is helpful in reducing majority of unnecessary intervention, by correctly predicting the gestational age. Ultrasound measurement of the embryo or fetus in the first trimester (up to and including 13 6/7 weeks of gestation) is the most accurate method to establish or confirm gestational age.
2. The normal physiological variation in follicular phase of menstrual cycle leads to overestimation of gestational age and

this leads to unnecessary intervention.

3. Useful for measurement of liquor amount. When single deepest vertical pocket is less than 2 cm –oligohydraminos.

4. But instead of single vertical pocket, AFI(Amniotic Fluid Index) is best predictor of oligohydraminos.

5. USG is also one of the components of biophysical profile for fetal surveillance.

6. At all gestational ages, ultrasound was superior to certain LMP in predicting the day of delivery by at least 1.7 days crown rump measurement of 15 -60 mm (corrected to 8-12.5 weeks) had the lowest prediction error (7.3 days) and more after that time, BPD atleast 21mm, showed similar error 7.3 days and more precise than crown rump length (23). When USG was used instead of certain LMP, the number of post term pregnancies decreased from 10.3 to 2. 7%

A Cochrane review concluded that ultrasonography can reduce the need for postterm induction and lead to earlier detection of multiple gestations .

Tuncon et al concludes from 15,000 examinations that biparietal diameter measured between 15-22 weeks of pregnancy is the best method for estimation of expected date of delivery and can be used as a routine procedure for calculating EDD.

ROLE OF SCAN

Using 'B' mode ultrasound, amniotic fluid index is calculated. The maternal abdomen is divided arbitrarily into four quadrants by 2 lines, one which is passing vertically and another horizontally bisecting the umbilicus. The amniotic fluid in all four quadrants is measured after excluding loops of cords and all the quadrants values are summated and that is Amniotic Fluid Index (AFI) described by Phelan et al (1987) normal is 8-25 , average AFI-14, Oligohydramnios is defined as AFI decreased 5 cm or less.

The infusion studies suggest that a near term mean AFI of 14 is equivalent to 700 ml, a value which is similar to that noted by Bruce Wolf et al that is 717 ml. Magnan *et al,* Didley et al used (PAH) showed AFI is more reliable in identifying the extremes of Amniotic Fluid compared to maximum vertical pocket.

FETAL SIZE ESTIMATION:

Estimation of fetal size is an another component in evaluation of postdated pregnancy crossing beyond 40 dates, and to identify the macrosomic fetus, by measuring the fetal abdominal circumference, and fetal growth restriction. IUGR is independently associated with perinatal mortality.

Any congenital abnormalities like open neural tube defects, can be detected earlier and hence early termination is adviced, or else if not detected they are very much prone for prolonged pregnancies.

As quoted earlier, early dating scan reduces the incidence of prolonged pregnancy from 10 to 2%, Gardosi and Geirrson argues routine scan is the method of choice in dating all pregnancies.

Invasive methods

- Amniocentesis

Orange coloured cells

When desquamated fetal cells are stained with 0.1% Nile blue sulphate and if there is presence of orange halo cells indicates fetal maturity

- L/S ratio

  L/s ratio more than 2 indicates pulmonary maturity.

- Lamellar body count

  The count more than 30000/micro/ml indicates fetal maturity.

- Saturated phosphatidyl choline.

  More than 500ng/ml indicates fetal maturity

DIAGNOSIS OF POST MATURITY AFTER DELIVERY OF BABY- POSSIBLE FEATURES

- General appearance of fetus- post maturity syndrome of fetus
- Liquor- scanty and stained with meconium
- Placental inspection – excessive calcification on inspection
- Umbilical cord- decreased Wharton's jelly which may precipitate cord compression

MANAGEMENT

Crossed expected date of delivery, when to induce?

Some obstetric units practices routine induction of labour at 40 completed weeks of gestation in uncomplicated singleton pregnancies. Routine Per vaginal examination is done to assess the cervical score by Bishop's method.

BISHOPS SCORE

Score	**Dilatation (cm) closed**	**Effacement %**	**Station**	**Cx-Consistency**	**Cx – Position**
0		0-30	-3	Firm	Position
1	1-2	40-50	-2	Medium	Posterior
2	3-4	60-70	-1	Soft	Midposition
3	> 5	>	+1+2	-	Anterior

Induction of labour is usually successful when Bishops score is 6 (or) greater.

Six Randomised Trials compares a policy of routine Induction at 40 weeks with either expectant management till 42 weeks of gestation.

There was no effect on caesarean section or the use of analgesia. But meconium staining of amniotic fluid in labour is reduced by planning induction at around 40 weeks.

Those authors of the trials did not addresses the important question of women's view of induction of labour at this stage of pregnancy (Turnbull) . One study of Roberts et al showed that majority of women (55%) opted for induction of Labour.

Here in our country only 20% of the pregnant women wanted to go by conservative line of Management . Rest 80% of women wanted to get some form of induction, even at the cost of their morbidity i.e.(caesarean section) as our society views as if such Feminity is 100% completed only after giving birth to a baby.

ANTE PARTUM FETAL SURVILLANCE

The first step of management is an accurate diagnosis by correctly estimating gestational age

This is straightforward and in expensive method

The main objective - To prevent fetal demise and

To avoid unnecessary intervention

There are no conclusive evidences to support the fact of antepartum fetal surveillance will decrease perinatal mortality and morbidity.

Several antenatal fetal surveillance schemes are in current usage. Post term pregnancy is one of the indications for initiating the ante partum fetal surveillance.

The tests for fetal well being are

1. Fetal movement count
2. Electronic fetal monitoring or cardiotocography

    Non stress test

    Vibroacoustic stimulation

    Contraction stress test

3. Ultrasonography

   Amniotic fluid volume measurement

4. Biophyscical profile

Components include fetal breathing ,fetalmovement, fetaltone, AFI, NST.

5. Doppler Study

   Fetal umblical artery

   Fetal middle cerebral artery and Fetal ductous venous

FETAL MOVEMENT COUNTING

- Fetal movement is first felt at approximately 20 weeks
- Felt more earlier by multiparous women (around 16 weeks)
- Perception of decreased fetal movements in case of fetal hypoxia. This may precedes by intrauterine death.
- In hypoxic state the fetus decreases the gross fetal movements to conserve oxygen.
- This method is very easy method and easily understood by most of the women.

The following any one of the method can be followed

FETAL MOVEMENT METHOD COUNTING

- Cardiff kick chart; ”count” 10 formula
- Counting the fetal movement over 12 hours and is noted on a chart
- If 10 movements or more in 12 hours – REASSURING PATTERN
- Counting the fetal movements while lying on 1 side distinctly for 2 hours
- If 10movements or more – REASSURING PATTERN
- Counting the fetal movements for 1 hour daily
- Feeling 4 movements with in 1 hour –reassuring
- Counting the fetal movements for 1 hour 3 times/ week
- Equal to or exceeds the women’s previously established base line count

NON STRESS TEST

- NST is performed using an external CTG
- Fetal heart rate is recorded in the absence of contraction
- Used to monitor fetal heart rate
- Most commonly used nowadays for antenatal fetal surveillance.

The CTG trace shows

- Baseline heart rate
- Base line variability
- Periodic changes- acceleration, deceleration.
- The healthy fetus will temporarily accelerate the fetal movements.

REACTIVE NON STRESS TEST

- 2 or more acceleration

  Should be recorded over for 20 minutes
- Peak at least 15bpm above the baseline FHR
- Should Last for at least 15 seconds

NON REACTIVE NON STRESS TEST

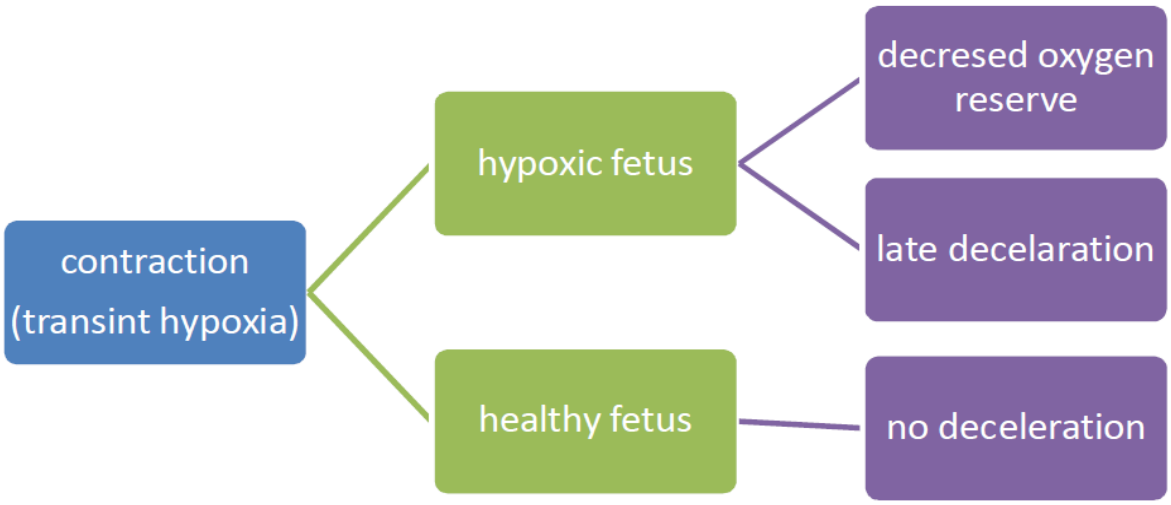
- No acceleration in 40 minutes
- Deceleration lasting more than or equal to 1 minute

Vibroacoustic stimulation test.

- In these auditory source is placed over the maternal abdomen
- Burst of short sounds are delivered (1 to 2 seconds)
- Absence of acceleration indicates fetal hypoxia or fetal acidosis.

CONTRACTION STRESS TEST

- This test is gold standard test,
- It is done by using cardiotocography
- Fetal heart rate is recorded with induced contraction
- It is done by using intravenous diluted oxytocin infusion or by nipple stimulation.
- Results are more consistent with perinatal outcome.



Contraction stress test - mechanism

Interpretation of contraction stress test.

- Positive

  Late deceleration following contraction

- Negative

  No significant variable deceleration

Equivocal suspicious

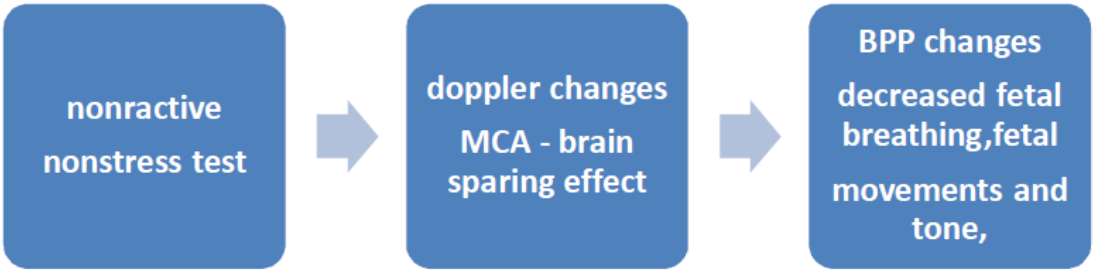
- There is intermittent late deceleration
- No Significant variable deceleration

Equivocal –hyper stimulatory

- Deceleration in the presence of hyper stimulation
- Contraction lasting for more than 90 seconds.

DOPPLER USG

The diameter of umbilical artery and venous diameter increase normally



Middle cerebral artery Doppler changes in fetal hypoxia

- Flow to brain increased
- Diastolic flow increased
- Leads to brain sparing effect
- It indicates early sign of hypoxia
- Not used as routine in postdated pregnancy

Umbilical artery Doppler changes

- Is not benefited much in postdated pregnancy
- Mainly useful in IUGR fetusfe.

BIOPHYSCICAL PROFILE.

The most precise antepartum fetal surveillance meant for predicting the fetal hypoxemia.

USG observation for 30 minutes for following parameters

BPP includes 5 components.

Components (each variable is given a Score of 2 –normal).

Score of 0 –abnormal)

- Fetal breathing
- Fetal tone
- fetal movement
- Amniotic fluid index(AFI)
- Non stress test

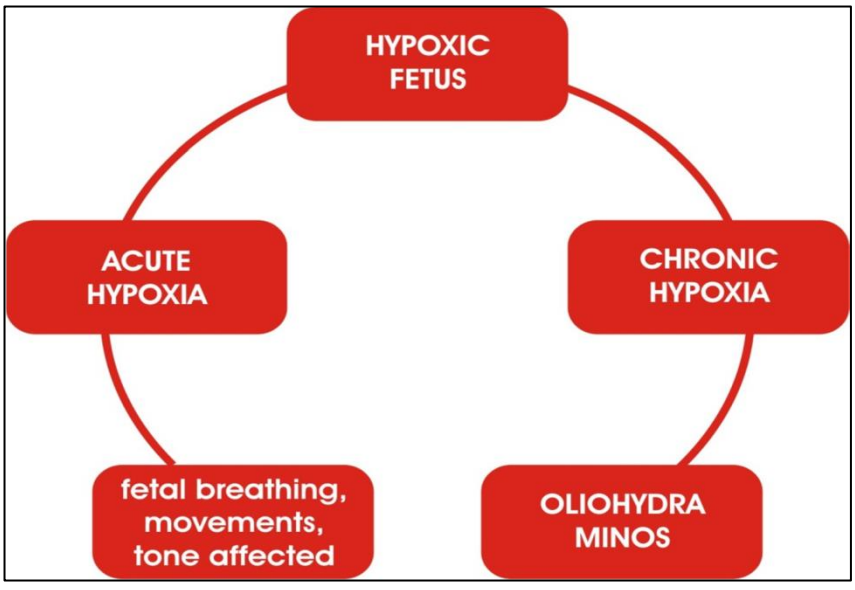
BPP is unique as it is blending both USG parameters and fetal heart pattern.

COMPONENT		SCORE 2	SCORE 0
1.	NST	≥ 2 acceln of ≥15 bpm for ≥15 sec. in 20-40 min	0/1 acceleration in 20-40 min
2.	Fetal Breathing	≥ 1 episode of rhythmic Breathing	≤ 30 sec of Breathing in 30 min
3.	Fetal movement	≥ 3 discrete body or limb movement in 30 min	≤ *2* movement in 30 mins
4.	Fetal tone	≥ 1 episode of extension of a fetal extremity and return or to flex and extend the hand	No movements, no flexion (or) extension
5.	Amniotic fluid Volume	Single vertical pocket ≥ 2cm	Largest vertical pocket ≤ 2 cm.

Normal score - 8 - 10 = Normal fetus

Equivocal - 6 - Poor predictor of fetal outcome

2-4/0 - Accurate predictor of Abnormal outcome.



.Interpretation of biophysical profile

- Score of 8 or more – normal provided amniotic fluid normal
- Score of 8 or more – amniotic fluid volume reduced, indicates chronic fetal hypoxia and acidosis needed for repeated evaluation.
- Score of 4 or less- immediate delivery is indicated

Predictive value of biophysical profile

- The false negative rate is low
- Low BPP has high predictive value
- The earliest manifestation of abnormal BPP- abnormal NST, and loss of breathing movements.

Modified biophysical profile

It has 2 components alone AFI- signify chronic hypoxia NST- signify acute hypoxia

Predictive value

The false negative rate is very low

It is a tremendous tool for predicting neonatal outcome

CERVICAL RIPENING

By means of which the cervix becomes soft, distensible and partially dilated is necessary for normal parturition. Biochemical mechanism responsible for this is poorly understood.

Cervix contain 25%, 16% 6% of smooth muscle in upper, middle and lower segments respectively, changes that take place in the collagen and in the connective tissue matrix are the primary factors for cervical ripening. Collagen breakdown occur and is due to hormones and prostaglandins in the cervical tissues which have the ability to generate prostaglandins and this endogenous prostaglandins participate in the cervical Ripening process.

In the mean time stripping of membrane is done from 40 weeks. According to studies stripping of membranes was also a successful mechanical method of induction.

It leads to release of prostaglandins which initiates labor pains. Statically improved rate of spontaneous onset of labor pain proved in various studies. The predictor of success of induction is the status of cervix. It is done by modifiedbiophysical profile is used.

Prognosticfactors for successful induction of labour

Gestational age – pregnancy near term or post term is a good indicator of successful indication

Preinduction score- bishops score more than 6 In this cervical dilation is important component

Sensitivityof uterus- positivity oxytocin sensitivity is good prognostic factor for successful induction

Cervicalripening – mostly favorable in multiparous.

Presence of fetal fibronectin –lead to successful induction oflabour

Other factors – increased maternal height

Body mass index is within normal limits

Estimated fetal weight less than 3 kg .

MATERIALS AND METHODS

This prospective study was done at Institute of obstetrics and gynecology, Egmore (Lying in Hospital) , attached to the Madras Medical College, Chennai, study period being one year from February 2020 to December 2020.

INCLUSION CRITERIA:

All Consenting Obstetrics women with

- Singleton pregnancy ,cephalic
- Gestational age equal to 40 weeks and beyond 40 weeks.
- Age of mother being 15 – 35 years.
- Bishop Score < 6
- No CPD/ CPD minor

EXCLUSION CRITERIA:

- Fetal malpresentations
- Multiple pregnancy
- Contraindications of Prostaglandins
- Non reassuring fetal heart rate tracing
- Previous caesarean other uterine surgeries
- CPD Major

MONITORING:

- Continuous CTG Monitoring
- Partogram Monitoring
- Mode of delivery
- Neonatal and perinatal outcome.

STUDY GROUP:

GROUP A: pregnant women beyond 40 weeks of gestational age.

CONTROL GROUP:

GROUP B: pregnant women with 40 completed weeks of gestation.

METHODOLOGY:

After Institutional ethical committee approval and informed written consent, patient will be selected for the study based on inclusion and exclusion criteria. Patient will be observed over a period of one year. A prospective observational study will be started comprising 2 groups- control group pregnant women at 40 weeks gestation and study group - pregnant women beyond 40 weeks of gestational age.

Gestational Age was based on the Mother's statement of first day of last menstrual period. Then clinical examination, NST and ultrasound

examination were carried out. Fetal presentation, position, maturity and amount of liquor assessed. The estimated baby weight assessed, and bimaul examination done to know the Bishop's Cervical Score.

The study group consisted of 50 women with beyond 40 weeks of gestational age all of them were booked elsewhere and admitted through casualty. They were unaware of the significance of prolonged pregnancy due to either illiteracy or lack of easy approach to the health system. They had induction either by prostaglandin E2 gel or foley according to cervix status. Active management of labour done, by amniotomy and oxytocin. Colour of liquor noted, and Amnio infusion given if it is meconium stained using normal saline at room temperature. The mode of delivery decided accordingly and neonate inspected for evidence of postmaturity syndrome, macrosomia, IUGR.

The control group consisted of 50 women picked up from antenatal op at 40 completed gestational weeks and induction attempted immediately. They all underwent NST and ultrasound examination and induction was followed by Active management of labour. The colour of liquor, Baby's condition at birth (baby weight, baby apgar), labour and outcome studied. Maternal outcome in form of mode of delivery (vaginal delivery, instrumental (or) operative vaginal delivery and caesarean

section) evaluated in both these groups. Neonatal / Perinatal outcome evaluated which comprised of:-

1. Meconium staining at labour of Amniotic fluid (MSAF)
2. Meconium Aspiration Syndrome (MAS)
3. Macrosomia
4. Intra Uterine Growth Restriction
5. Neonatal Intensive care unit (NICU) admission rate
6. Apgar Score

ANALYSIS PLAN:

- After collecting ,the data will be compiled and entered in Microsoft Excel Sheet.
- Analysis will be done using Statistical software SPSS version 16.
- All continuous variables will be expressed as Mean and Standard Deviation.
- All categorical variables will be expressed as percentage and proportions.
- The test will be considered Significant if $P<0.05$, at 95% confidence interval.

The study population selected for inclusion was based on the following criteria.

1. Singleton pregnancy

2. Reliable dates with definite menstrual history with atleast 3 regular cycles before last periods.

3. No recent use of oral contraceptives.

4. Gestational age equal to or one week more than 40 weeks.

5. Age of mother being 15 – 44 years.

6. Bishop Score < 6

Gestational Age was based on the Mother's statement of first day of last menstrual period. Then clinical examination, NST and ultrasound examination were carried out. Fetal presentation, position, maturity and amount of liquor assessed. The estimated baby weight assessed, and bimaul examination done to know the Bishop's Cervical Score.

Method of cervical ripening.

- Pharmacological
- Prostaglandins

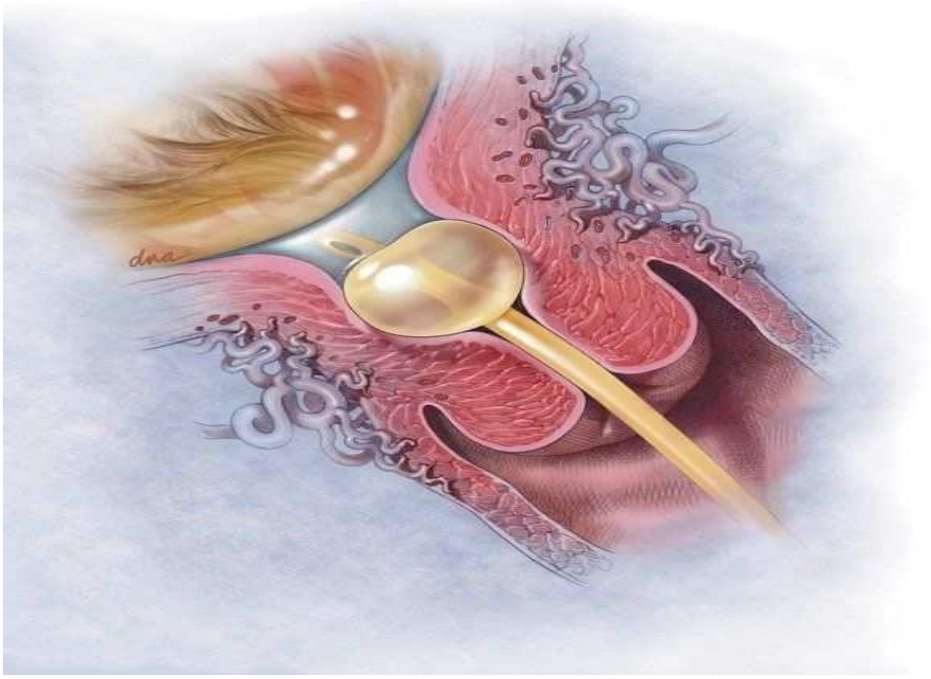
    Prostaglandin E2 (intracervical, intravaginal)

    Prostaglandin E1 (vaginal, oral)

Mechanical methods;

- Tran's cervical catheter
- Foley's catheter
- Double balloon catheter
- Tran's cervical catheter with extra amniotic saline infusion
- Laminaria–this is hygroscopic.

This act by distracting chorioamniotic decidual surface as they cause the release of endogenous prostaglandins and result in cervical ripening Intracervical Foley balloon catheter induction is most commonly used. mechanical device for labor induction , which acts not only as a mechanical dilator but also as stimulator of endogenous prostaglandins in the cervix.



Pharmacological methods;

Prostaglandins

Prostaglandin E2 (intracervical, intravaginal)

prostaglandinE1 (vaginal, oral)

Prostaglandins are the most commonly used.

- It cause cervical ripening and improves the cervical score
- It also initiates the labour process
- The need for augmentation will be reduced further.
- Reduce induction delivery interval.
- Contraindicated in scarred uterus.

Prostaglandin E2 (dinoprostal)

- FDA approved.
- Two formsavailable.

One in the form of preloaded intracervical gel contains 0.5 mg of dinoprostone in 2.5 ml gel

Other one is intravaginal insert which contain 10mg of dinopristol in timely released formulation.Placed high in posterior fornix.easy to remove when there is tachsystole

Prostaglandin E1

- It is available as both 25 or 100 micrograms tablet.
- It can be used as both oral or vaginal
- It is correlated with tachysystole,fetal heartrate abnormalities, meconium staining.
- Rarely cause a uterine rupture.
- Effectiveness depends upon the dose.
- For oral 25 microgram repeated 3 to6 hours.
- For vaginal 50 micrograms repeated 4 to 6 hours.

Patients treated with either medications experience a quicker time of vaginal delivery and less need for subsequent use of oxytocin than women with unfavorable Bishop Scores who are not treated.

It is very important to minimize the time spent in labour process, as the postdated fetus has less uteroplacental reserve and may rapidly become hypoxic or asphyxiated.

Once an induction of labour started intrapartum monitoring should be vigilant enough to watch the potential complication in postdated pregnancies which include abnormal heart tracing, shoulder dystocia.

If the physcian cannot find reassurance of the fetus in tolerating labour , immediate caesarian delivery is recommended.

The agent not optional for cervical ripening.

- Mifepristone
- Oxytocin
- Relaxin and
- Hylarounidase

METHOD OF INDUCTION OF LABOUR

- Intravenous oxytocin
- Amniotomy

Intravenous oxytocin

- It is the most common drug used for induction of labour
- It is used intravenously, should not be used orally as it will degrade to inactive form

With ripped cervix induction of labour with oxytocin -rate of success is high. When syntocin is used uterine activity and fetal heart ate should be monitored.

Amniotomy

- To induce labour is done
- When progress of labour is slow it is done to augment labour.

Early Amniotomy is indicated in postdated pregnancy to know whether the liquor is meconium stained or clear.

But still there are so many debatable questions in Amniotomy.

INTRAPATUM MANAGEMENT

Continuous electronic fetal monitorin should be done.

According to many studies electronic fetal monitoring compared with intermittent fetal auscultation but no statistical difference in perinatal outcome.

Moreover it will lead to increased intervention.As the postdated fetus has decreased oxygen reserve late deceleration will be present in hypoxic fetus.

Whether the labour is induced or spontaneous the labouris expected to be prolonged because poor molding of head or by a big baby.

- Good pain relief to be given
- The possibility of shoulder dystocia to be kept in mind
- Fetal heart rate monitoring should be continued

If any signs of fetal distress appears immediate delivery of the fetus to be done either by caesarean section or by instrumental delivery

RESULTS

Table : 1

DISTRIBUTION OF PREGNANCIES ACCORDING TO SOCIO ECONOMIC CLASS

SE CLASS	Study group	Control group
Class I	-	-
Class II	-	-
Class III	2	3
Class IV	18	12
Class V	30	35
TOTAL	**50**	**50**

Table : 2

DISTRIBUTION OF WOMEN ACCORDING TO THE NUMBER OF DAYS OVERDUE

	PRIMIGRAVIDAE	MULTIVRAVIDAE	TOTAL
Control group	42	8	50
Study group	38	12	50
TOTAL	**80**	**20**	**100**

Total number of primigravida constitute 80 (80%) and multigravidae 20 (20%)

		group A(n=50)		group B(n=50)	
		n	%	n	%
AGE(mean;sd)		24.7	3.8	24.4	3.7
PARITY	G2A1	3	6.0%	3	6.0%
	G2P1L0	1	2.0%	0	0.0%
	G2P1L1	6	12.0%	2	4.0%
	G3P1L1A1	1	2.0%	3	6.0%
	G4P1L1A2	1	2.0%	0	0.0%
	Primigravida	38	76.0%	42	84.0%

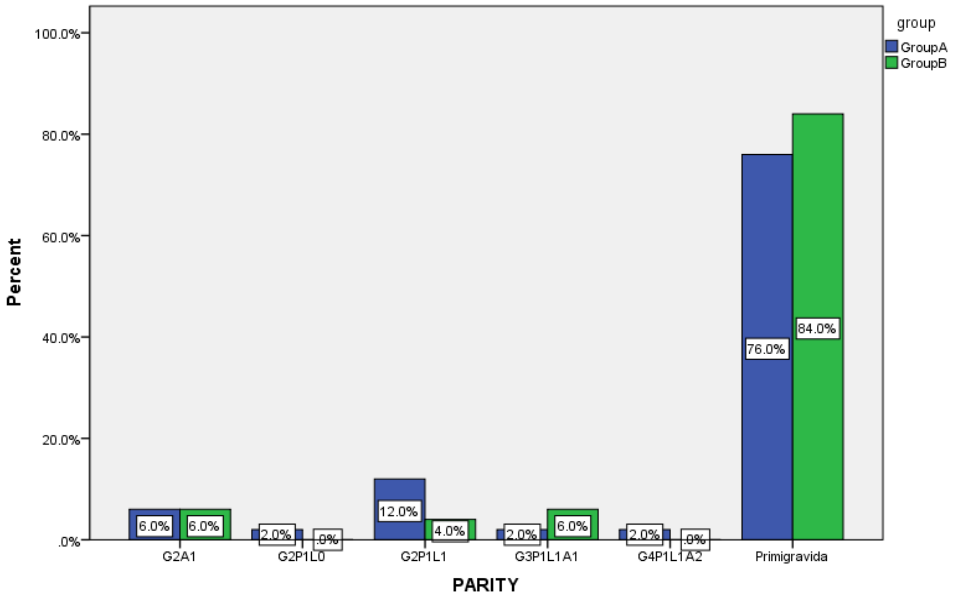


FIGURE 1: Illustrates distribution of women according to parity in both groups.

Total number of primigravida constitute 38(76%) subjects in the group A and 42(84%) subjects in group B.

DISTRIBUTION OF GESTATIONAL AGE

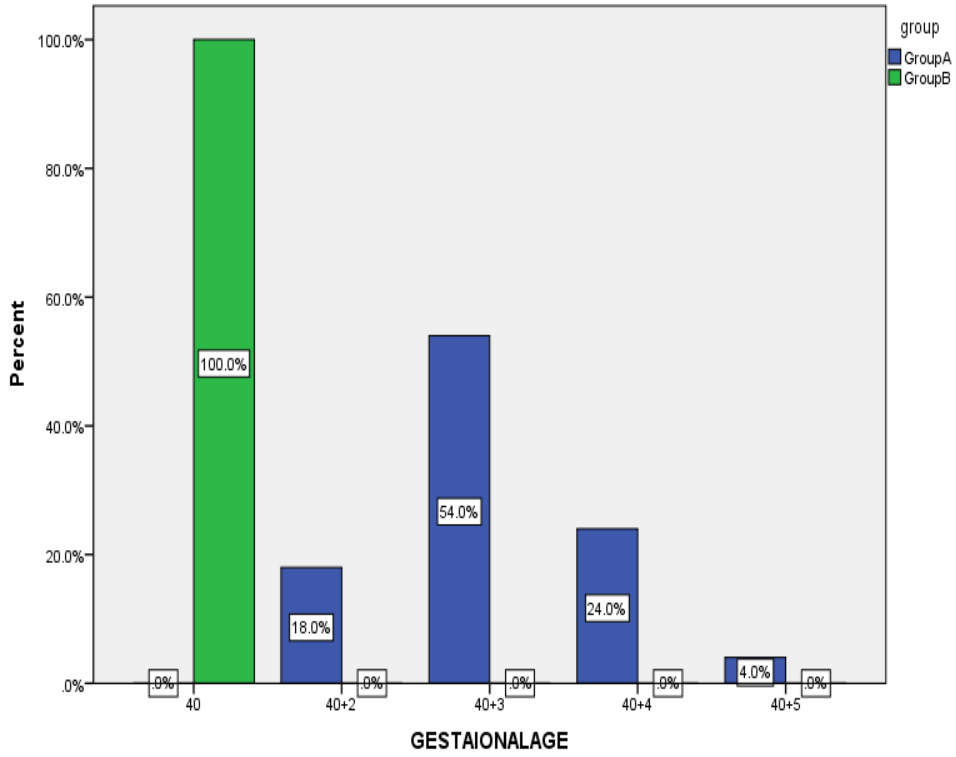


FIGURE 2: shows distribution of women according to gestational age.

Table : 3 DISTRIBUTION OF AGE GROUP

AGE	Group A Study group	Group B Control group	TOTAL
< 19	3	1	4
20 – 25	23	28	51
26 – 30	21	17	38
> 30	3	4	7
Total	**50**	**50**	**100**

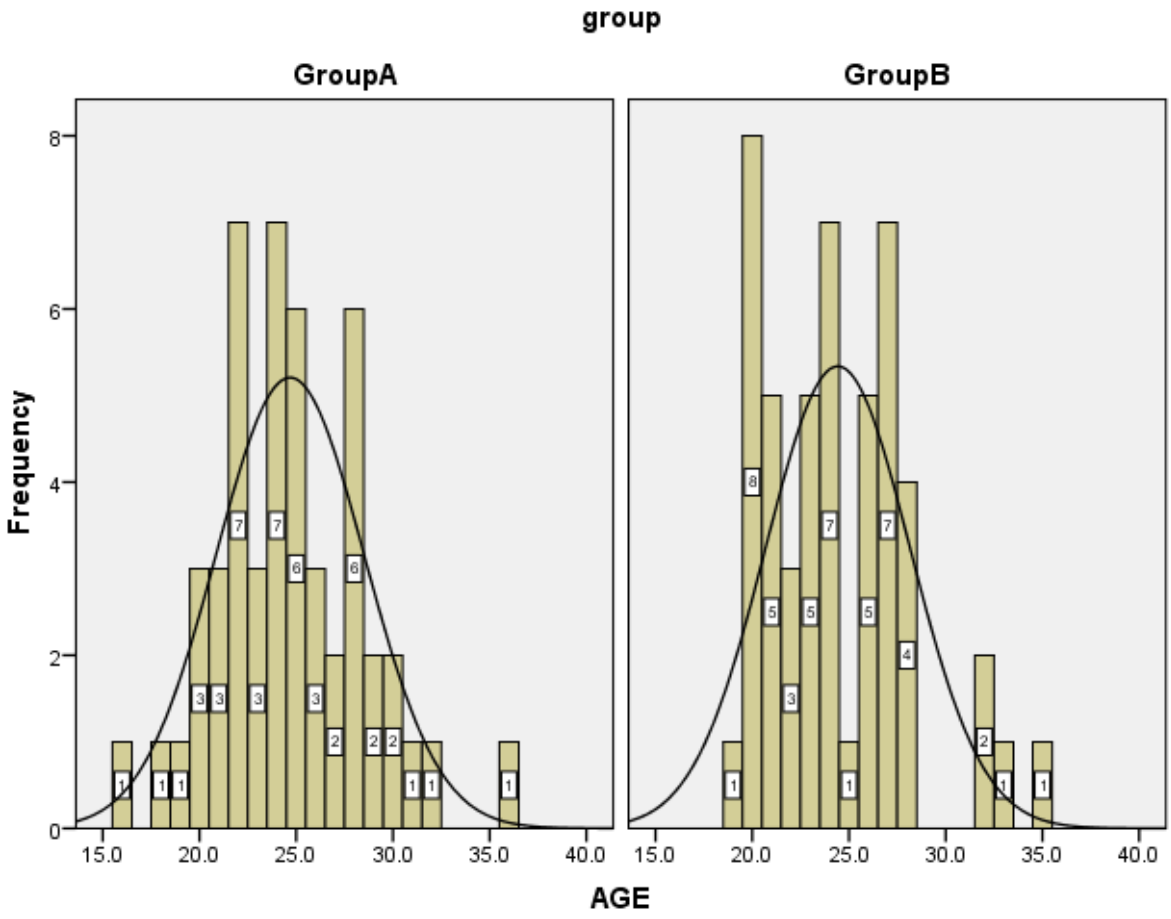


FIGURE 3: shows comparison of Age between Groups by Pearson's Chi-square test which shows **no statistical significance between Age and**

Groups.

Major Women belong to 20 – 25 age =. In group A 23/50 (46%) and in group B 28/50(56%) , Next group is 26 – 30; In group A 21/50 (42%) and in group B 17/50(34%)

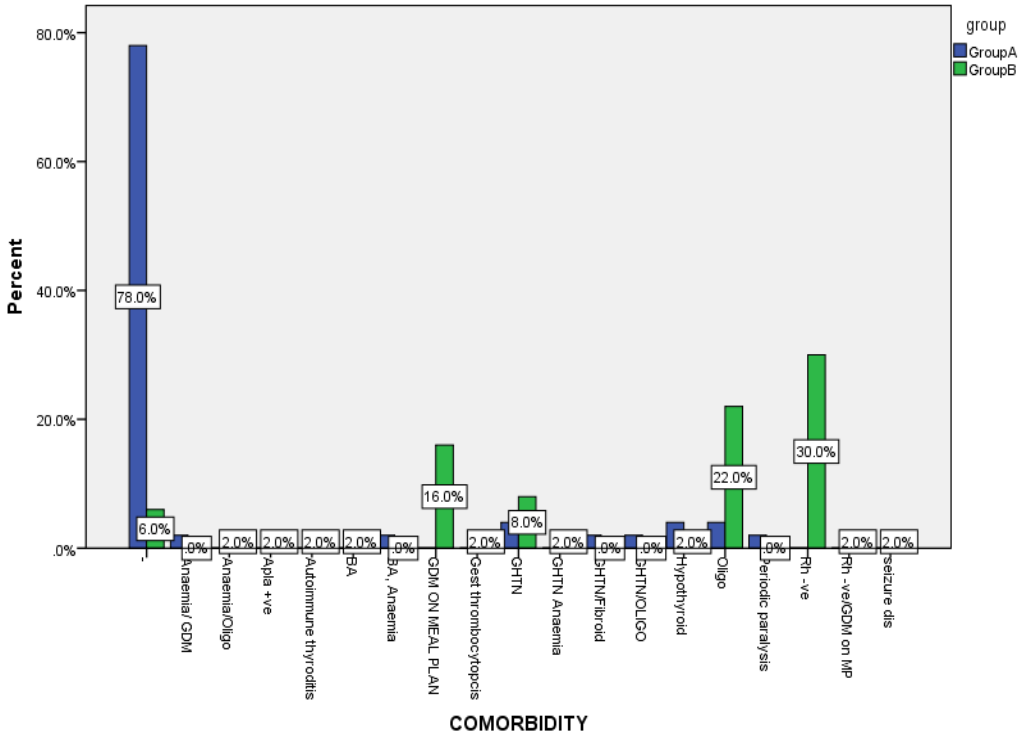


FIGURE 4: SHOWS DISTRIBUTION ACCORDING TO MATERNAL CO-MORBIDITY

Table : 4

SCAN FINDINGS LIQUOR VOLUME

AFI	**Control group**	**Study group**
< 5	-	3
5 – 8	3	2
8 – 10	8	12
> 10	39	32
HYDRAMNIOS	-	-
TOTAL	**50**	**50**

Table : 5

MODES OF INDUCTION IN CONTROL GROUP

1.	FOLEY FOLLOWED BY PGE2 GEL	39	78%
2.	MISOPROSTOL	11	22%

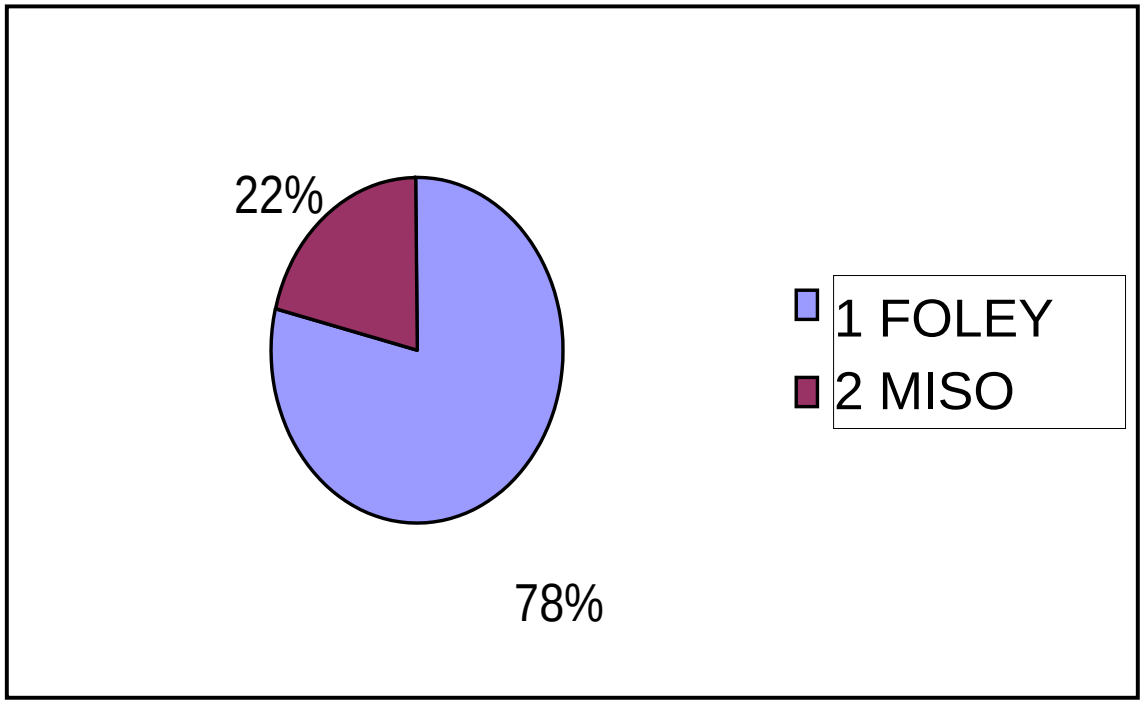


FIGURE 5: SHOWS MODE OF INDUCTION IN CONTROL GROUP

Table: 6

MODES OF INDUCTION IN STUDY GROUP

1.	FOLEY FOLLOWED BY PGE2GEL	42	84%
2.	MISOPROSTOL	8	16%

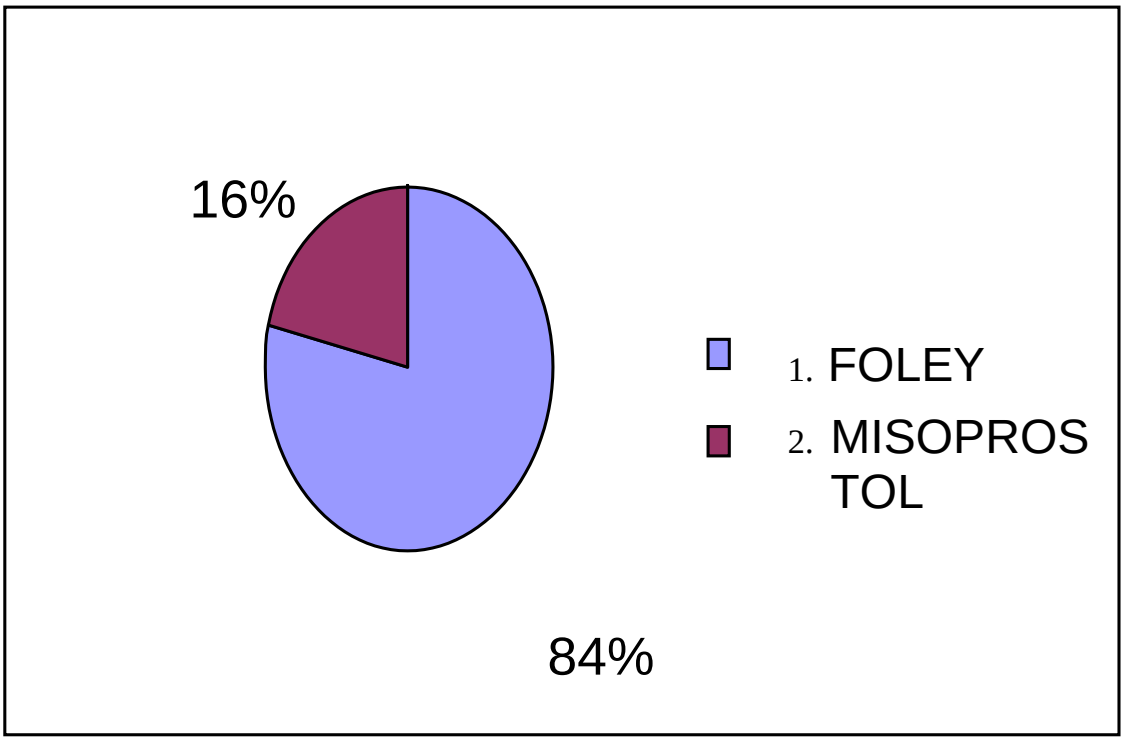


FIGURE 6: SHOWS MODE OF INDUCTION IN STUDY GROUP

DISTRIBUTION BASED ON CTG

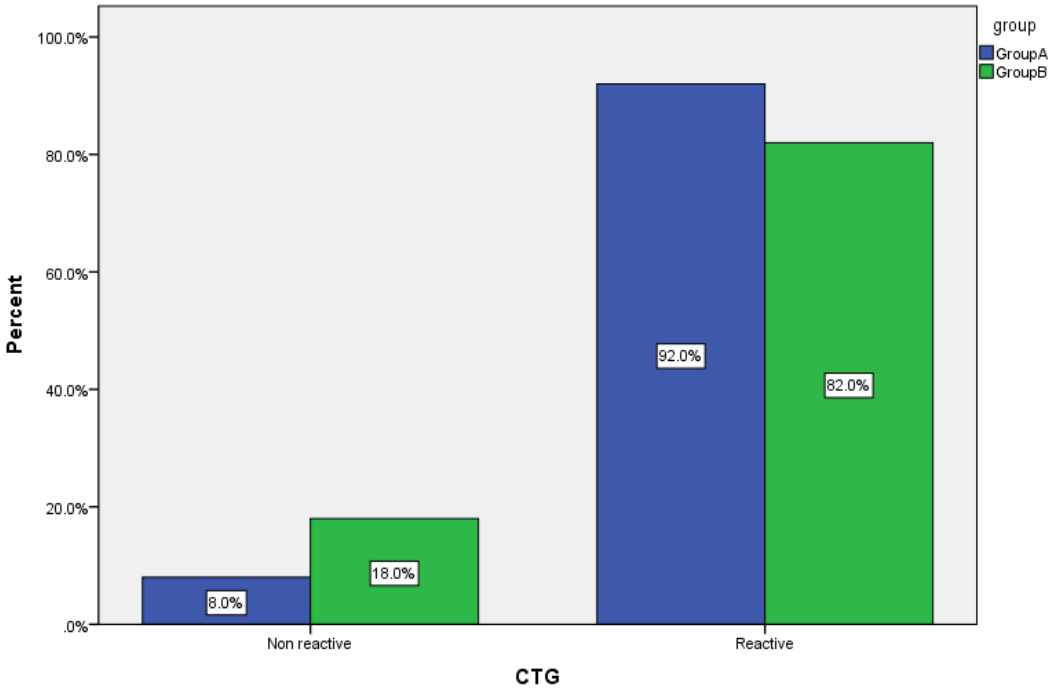


FIGURE 7: SHOWS DISTRIBUTION OF WOMEN BASED ON CTG

Table : 7

COMPARISON OF MECONIUM STAINED AMNIOTIC FLUID BETWEEN GROUPS BY PEARSON 'S CHI SQUARE TEST:

		LIQUOR		Total
		Clear	MSL	
Group	GroupA	40	10	50
	GroupB	47	3	50
Total		87	13	100

Chi-Square Tests

	Value	df	P value	Exact Sig. (2-sided)	
Pearson Chi-Square	4.332[a]	1	.037	.071	
Fisher's Exact Test				.071	

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.50.

b. Computed only for a 2x2 table

There is a statistically significant association between group and liquor.

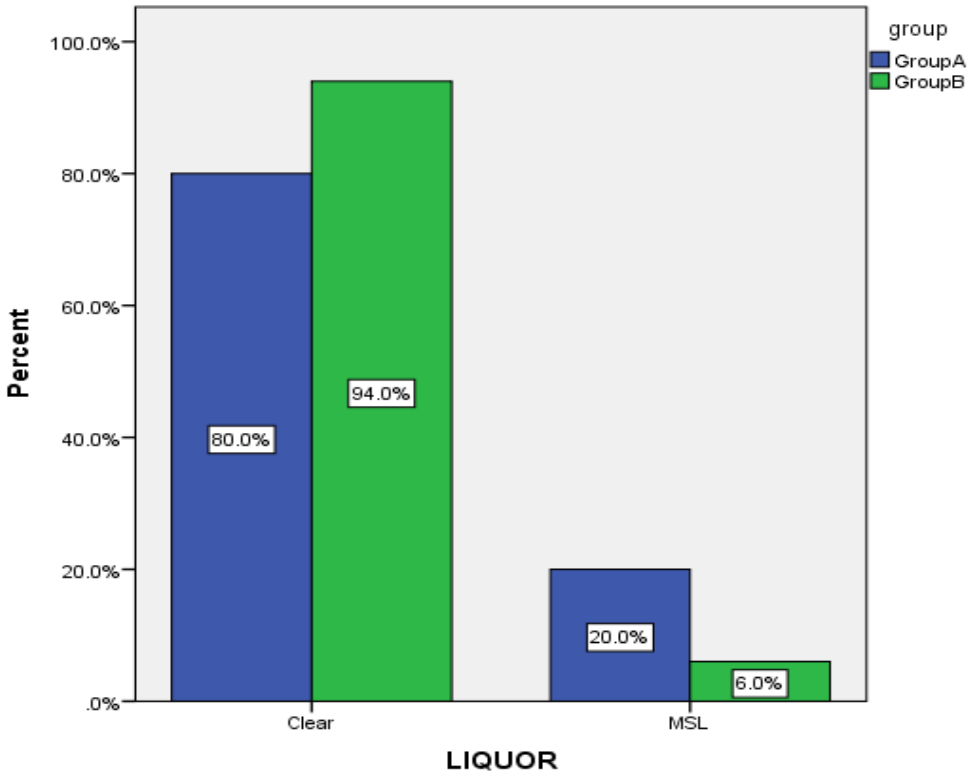


FIGURE 8: DISTR**IBUTION OF WOMEN IN BOTH** GR**OUPS BASED ON LIQUOR STATU**

Table : 9 COMPARISON OF MODE OF DELIERY BETWEEN GROUPS BY PEARSON'S CHI SQUARE TEST:

		MODEOFDELIVERY			Total
		Labour natural	LSCS (Caesarean)	Vaccuum delivery	
Group	Group A	40	7	3	50
	Group B	27	18	5	50
Total		67	25	8	100

Chi-Square Tests

	Value	df	P value	Exact Sig. (2-sided)
Pearson Chi-Square	7.862[a]	2	**.020**	.019
Fisher's Exact Test	7.832			.016
N of Valid Cases	100			

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 4.00.

There is a statistically significant association between group and mode of delivery

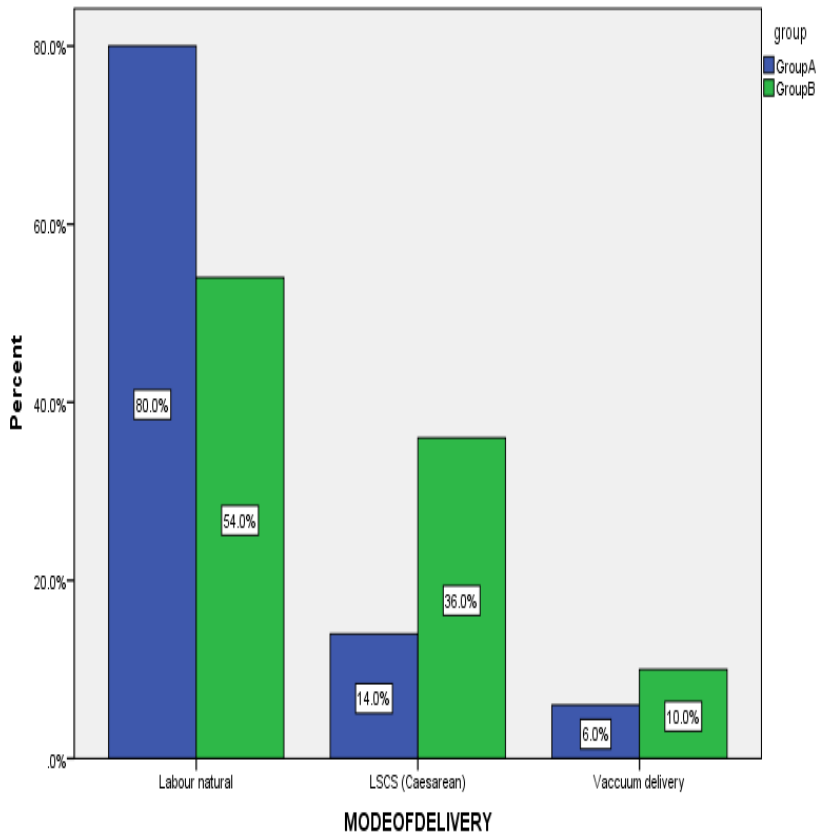


FIGURE 9: SHOWS COMPARISON OF WOMEN IN GROUPS BASED ON MODE OF DELIVERY.

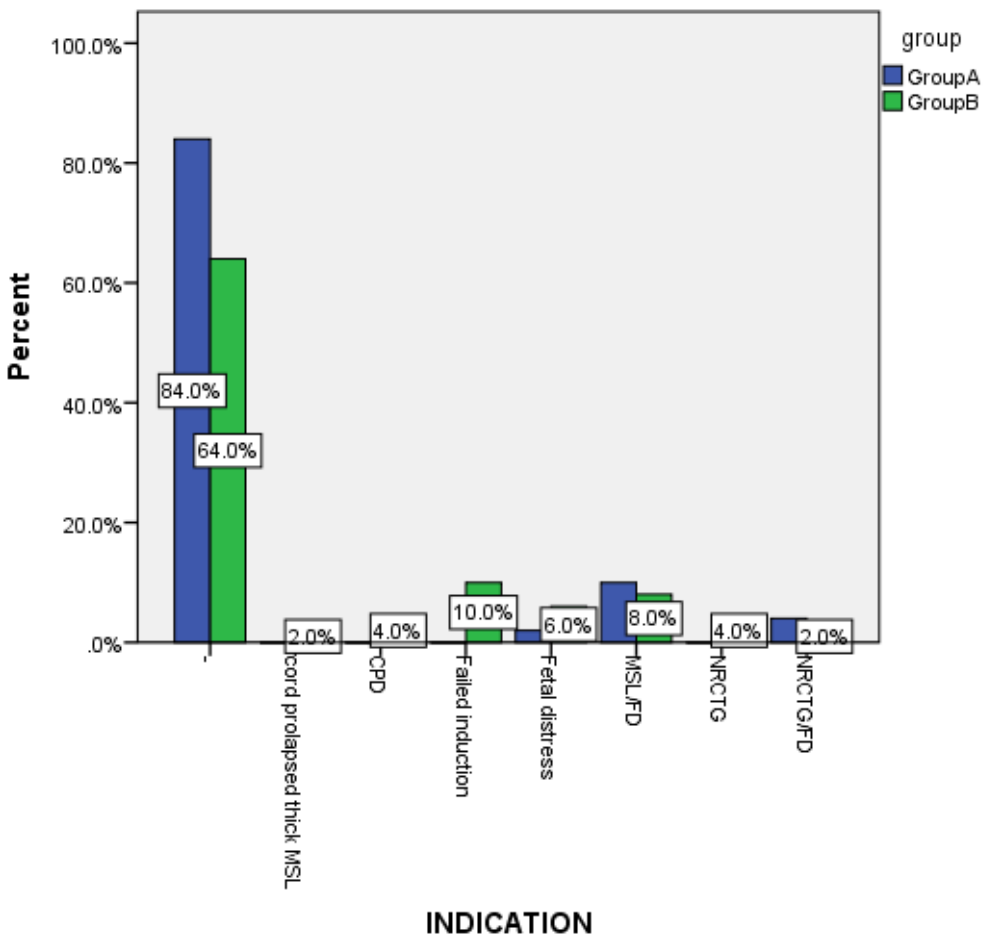


FIGURE 10: SHOWS COMPARISON OF WOMEN IN GROUPS BASED ON INDICATION FOR CAESAREAN SECTION

TABLE 10: SHOWS COMPARISON OF TWO GROUPS BASED ON BIRTH WEIGHT BY PEARSON'S CHI SQUARE TEST:

Group		N	Mean	Std. Deviation	Mean Difference	95% Confidence Interval of the Difference		p value (T - test)
						Lower	Upper	
Weight	Group A	50	3.0680	0.34431	0.05600	-.08439	.19639	0.431
	Group B	50	3.0120	0.36289				

There is no statistically significant difference between two groups mean on weight.

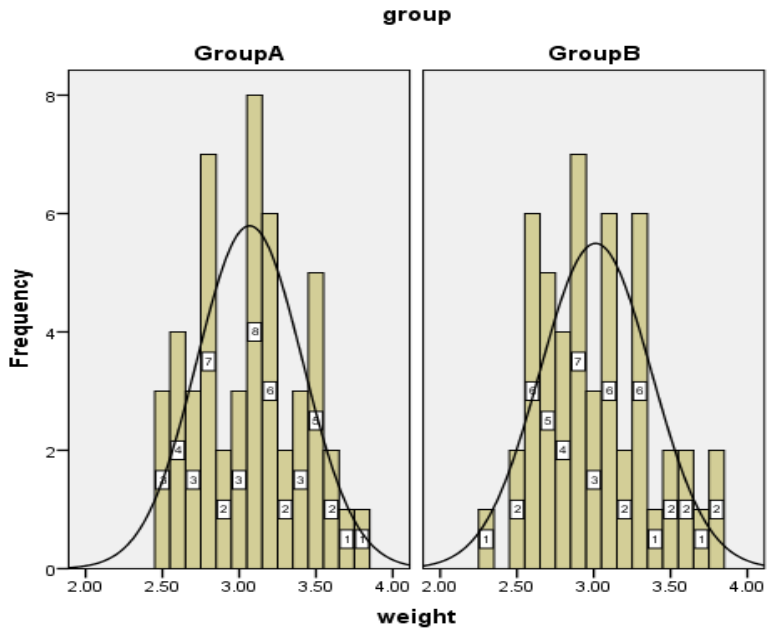


FIGURE 11 SHOWS COMPRISON OF GROUPS BASED ON BIRTH WEIGHT

TABLE 11- SHOWS COMPARISON OF GROUPS BASED ON APGAR 1 VALUE BY PEARSON'S CHI SQUARE TEST

Group		N	Mean	Std. Deviation	Mean Difference	95% Confidence Interval of the Difference		P value (T - test)
						Lower	Upper	
apgar 1	Group A	50	7.1800	0.98333	0.16000	-.29776	.61776	0.490
	Group B	50	7.0200	1.30133				

There is no statistically significant difference between two groups mean on apgar1 value.

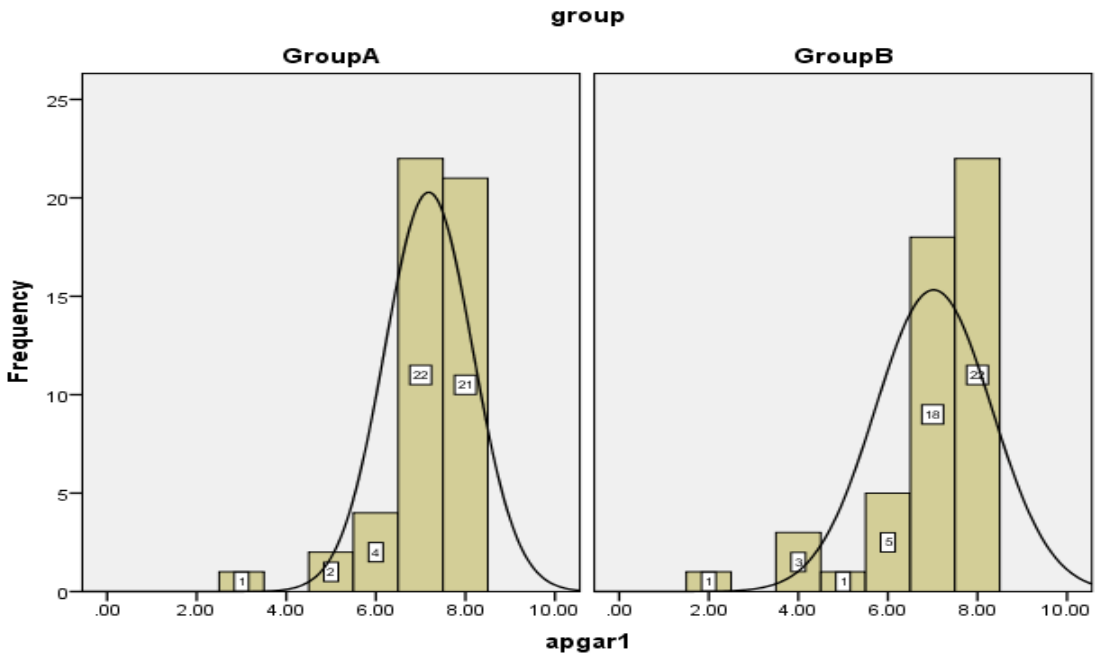


FIGURE 12 SHOWS COMPARISON OF GROUPS BASED ON APGAR 1 VALUE

TABLE 12 SHOWS COMPARISON OF GROUPS BASED ON APGAR 2 VALUE BY PEARSOCN'S CHI SQUARE TEST

group		N	Mean	Std. Deviation	Mean Difference	95% Confidence Interval of the Difference		
						Lower	Upper	P value (T - test)
apgar 2	Group A	50	8.4800	.86284	.18000	-.21887	.57887	0.373
	Group B	50	8.3000	1.12938				

There is no statistically significant difference between two groups mean on apgar2 values.

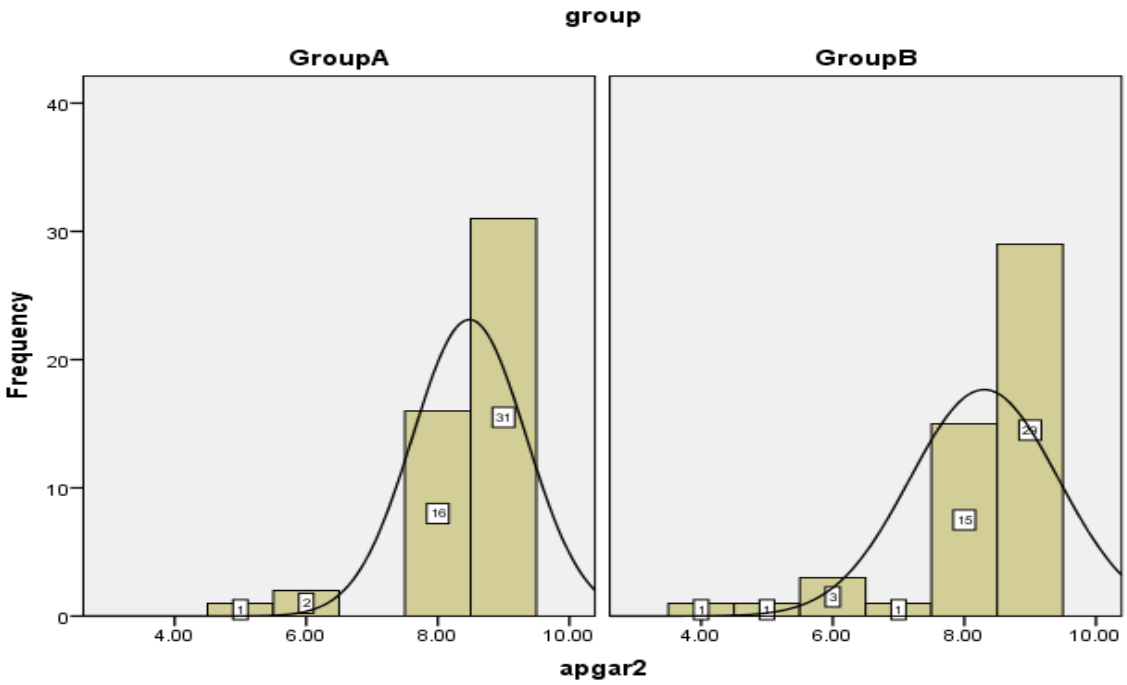


FIGURE 13 SHOWS COMPARISON OF GROUPS BASED ON APGAR 2 VALUE

TABLE 13 SHOWS COMPARISON OF GROUPS BASED ON GENDER BY PEARSON'S CHI SQUARE TEST

		SEX		Total
		Boy	Girl	
Group	Group A	26	24	50
	Group B	34	16	50
Total		60	40	100

Chi-Square Tests				
	Value	Df	P value	Exact Sig. (2-sided)
Pearson Chi-Square	2.667[a]	1	0.102	0.153
Fisher's Exact Test				0.153
N of Valid Cases	100			

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 20.00.

b. Computed only for a 2x2 table

There is no statistically significant association between group and gender.

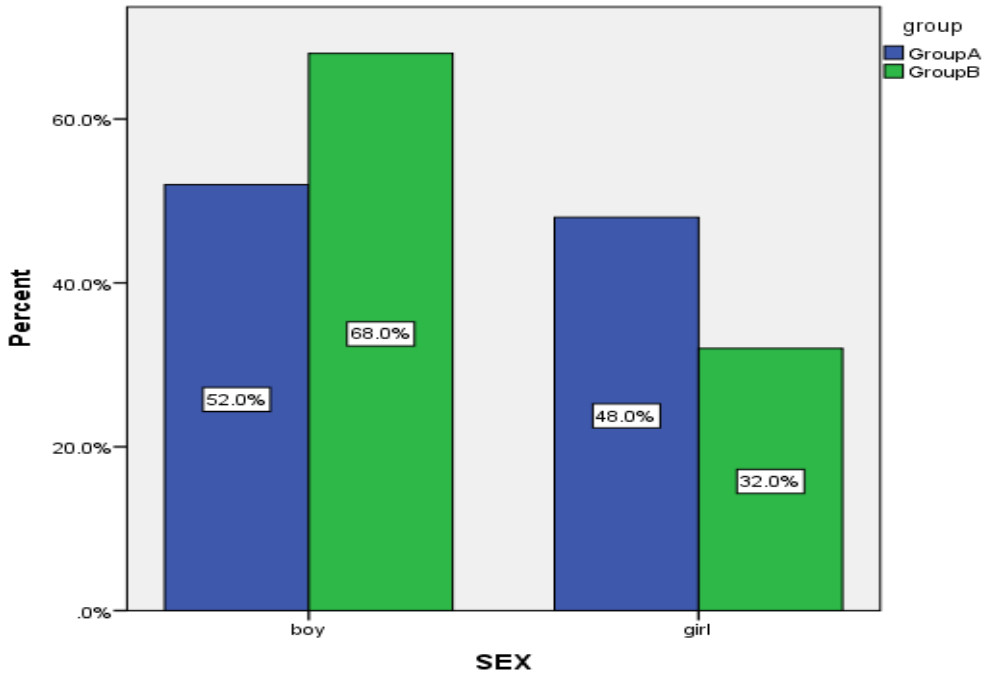


FIGURE 14 SHOWS COMPARISON OF GROUPS BASED ON GENDER MATERNAL COMPLICATION

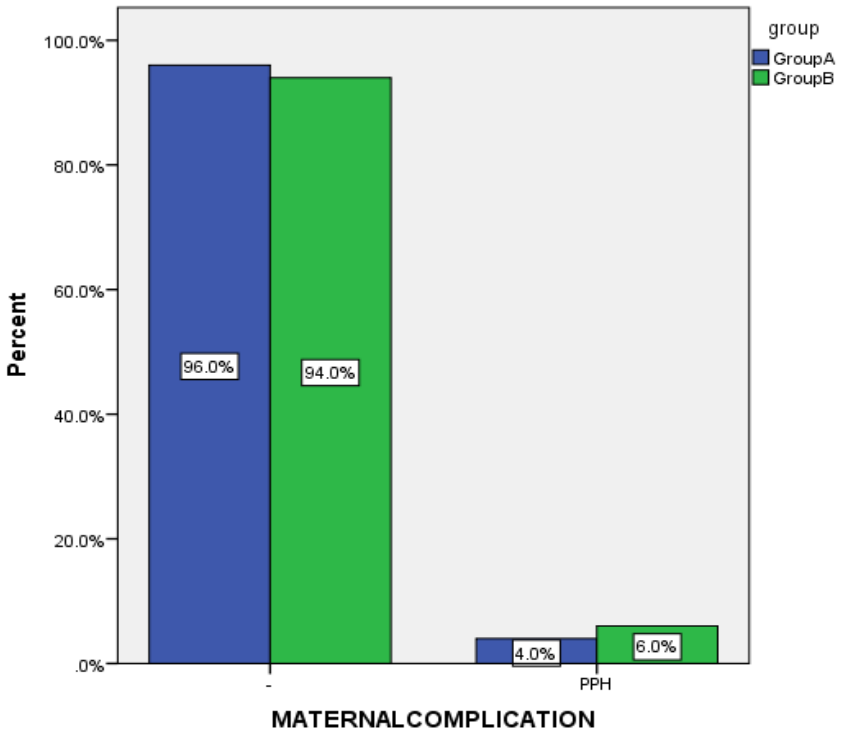


FIGURE 15 SHOWS COMPARISON OF GROUPS BASED ON MATERNAL COMPLICATIONS

FETALCOMPLICATION

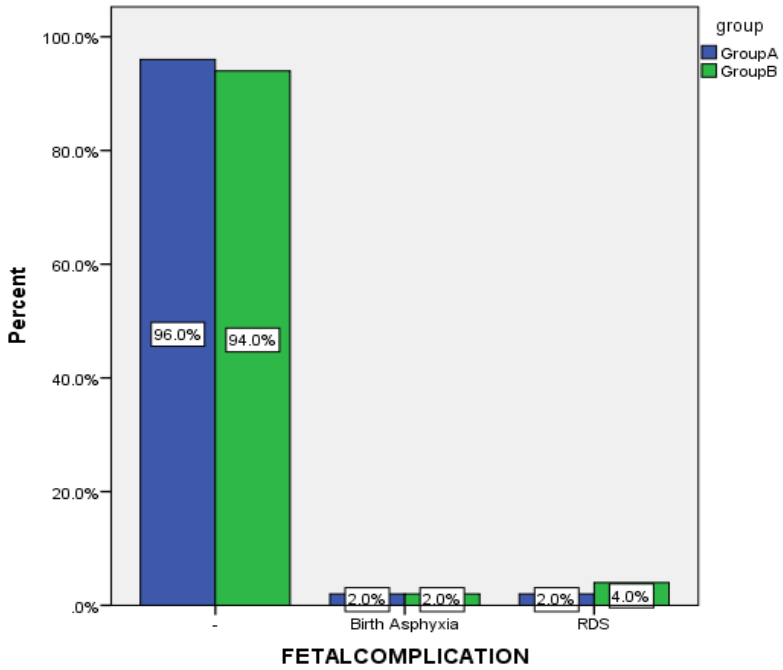


FIGURE 16 SHOWS COMPARISON OF GROUPS BASED ON FETAL COMPLICATIONS

DISCUSSION

The study population consists of 100 women who had gone beyond the expected date of confinement.

Primigravidae constitute 76% of them in study group and 84 % in control group.

Table : 1

INCIDENCE IN PRIMIGRAVIDAE

AUTHORS	STUDY
1. Eden and Associates	38%
2. Robert Volta	33%
3. Campbell *et al,*	42.3%
4. Present Study	76%

Primigravidae constituted major proportion

Table : 2

HISTORYOF PREVIOS PROLONGED PREGNANCY

AUTHORS	STUDY
1. Mogren *et* al	12.5 - 15.8%
2. Bakketeig and Bergsio (1991)	10-27%
3. Norwegian Study	27%
4. Present Study	17 %

If mother has a H/o prolonged pregnancy, daughter has a 3 fold risk of having the same.

The tendency for some mothers to repeat post term births suggests that some prolonged pregnancies are biologically determined. (2-3 fold chance of the daughter giving birth to post dated baby).

1a Six randomised trials compare a policy of routine induction at 40 weeks, Cole *et al,* Martin *et al,* Tylleskar *et al,* Breart *et al,* Sande *et al,* Egarter *et al.,)* against expectant management till 42 weeks gestation.

These trials reveal no evidence of any major benefit or risk to routine induction at 40 weeks. But obviously, induction around 40 weeks reduced the incidence of meconium staining in the labour**.** In the Indian Study, induction at 40 weeks associated

with high incidence of instrumental vaginal delivery and caesarean section and this effect not seen with induction between 41-42 weeks. This effect is same in our study.

1b . 14 Trials involving 6,284 women were identified in which induction of Labour after 41 weeks of gestation is compared with expectant management using a variety of tests to monitor. Henry 1969, Katz *et al.*,

1983, SuikJkari *et al.*,, 1983, Cardozo *et al*, 1986, Augensen *et al.*, 1987, Dyson *et al.*, 1987, Witter & Weitz 1987, Bergsjo *et al*, 1989, Martin *et al*, 1989, Heden *et al.*, 1991, Hannah *et al*, 1992, Herabutya *et al.*, 1992, NIHCD 1994, Roach & Rogers (1997), of which Hannah *et al*, (1992) study is larger and contributes considerable weight to Meta Analysis and systematic review of these trials indicate:- INDUCTION AT 41 WEEKS IS ASSOCIATED WITH BENEFITS:-

According to the above study

2. There is reduced risk of perinatal death in normally formed Babies.
3. The incidence of Meconium stained Amniotic fluid is reduced.
4. There is no effect on fetal heart rate abnormalities.

MATERNAL OUTCOME

1. Induction after 41 weeks of gestation, does not increase the caesarean section rate.

2. Hannah *et al.,* states that there is reduced risk of caesarean section.

Secondary Analyses were carried out to verify the above statement and they showed induction of labour after 41 weeks of pregnancy does not increase the caesarean section rate, irrespective of parity, cervical ripeness, method of induction

Table : 3

DEFINITION OF POST TERM BY VARIOUS AUTHORS

S. NO.	STUDY	COUNTRY	O. OF DAYS OVERDUE
1.	WHO 1994	Geneva	294
2.	FIGO	-	294
3.	Kaiz *et al.,* 1983	Israel	294
4.	Bergsjo 1989	China	294
5.	Herabutya 1992	Thailand	294
6.	Roach 1997	China	294
7.	Augensen 1987	Norway	290
8.	Chanrachakul 2002	Thailand	290
9.	Dyson 1987	USA	287
10.	Witter 1987	USA	287
11.	Martin 1989	USA	287
12.	NIHCD 1994	*USA*	287
13.	Hannah 1992	Canada	287
14.	James 2001 (Indian Study)	India	287
15.	Prabha Singal (Indian study)	India	281

Indian studies stated above vote for 287 days, and also the famous Hannah study (n=3407 women) also says that definition of post term is 287 days.

Another Indian study say that certain ethnic groups such as Indians have a tendency towards early maturity and predisposes to post mature state even at 40 weeks of gestation and hence they require Antenatal surveillance before 40 weeks. More Indian studies are warranted. There is progressive uteroplacental insufficiency as pregnancy cross 40 weeks.

Table : 4

VARIOUS METHODS OF INDUCTION USED BY DIFFERENT AUTHORS

S.No.	STUDY GROUP	METHODS OF INDUCTION
1.	DYSON	PGE_2 gel intravaginally & oxytocin infusion with amniotomy
2.	WITTER	Oxytocin & amniotomy
3.	BERGSJO	Membrane stripping, oxytocin infusion & amniotomy
4.	NIHCD	PGE_2 intracervically, oxytocin infusion, and amniotomy
5.	HANNAH	PGE_2 gel (0.5mg) Intracervically every 6hx3, and oxytocin infusion, amniotomy or both
6.	JAMES (INDIA)	Extra amniotic saline infusion if bishop score <5, if >5 membrane stripping, amniotomy, and oxytocin infusion.
7.	PRESENT STUDY	Foley induction followed by PGE_2(0.5mg) Gel intracervically, oxytocin induction, amniotomy Misoprostol (PgE1) induction

The common indications for INDUCTION: at 40 weeks and above;

- Rh negative pregnancy
- GDM On meal plan
- Reduced fetal movement by patient history
- Oligohydramnios
- Favourable cervix
- Patient request

Table : 5

MECONIUM STAINED AMNIOTIC FLUID

S. No.	AUTHORS	40 WKS	41 WKS
1.	Meis *etal,* 1978	30%	-
2.	Steer ef a/., 1989	30%	-
3.	Miller & Read 1981	30%	-
4.	Williams Obstetrics	21%	25%
5.	Present Study	6 %	20%

This is not a specific indicator of fetal hypoxia, but there is good evidence that cord arterial blood PH is lower in babies who show FHR abnormalities with meconium stained fluid than in FHR abnormalities with clear liquor.

TABLE 6

CAESAREAN SECTION – INCIDENCE

S. No.	AUTHORS	At 41 Wks
1.	Hannal *et al.,*	24%
2.	NICHD	18%
3.	Alexander and Co-workers	9%
4.	Present Study	17%

From the Statistical Analysis,

Induction of labour after 41 weeks does not increase caesarean section rate. This result was the same as that of review of meta analysis of 14 trials involving 6,284 women, (henry, Katz *et al.,* Suikkari *et al.,* Cardazo *et al.,*

Augensen *et al.,* Dyson *et al.,* Witter & Weitz, Bergsjo *et al.,* Martin *et al.,* Heden *et al.,* Hannah *et al.,* Herabutya *et al.,* NICHD, Roach & rogers of which Hannah *et al.,* study is much large

Perinatal outcome is not statistically significant from those induced at 41 weeks. Six randomized trials compare routine induction at 40 weeks Vs expectant Management (Cole *et al.,* Martin *et al.,* Tylleskar *et al.,* Breart *et al.,* Egarter *et al.,* Sande *et al.,* These trials reveal no evidence of any major benefit or risk to routing induction at 40 weeks. This was found in our study. India being a developing country, has still a long way to go before achieving the perinatal mortality rate as that of the western countries.

Table 7

PERINATAL OUTCOME

S. No.		**40 Weeks**	**> 40 Weeks**
A.	**Macrosomia**		
1.	Eden & Associates	0.8%	2.8%
2.	Present Study	0.96%	1.3%
B.	**Meconium Aspiration**		
1.	Eden & Associates	0.6%	1.6%
2.	Present Study	-	3%

C.	**Apgar Scores <7 at 5 min**		
1.	Luis Sanchez	1.1%	1.4%
2.	Present Study	1.8%	1.9 %

D.	**NICU Admissions**		
1.	Luis Sanchez	11.7%	12.5%
2.	Present Study	8%	10.3%

TABLE 8

E.	**Gestation Specific Perinatal Mortality Rate / 1000**	**40 Weeks**	**Beyond 40 Weeks**
1.	Bakketeig & Bergsjo	2.3	2.4
2.	Ingemarsson & Kallen	3.65	2.14
3.	Hilder *et al.,*	6.63	6.45
4.	Williams	1.5	0.7
5.	Mcclure *et al.,* with out AP testing (1958)	10	1
6.	C Advent of AP testing Eden *et al.,*	1.5	-
7.	Prabha Singal (Indian Study)	14	-
8.	Present Study	-	-

Our Indian study quotes perinatal mortality in 40 weeks and above as 14%. In our study also there is no statistical difference in PNMR between 40 weeks and beyond 40 weeks.

SUMMARY OF THE STUDY

The study population consisted of 100 women of which 50 women who had regular cycles and admitted on their expected date of delivery at 40 weeks and 50 women were they had crossed the expected date of delivery.

Of these 50 women had crossed the gestation beyond 40 weeks but less than 41 weeks and 50 women had completed 40 weeks of gestation.

There were 80% of Primigravida Previous History of overdue pregnancy that has gone beyond dates – 12%

WOMEN OF CONTROL GROUP

1. In the control group in whom the gestation age corresponded to 40 weeks, women enrolled were 50.
2. Of the various modes of induction, 78 % induced with Foley followed by PGE2 gel, 22 % induced with misoprostol.
3. 54 % had natural delivery
4. Vacuum delivery constituted 10% and so total operative vaginal delivery for those who delivered in this group was 64%
5. caesarean in the 40 weeks group 36%

IN WOMEN OF study group

1. In the study group in whom the gestation age crossed 40 weeks but less than 41 weeks, women enrolled were 50
2. Of the various modes of induction, 84% foley induction followed by PGE_1 gel, and 16 % induced by misoprostol.
3. Overall meconium staining in this group = 10(20%)
4. 80% had natural delivery and 14% went for caesarean section and 6% were delivered by operative vaginal delivery (vacuum delivery)

PERINATAL OUTCOME IN CONTROL GROUP

a. Birth weight distribution in Kg

< 2.5	-	3
> 2.5	-	43
> 3.0	-	4
		50

b. Apgar score AT 5 MIN < 7 = 5(10%)

c. NICU Admission Rate = 8(16%)

d. Mortality rate = Nil

PERINATAL OUTCOME IN STUDY GROUP

1. Birth weight distribution

< 2.5kg	- 3
>2.5kg	- 40
>3.0kg	- 7
Total	-50

b. Apgar score AT 5 MIN < 7 = 3(6%)

c. NICU Admission Rate = 12(24%)

d. Mortality rate = Nil

CONCLUSION

Whenever a pregnant women crosses her expected date of confinement, the patient becomes anxious, and the obstetrician keeps the finger crossed.

From the study conducted, we get the inference that the caesarean section rate is reduced from 36% to 14% ,when the labour is induced beyond 40 weeks of expected date of confinement.

Also , the instrumental delivery rate is low(6%) in the study group compared to the control group(10 %).

Eventhough the meconium staining of liquor (20 % vs 6%) and NICU admission rate (10 % vs 8 %) is higher in the study group when compared to control group , there is no difference in perinatal morbidity and mortality in the study group when compared to control group.

So the induction of labour in uncomplicated pregnancy optimally beyond 40 weeks carries advantage of decreased caesarean section rate and and instrumental delivery when compared to induction of labour at 40 weeks

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PROFORMA

A Comparative study of the pregnancy outcome with induction at 40 weeks and beyond 40 weeks of gestational age -

A PROSPECTIVE OBSERVATIONAL STUDY

GROUP: **DATE:**

NAME:	**AGE:**
IP NO:	**SOCIO ECONOMIC STATUS:**
ADDRESS:	**PHONE NO:**

GESTATIONAL AGE : **(in weeks)**

MENSTRUAL HISTORY:

REGULAR	**IRREGULAR**
LMP	**EDD**

MARITAL HISTORY:

MARRIED SINCE: **in years**	**CONSANGUINITY:**
	YES / **NO**

OBSTETRIC HISTORY:

G:	**P:**	**L:**	**A:**

LCB:

PAST HISTORY:

H/O DM/HTN/PTB/BA/EPILEPSY/THYROID/DRUG ALLERGY/BLOOD TRANSFUSION.

H/O PREVIOUS SURGERIES.

EXAMINATIONS:

ANTHROPOMETRY:	**HT: (in cm)**	**WT: (in kg)**	**BMI:**
VITALS:	**PR: /min**	**BP: mmhg**	**TEMP: ^{0}C**
GENERAL EXAMINATION:	**PALLOR:**	**PEDAL EDEMA:**	
OBSTETRIC EXAMINATION: **1.PERABDOMEN**	**UTERUS SIZE: in weeks** **ACTING/NOTACTING** **PRESENTATION:CEPHALIC** **UNENGAGED/ENGAGED**		
2.PERSPECULUM EXAMINATION:			
3.PERVAGINAL EXAMINATION:	**BISHOP SCORE:**		

INVESTIGATIONS:

1.COMPLETE BLOOD COUNT	**HB:**	**TC:**
	PLT:	**DC:**
2.RANDOM BLOOD SUGAR:		
3.RENAL FUNCTION TEST:	**UREA:**	**CREATININE:**
4.LIVER FUNCTION TEST:	**TB:**	**SGOT:**
	URIC ACID:	**SGPT:**
	TP:	**LDH:**
5.URINE ROUTINE:	**ALBUMIN:**	
	SUGAR:	
6.USG-AFI:		
7.NON STRESS TEST:		
8.BLOOD GROUPING & TYPING:		

FETOMATERNAL OUTCOMES:

1.TIME INTERVAL BETWEEN INDUCTION TO ACTIVE PHASE:	
2.INDUCTION TO DELIVERY TIME INTERVEL:	
3.MODE OF DELIVERY:	
4.FAILED INDUCTION:	
5.MATERNAL SATISFACTION:	
6.MATERNAL COMPLICATION:	**NAUSEA& VOMITING** | **PYREXIA > 100 F** | **UTERINE HYPERSTIMULATION** | **UTERINE RUPTURE:** | **PPH:**
7.FETAL COMPLICATION:	**MSAF** | **ABNORMAL CTG** | **LOW APGAR AT 5MIN** | **STILL BIRTH**

PATIENT CONSENT FORM

PATIENT NAME:

IP/OP NO.

STUDY TITLE : **"A Comparative study of the pregnancy outcome with induction at 40 weeks and beyond 40 weeks of gestational age -A Prospective observational study "**

- 1.I have been explained and have understood the procedures involved in the study
- I confirm that I have read and understand the information sheet for the above study.
- I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.
- I understand that relevant sections of any of my medical notes and data collected during the study may be looked at by responsible individuals from [Madras Medical College], where it is relevant to my taking part in this study. I give permission for these individuals to have access to my records.
- I agree to take part in the above study.

Name and signature of interviewer Signature of Participant

Date: Date:

PATIENT INFORMATION SHEET

TITLE: A Comparative study of the pregnancy outcome with induction at 40 weeks and beyond 40 weeks of gestational age.

-A Prospective observational study

I Dr. R PAVITHRA , 2nd year M.S post graduate in Obstetrics and Gynaecology, Madras Medical College is going to undertake the study on above mentioned topic. I request your co-operation and help for the study. If you are willing to participate in this study you are being asked to answer few questions in the postoperative period. And there is absolutely no harm in this research. Though you may not benefit directly from the study, it's possible that the findings of the study may be a great help in planning anaesthetic technique for other patients undergoing general anaesthesia in future. I assure that all the information provided by you will be kept highly confidential and privacy is assured. Your identity won't be revealed to anyone. The study may be published in scientific Journal, but your identity will not be revealed. Your participation in this study is voluntary and you can withdraw from this at any point of time.

Signature/left thumb impression of the participant
Name of the participant:
Son/daughter/spouse of:
Complete postal address:

நோயாளியின் தகவல் படிவம்

ஆய்வின் தலைப்பு: கர்ப்பிணி பெண்களுக்கு நாற்பது வாரம் அல்லது நாற்ப்பதற்கும் மேற்ப்பட்ட வாரத்தில் கர்ப்பப்பை வாயில் வடிக்குழாய் செலுத்தி அல்லது மருந்து வைத்து பிரசவ வலி ஏற்படுத்தி தாய் மற்றும் குழந்தையின் விளைவுகளை ஒப்பிட்டு ஆய்வு செய்தல்

முக்கிய ஆய்வாளரின் பெயர்	:	டாக்டர். ரா. பவித்ரா
நிறுவன முகவரி	:	அரசு மகளிர் மகப்பேறு மருத்துவமனை, எழும்பூர், சென்னை – 600 008

நீங்கள் இந்த ஆய்வில் பங்கு பெற வரவேற்கப்படுகிறீர்கள், இந்த தாளில் அளிக்கப்பட்டுள்ள விவரங்கள் நீங்கள் ஆய்வில் பங்கு பெறுவது குறித்து தீர்மானிக்க உதவும். சந்தேகங்கள் மற்றும் கேள்விகள் தயக்கமின்றி வரவேற்கப்படுகின்றன.

நாங்கள் இந்த ஆய்விற்காக தலைமை நெறிமுறை குழுவின் (Institutional Ethics Committee) அனுமதி பெற்றுள்ளோம்.

கர்ப்பிணி பெண்களுக்கு நாற்பது வாரம் அல்லது நாற்ப்பத்திதொரு வாரத்தில் கர்ப்பப்பை வாயில் வடிக்குழாய் செலுத்தி அல்லது மருந்து வைத்து பிரசவ வலி ஏற்படுத்தி தாய் மற்றும் குழந்தையின் விளைவுகளை ஒப்பிட்டு ஆய்வு

வடிக்குழாய் செலுத்தி அல்லது மருந்து வைத்து பிரசவ வலி ஏற்படுத்தி தாய் மற்றும் குழந்தையின் விளைவுகளை ஒப்பிட்டு ஆய்வு செய்தலில் எந்த முறை சிறந்தது என்பதை ஆய்வில் அறியலாம்.

மேலும் நாற்பத்தியொரு வாரங்கள் வரைக்கும் காத்திருப்பதால் சுகப்பிரசவத்தை விட அறுவை சிகிச்சை அதிகமாக ஏற்படுகிறது என்பதை ஆய்வில் அறியலாம்.

உங்கள் தகவல் குறித்த நம்பிக்கை

உங்களை பற்றிய தகவல் (பரிசோதனை விவரங்கள்) எவருக்கும் தெரிவிக்கப்படமாட்டாது. இந்த ஆய்விலிருந்து அறியப்படும் விவரங்கள் கூட்டங்களில், பத்திரிக்கைகளில் இடப்படும் போது உங்களைப் பற்றிய தனிப்பட்ட தகவல்கள் இரகசியம் காக்கப்படும்.

நீங்கள் இந்த ஆய்வில் பங்கு கொள்ளாவிட்டாலும் உங்களுடைய மருத்துவ சிகிச்சையோ அல்லது ஆய்வாளருடன், மருத்துவமனையுடன் உங்களது உறவு பாதிக்கப்படாது. இதனால் உங்களுக்கு கிடைக்கப்பெற இருக்கும் எந்த ஒரு சிகிச்சை முறையிலும் மாறுதல் ஏற்படாது. நீங்கள் இந்த ஆய்வில் பங்கு பெறுவது உங்களுடைய விருப்பம். எந்த நேரத்திலும், எந்த விளக்கமும் அளிக்காமல் நீங்கள் விலகிக் கொள்ள உரிமை உண்டு.

ஆய்வாளரின் கையொப்பம்

பங்கேற்பவரின் பெயர் :

பங்கேற்பவரின் கையொப்பம்

நாள்
இடம்:

<u>சுய ஆய்வு ஒப்புதல் படிவம்</u>

ஆய்வு செய்யப்படும் தலைப்பு : **"கர்ப்பிணி பெண்களுக்கு நாற்பது வாரம் அல்லது நாற்ப்பதற்கும் மேற்ப்பட்ட வாரத்தில் கர்ப்பப்பை வாயில் வடிக்குழாய் செலுத்தி அல்லது மருந்து வைத்து பிரசவ வலி ஏற்படுத்தி தாய் மற்றும் குழந்தையின் விளைவுகளை ஒப்பிட்டு ஆய்வு செய்தல்.**

ஆய்விடம் : **மகப்பேறு மகளிர் நோயியல் மற்றும் அரசு தாய்சேய் நல மருத்துவமனை, எழும்பூர், சென்னை.**

பங்கு பெறுபவரின் பெயர் :
பங்கு பெறுபவரின் எண்:
பங்கு பெறுபவரின் வயது:
மருத்துவமனை எண்:

1. எனக்கு தரப்பட்ட ஆராய்ச்சியில் பங்கு பெறுவோர்க்கான தகவல் படிவத்தை முழுமையாக படித்து புரிந்து கொண்டேன்.
2. ஆராய்ச்சியின் தன்மை முழுமையாகவும் விரிவாகவும் எடுத்து உரைக்கப்பட்டது.
3. எனது எல்லா கேள்விகளுக்கும் விடையளிக்கப்பட்டது.
4. ஆய்வாளர் என் உரிமைகளையும், பொறுப்புகளையும் நன்கு விளக்கினார்.
5. நான் ஆய்வாளருக்கு முழு ஒத்துழைப்பு கொடுக்கவும், பரிசோதனை செய்து கொள்ளவும் அனுமதிக்கிறேன்.
6. எனக்கு இரத்த பரிசோதனை, ஸ்கேன் மற்றும் ஆய்விற்கு தேவையான அனைத்து பரிசோதனைகளும் செய்து கொள்ள சம்மதம்.
7. எனக்கு இந்த ஆய்வின் போது அறுவை சிகிச்சை மேற்கொள்ளும் போது தேவைப்பட்டால் என் வயிற்று பகுதியின் பாதிப்புகளை புகைப்படம் எடுக்கவும், அதனை மருத்துவரின் தேவைக்கேற்பு உபயோகிக்கவும் அனுமதிக்கிறேன்.
8. நான் இந்த ஆராய்ச்சியில் பங்கேற்பதால் ஏற்படும் சாதகபாதகங்களை ஆய்வாளர் விளக்கிக் கூற அறிந்து கொண்டேன்.

9. எப்பொழுது வேண்டுமானாலும் நான் இந்த ஆய்வில் இருந்து விலகி கொள்ளலாம் என்பதை அறிவேன். அவ்வாறு விலகிக் கொள்வதால் எனக்கு கொடுக்கப்படும் சிகிச்சையில் எந்த மாற்றமும் இருக்காது என அறிந்து கொண்டேன்.
10. இந்த ஆய்வுக்காக பெறப்படும் தகவல்களை ஆய்விதழ்களிலோ, கருத்தரங்கிலோ வெளியிட எனக்கு எந்தவித மறுப்போ, ஆட்சேபணையோ இல்லை.
11. எனது அடையாளங்கள் மற்றும் தனிப்பட்ட விவரங்கள் ஆய்விதழ்களிலோ, கருத்தரங்கிலோ வெளியிடப்படமாட்டாது என்று எனக்கு உறுதியளிக்கப்பட்டது.
12. எனக்கு இந்த ஆராய்ச்சி குறித்த சந்தேகம் இருந்தால் உடனே ஆய்வாளரை கேட்டு தெளிவுபடுத்தி கொள்ளலாம் என உறுதியளிக்கப்பட்டது.
13. இந்த ஒப்புதல் படிவத்தில் கையொப்பமிடுவதின் மூலம் இந்த படிவத்தில் உள்ளவையாவும் எனக்கு தெளிவாக எடுத்துரைக்கப்பட்டது. அதை நான் நன்கு புரிந்து கொண்டேன் என தெரிவித்துக் கொள்கிறேன்.

நோயாளியின் பெயர்

கையொப்பம் / பெருவிரல்சுவடு தேதி

ஆராய்ச்சியாளர் பெயர்

கையொப்பம் / பெருவிரல்சுவடு தேதி

சாட்சி 1

பெயர் கையொப்பம் / பெருவிரல்சுவடு தேதி

சாட்சி 2

பெயர் கையொப்பம் / பெருவிரல்சுவடு தேதி

INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI 600 003

EC Reg.No.ECR/270/Inst./TN/2013/RR-16
Telephone No.044 25305301
Fax: 011 25363970

CERTIFICATE OF APPROVAL

To
Dr.R.PAVITHRA,
MS Post Graduate (2019-2022),
Department of Obstetrics and Gynaecology,
Madras Medical College,
Chennai-600003.

Dear Dr. R.PAVITHRA,

The Institutional Ethics Committee has considered your request and approved your study titled **"A COMPARATIVE STUDY OF THE PREGNANCY OUTCOME WITH INDUCTION AT 40 WEEKS AND BEYOND 40 WEEKS OF GESTATIONAL AGE – A PROSPECTIVE OBSERVATIONAL STUDY"-NO.17022021.** The following members of Ethics Committee were present in the meeting held on **17.02.2021** conducted at Madras Medical College, Chennai 3.

1. Prof.P.V.Jayashankar :Chairperson
2. Prof.N.Gopalakrishnan,MD.,DM., FRCP, Director, Inst. of Nephrology, MMC, Ch : Member Secretary
3. Prof. K.M.Sudha, Prof. Inst. of Pharmacology,MMC,Ch-3 : Member
4. Prof. Alagarsamy Jamila ,MD, Vice Principal, Stanley Medical College, Chennai : Member
5. Prof.Rema Chandramohan,Prof.of Paediatrics,ICH,Chennai : Member
6. Prof.S.Lakshmi, Prof. of Paediatrics ICH Chennai : Member
7. Tmt.Arnold Saulina, MA.,MSW., :Social Scientist
8. Thiru S.Govindasamy, BA.,BL,High Court,Chennai : Lawyer
9. Thiru K.Ranjith, Ch- 91 : Lay Person

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

Member Secretary – Ethics Committee

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE
CHENNAI-600 003.

Curiginal

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PLAGIARISM CERTIFICATE

This is to certify that this dissertation work titled **"A COMPARATIVE STUDY OF THE PREGNANCY OUTCOME WITH INDUCTION AT 40 WEEKS AND BEYOND 40 WEEKS OF GESTATIONAL AGE"** of the candidate **Dr. R.PAVITHRA, REG NO: 221916877** for the award of M.S in the branch of **OBSTETRICS AND GYNAECOLOGY**. I personally verified the urkund.com website for the purpose of plagiarism check. I found that the uploaded thesis file contains from introduction to conclusion pages and the result shows **TWELEVE** percentage of plagiarism in the dissertation **(D124286919)**

Signature and Seal of the Guide

PROF. Dr.Devika, M.D. OG.,
Department of obstetrics and gynaecology,
Institute Of Social Obstetrics and
Government Kasturba Gandhi Hospital
For Women And Children,
Triplicane,Chennai

S.No	NAME	AGE	PARITY	GESTAIONAL AGE	CO MORBIDITY	CTG	MODE OF DELIVERY	DATE OF DELIVERY	INDICATION	LIQUOR	SEX	BIRTH WEIGHT	APGAR	FETAL COMPLICATION	MATERNAL COMPLICATION
1	Gayathri	31	Primigravida	40+2	Hypothyroid	NR (Non reactive)	LSCS (Caesarean)	30/05/2021	Non Reactive CTG / Fetal Distress	Clear	boy	3.5kg	6/10,8/10	-	Postpartum Haemorhage
2	Haripriya	29	Primigravida	40+3	-	Reactive	LN (Labor Natural)	12/6/2021	-	Clear	boy	3.130kg	8/10,9/10	-	-
3	Jamuna Devi	25	Primigravida	40+3	-	Reactive	LN (Labor Natural)	12/6/2021	-	Clear	girl	3.120kg	8/10,9/10	-	-
4	Dharani	27	Primigravida	40+4	-	Reactive	LN (Labor Natural)	31/5/2021	-	Clear	girl	2.8kg	8/10,9/10	-	-
5	Bhavani	20	Primigravida	40+3	-	Reactive	LN (Labor Natural)	18/6/2021	-	Clear	boy	3.4kg	7/10,9/10	-	-
6	Preethi	23	Primigravida	40+2	Bronchial Asthma / Anaemia	Reactive	LN (Labor Natural)	12/6/2021	-	Clear	girl	3.430kg	8/10,9/10	-	-
7	Tamilselvi	26	Primigravida	40+4	-	Reactive	Vacuum delivery	27/7/2021	-	Clear	boy	2.94kg	7/10,9/10	-	-
8	Amsa	22	Primigravida	40+2	Gestational Hypertension	Reactive	LN (Labor Natural)	28/7/2021	-	Clear	boy	2.89kg	7/10,9/10	-	-
9	Sumathy	24	Primigravida	40+4	-	Reactive	LN (Labor Natural)	30/7/2021	-	Clear	girl	3.1kg	7/10,9/10	-	-
10	Pavithra	21	Primigravida	40+3	-	Reactive	LN (Labor Natural)	26/7/2021	-	Clear	boy	3.12kg	7/10,8/10	-	-
11	Sundari	24	Primigravida	40+3	-	Reactive	LN (Labor Natural)	28/7/2021	-	Clear	boy	3.2kg	8/10,9/10	-	-
12	Durga	25	G2P1L1	40+2	-	Reactive	LN (Labor Natural)	29/7/2021	-	Clear	boy	3kg	7/10,8/10	-	-
13	Premalatha	32	Primigravida	40+3	-	NR (Non reactive)	LSCS (Caesarean)	27/7/2021	Non Reactive CTG / Fetal Distress	Clear	girl	3.6kg	6/10,8/10	-	-
14	Sumathy	24	Primigravida	40+3	-	Reactive	LSCS (Caesarean)	29/7/2021	MSL/Fetal Distress	MSL	boy	2.5kg	5/10,6/10	-	-
15	Rithika	28	Primigravida	40+5	-	Reactive	LN (Labor Natural)	28/7/2021	-	Clear	girl	3.080kg	8/10,9/10	-	-
16	Kaviya	19	Primigravida	40+3	-	Reactive	LN (Labor Natural)	29/7/2021	-	Clear	girl	3.3kg	3/10,5/10	Respiratory Distress Syndrome	-
17	Ezhilarasi	22	Primigravida	40+3	-	Reactive	LN (Labor Natural)	30/7/2021	-	Clear	girl	3kg	8/10,9/10	-	-
18	Chithra	30	Primigravida	40+4	Hypothyroid	Reactive	LN (Labor Natural)	29/7/2021	-	Clear	boy	2.8kg	7/10,9/10	-	-
19	Geetha	36	G4P1L1A2	40+3	Gestational Hypertension / Fibroid	Reactive	LN (Labor Natural)	30/7/2021	-	Clear	boy	3.5kg	7/10,8/10	-	-
20	Devika	21	G2P1L0	40+2	-	Reactive	LN (Labor Natural)	31/7/2021	-	Clear	girl	3.57kg	7/10,8/10	-	-
21	Jayalakshmi	28	Primigravida	40+3	-	Reactive	LN (Labor Natural)	31/7/2021	-	Clear	boy	3.38kg	8/10,9/10	-	-

22	Arundathi	18	Primigravida	40+3	-	Reactive	LN (Labor Natural)	01/08/2021	-	Clear	girl	3.06kg	7/10,8/10	-	-
23	Anjali	24	Primigravida	40+3	-	Reactive	LN (Labor Natural)	2/8/2021	-	Clear	boy	2.7kg	8/10,9/10	-	-
24	Kavitha	25	G2P1L1	40+2	Gestational Hypertension	Reactive	LN (Labor Natural)	5/8/2021	-	Clear	boy	3.5kg	8/10,9/10	-	-
25	Poongodi	26	Primigravida	40+4	-	Reactive	LN (Labor Natural)	10/8/2021	-	Clear	girl	2.67kg	8/10,9/10	-	-
26	Sabana	28	G2P1L1	40+3	Anaemia/ Gestational Diabetes	Reactive	LN (Labor Natural)	10/8/2021	-	Clear	boy	3.20kg	7/10,9/10	-	-
27	Indhumathy	25	Primigravida	40+4	-	Reactive	LN (Labor Natural)	11/08/2021	-	Clear	girl	2.89kg	8/10,9/10	-	-
28	Divya	28	Primigravida	40+3	-	Reactive	LSCS (Caesarean)	17/8/2021	MSL/Fetal Distress	Clear	boy	3.67kg	7/10,8/10	-	-
29	Elavarasi	16	Primigravida	40+4	-	NR (Non reactive)	LSCS (Caesarean)	17/8/2021	MSL/Fetal Distress	MSL	boy	3.2kg	8/10,9/10	-	-
30	Varalakshmi	20	Primigravida	40+3	-	Reactive	LN (Labor Natural)	20/8/2021	-	Clear	girl	2.5kg	7/10,8/10	-	-
31	Suganya	25	Primigravida	40+4	-	Reactive	LN (Labor Natural)	19/8/2021	-	Clear	girl	3.1kg	8/10,8/10	-	-
32	Bhuvaneshwari	23	Primigravida	40+3	-	Reactive	LN (Labor Natural)	20/8/2021	-	Clear	boy	2.55kg	7/10,9/10	-	-
33	Preetha	30	Primigravida	40+3	-	Reactive	LN (Labor Natural)	20/8/2021	-	Clear	boy	2.68kg	8/10,9/10	-	-
34	Pavithra	22	G2P1L1	40+3	-	Reactive	LN (Labor Natural)	25/8/2021	-	Clear	girl	2.8kg	8/10,9/10	-	-
35	Janani	25	Primigravida	40+4	-	Reactive	LSCS (Caesarean)	27/7/2021	Fetal Distress	Clear	boy	3.1kg	6/10,8/10	-	-
36	Sangeetha	22	Primigravida	40+3	-	Reactive	LN (Labor Natural)	30/8/2021	-	Clear	girl	2.6kg	7/10,8/10	-	-
37	Prabhavathi	20	Primigravida	40+5	-	Reactive	LN (Labor Natural)	31/8/2021	-	Clear	boy	2.9kg	7/10,9/10	-	-
38	Kumari	27	G3P1L1A1	40+2	Periodic paralysis	Reactive	LN (Labor Natural)	1/9/2021	-	Clear	girl	3.1kg	8/10,9/10	-	-
39	Sandhya	24	G2A1	40+2	Gestational Hypertension / Oligohydramnios	Reactive	LN (Labor Natural)	1/9/2021	-	Clear	girl	3.7kg	7/10,8/10	-	-
40	Divya	21	Primigravida	40+2	Oligohydramnios	Reactive	LSCS (Caesarean)	2/9/2021	MSL/Fetal Distress	MSL	boy	2.89kg	6/10,8/10	-	-
41	Santhalakshmi	23	G2A1	40+3	Oligohydramnios	Reactive	LN (Labor Natural)	2/9/2021	-	Clear	girl	3.21kg	7/10,9/10	-	-
42	Roja	24	G2P1L1	40+3	-	Reactive	LN (Labor Natural)	2/9/2021	-	Clear	boy	2.750kg	8/10,9/10	-	-
43	Banupriya	22	G2A1	40+3	-	Reactive	LN (Labor Natural)	5/9/2021	-	Clear	girl	3.12kg	7/10,8/10	-	-
44	Margaret	28	Primigravida	40+3	-	Reactive	LN (Labor Natural)	7/9/2021	-	Clear	girl	2.72kg	8/10,9/10	-	-
45	Jeevitha	28	Primigravida	40+3	-	Reactive	Vaccum delivery	15/9/2021	-	Clear	girl	2.84kg	7/10,9/10	-	-
46	Sangeetha	22	primigravida	40+4	-	Reactive	LN (Labor natural)	20/9/2021	-	clear	boy	2.66 kg	7/10, 8/10	-	-
47	shankari	26	G2P1L1	40+3	-	Non reactive	Vaccuum delivery	25/9/2021	MSL/Fetal Distress	MSL	boy	3.5kg	5/10, 6/10	Birth Asphyxia	Postpartum Haemorhage
48	neela	24	primigravida	40+4	-	Reactive	LN(Labor natural)	6/10/2021	-	clear	girl	3.2kg	8/10, 9/10	-	-
49	baviya	22	primigravida	40+3	-	Reactive	LN(Labour natural)	15/10/2021	-	clear	boy	3.4kg	7/10, 9/10	-	-
50	vanitha	29	primigravida	40+4	-	Reactive	LN(labour natural)	30/10/2021	-	clear	girl	3.2 kg	8/10, 9/10	-	-

S. No.	NAME	AGE	PARITY	GESTAIONAL AGE	CO MORBIDITY	CTG	MODE OF DELIVERY	DATE OF DELIVERY	INDICATION	LIQUOR	SEX	BIRTH WEIGHT	APGAR	FETAL COMPLICATION	MATERNAL COMPLICATION
1	Ramya	24	Primigravida	40	Gestational Hypertension	NR (Non reactive)	LSCS (Caesarean)	12/6/2021	Fetal distress	Clear	boy	3.30kg	8/10,9/10	-	-
2	Saraswathy	27	Primigravida	40	-	Reactive	LN (Labor Natural)	12/6/2021	-	Clear	boy	3.350kg	8/10,9/10	-	-
3	Tamilarasi	22	Primigravida	40	-	Reactive	LN (Labor Natural)	8/9/2021	-	Clear	girl	3kg	8/10,9/10	-	-
4	Subashree	26	Primigravida	40	GDM ON MEAL PLAN	Reactive	LSCS (Caesarean)	19/4/2021	cord prolapsed thick MSL	MSL	boy	2.8kg	4/10,6/10	Birth asphyxia	Post Partum Haemorhage
5	Banupriya	27	Primigravida	40	Autoimmune thyroditis	Reactive	LN (Labor Natural)	17/5/2021	-	Clear	girl	2.660kg	8/10,9/10	-	-
6	Sivadhivya	26	Primigravida	40	seizure disorder	Reactive	LN (Labor Natural)	18/5/2021	-	Clear	boy	2.6kg	8/10,9/10	-	-
7	Punitha	20	Primigravida	40	GHTN /Anaemia	NR (Non reactive)	LSCS (Caesarean)	11/6/2021	NRCTG	Clear	boy	3kg	6/10,8/10	-	-
8	Janani	20	Primigravida	40	-	Reactive	LSCS (Caesarean)	27/5/2021	Failed induction	Clear	boy	2.980kg	8/10,9/10	-	-
9	Latha Maheshwari	27	Primigravida	40	Rh negative	Reactive	LN (Labor Natural)	11/6/2021	-	Clear	boy	2.62kg	8/10,9/10	-	-
10	Jeyashree	26	G2A1	40	Hyothyroid	NR (Non reactive)	vaccum	20/5/2021	-	Clear	boy	3.6kg	4/10,5/10	Respiratory Distress Syndrome	-
11	Sneha	20	Primigravida	40	Bronchial Asthma	NR (Non reactive)	LSCS (Caesarean)	28/5/2021	MSL/ Fetal Distress	MSL	boy	3.2kg	2/10,4/10	Respiratory Distress Syndrome	-
12	Nathiya	33	Primigravida	40	Rh negative	Reactive	LSCS (Caesarean)	4/6/2021	Non Reactive CTG / Fetal Distress	Clear	boy	2.3kg	7/10,9/10	-	-
13	Vanatatchi	22	Primigravida	40	Rh negative / GDM on Mean Plan	Reactive	vaccum	1/6/2021	-	Clear	boy	3.12KG	7/10,8/10	-	-
14	Rajeshwari	27	G2P1L1	40	Gestational Hypertension	Reactive	LN (Labor Natural)	1/6/2021	-	Clear	girl	2.94kg	7/10,9/10	-	-
15	Shahina	35	G3P1L1A1	40	Gestational Hypertension	Reactive	LN (Labor Natural)	2/6/2021	-	Clear	boy	3kg	7/10,8/10	-	-
16	Priya	21	Primigravida	40	Rh negative	Reactive	LSCS (Caesarean)	15/7/2021	Failed induction	Clear	girl	3.5kg	6/10,8/10	-	-
17	Gayathri	20	Primigravida	40	GDM ON MEAL PLAN	NR (Non reactive)	LSCS (Caesarean)	15/7/2021	MSL/ Fetal Distress	Clear	boy	2.96kg	4/10,6/10	-	-
18	Vennila	22	Primigravida	40	Gestational thrombocytopenia	Reactive	LN (Labor Natural)	26/7/2021	-	Clear	boy	3.8kg	8/10,9/10	-	-
19	Tamilselvi	27	Primigravida	40	Rh negative	Reactive	Vaccum	28/7/2021	-	Clear	girl	3.120kg	7/10,8/10	-	-
20	Jeyanthi	32	G3P1L1A1	40	Anaemia/ Oligohydramnios	Reactive	LN (Labor Natural)	28/7/2021	-	Clear	girl	2.74kg	8/10,9/10	-	-

21	Sukumari	28	Primigravida	40	Rh negative	NR (Non reactive)	LSCS (Caesarean)	1/8/2021	MSL/ Fetal Distress	Clear	boy	3.2kg	6/10,8/10	-	-
22	Monica	23	Primigravida	40	Oligohydramnios	Reactive	LN (Labor Natural)	30/7/2021	-	Clear	boy	2.59kg	7/10,8/10	-	-
23	Sindhuja	20	Primigravida	40	Oligohydramnios	Reactive	LN (Labor Natural)	31/7/2021	-	Clear	girl	3.52kg	8/10,9/10	-	-
24	Saraswathy	19	Primigravida	40	Oligohydramnios	Reactive	LSCS (Caesarean)	31/7/2021	MSL/ Fetal Distress	Clear	boy	3.18kg	7/10,8/10	-	-
25	Gayathri	28	Primigravida	40	Oligohydramnios	Reactive	LSCS (Caesarean)	31/7/2021	Failed induction	Clear	boy	3.3kg	7/10,9/10	-	-
26	Bhavani	23	G2A1	40	Rh negative	Reactive	LN (Labor Natural)	1/8/2021	-	Clear	boy	2.9kg	8/10,9/10	-	-
27	Rekha	32	Primigravida	40	Rh negative	Reactive	LSCS (Caesarean)	2/8/2021	Fetal distress	Clear	boy	3.3kg	8/10,9/10	-	-
28	Deepika	24	Primigravida	40	GDM ON MEAL PLAN	Reactive	Vaccum	3/8/2021		Clear	girl	3.8kg	6/10,8/10	-	Post Partum Haemorhage
29	Arthi	20	Primigravida	40	Rh negative	Reactive	LN (Labor Natural)	30/7/2021	-	Clear	girl	3.3kg	8/10,9/10	-	-
30	Adhilakshmi	20	Primigravida	40	APLA Positive	Reactive	LN (Labor Natural)	31/7/2021	-	Clear	boy	2.6kg	7/10,8/10	-	-
31	Tamilarasi	21	Primigravida	40	Just Adequate Liquor	Reactive	LN (Labor Natural)	16/8/2021	-	Clear	girl	2.9kg	8/10,9/10	-	-
32	Vijaya	21	Primigravida	40	GDM ON MEAL PLAN	Reactive	LSCS	18/8/2021	Failed induction	Clear	boy	3.1kg	7/10,8/10	-	-
33	Hemavatthy	24	Primigravida	40	Rh negative	Reactive	LN (Labor Natural)	23/8/2021	-	Clear	boy	2.56kg	7/10,8/10	-	-
34	Sujina	21	Primigravida	40	Rh negative	Reactive	LN (Labor Natural)	23/8/2021	-	Clear	boy	2.72kg	7/10,8/10	-	-
35	Pramila	23	G3P1L1A1	40	Rh negative	Reactive	LN (Labor Natural)	26/8/2021	-	Clear	girl	2.78kg	8/10,9/10	-	-
36	Rajeshwari	27	Primigravida	40	GDM ON MEAL PLAN	NR (Non reactive)	LSCS (Caesarean)	28/8/2021	CPD	Clear	girl	3.07kg	7/10,9/10	-	-
37	Anitha	26	Primigravida	40	Oligohydramnios	Reactive	vaccum	1/9/2021	-	Clear	boy	2.9kg	8/10,9/10	-	-
38	Revathy	21	Primigravida	40	Oligohydramnios	Reactive	LSCS	1/9/2021	fetal distress	Clear	boy	2.97kg	8/10,9/10	-	-
39	Arundathi	24	G2P1L1	40	Just Adequate Liquor	Reactive	LN (Labor Natural)	3/9/2021	-	Clear	girl	3.1kg	7/10,9/10	-	-
40	Yuvarani	23	Primigravida	40	Gestational Hypertension	Reactive	LN (Labor Natural)	12/9/2021	-	Clear	boy	2.8kg	8/10,9/10	-	-
41	sneka	20	Primigravida	40	Rh negative	Reactive	Labour natural	15/9/2021	-	Clear	boy	2.6kg	7/10, 8/10	-	-
42	sharmila	24	Primigravida	40	GDM on meal plan	Reactive	labour natural	2/10/2021	-	Clear	boy	2.75kg	8/10, 9/10	-	-
43	manjula	23	Primigravida	40	GDM on meal plan	Reactive	labour natural	15/10/2021	-	Clear	girl	3.1kg	7/10, 9/10	-	-
44	keerthika	25	primigravida	40	Rh negative	Reactive	Labour natural	20/10/2021	-	Clear	boy	3.4kg	8/10, 9/10	-	-
45	kaviya	28	G2A1	40	Rh negative	Reactive	LSCS	22/10/2021	Failed induction	Clear	girl	2.8kg	8/10, 9/10	-	-
46	varsha	24	Primigravida	40	Oligohydramnios	Non reactive	LSCS	26/10/2021	CPD	Clear	boy	3.6kg	6/10, 7/10	-	-
47	vinnodhini	27	primigravida	40	GDM on meal plan	Reactive	Labour natural	28/10/2021	-	Clear	girl	2.89kg	8/10, 9/10	-	-
48	lakshmi	24	primigravida	40	Oligohydramnios	Reactive	Labour natural	30/10/2021	-	Clear	boy	3.34kg	7/10, 8/10	-	-
49	soundarya	26	primigravida	40	Oligohydramnios	Non Reactive	LSCS	31/10/2021	Fetal distress	MSL	boy	2.77kg	5/10, 6/10	-	-
50	varshini	28	primigravida	40	Rh negative	Reactive	Labour natural	31/10/2021		Clear	boy	2.68kg	7/10, 9/10	-	-