

***A DISSERTATION ON A COMPARITIVE STUDY OF  
INDICATIONS AND FETOMATERNAL OUTCOMES IN PRIMARY  
CESAREAN SECTION IN PRIMI AND MULTI GRAVIDA***

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COLLEGE, SALEM, TAMILNADU.***

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*I hereby declare that this dissertation titled **A COMPARITIVE STUDY OF INDICATIONS AND FETOMATERNAL OUTCOMES IN PRIMARY CESAREAN SECTION IN PRIMI AND MULTIGRAVIDA***

*is a bonafide and genuine research work carried out by me under the guidance of **Prof Dr.B.JEYAMANI, M.D, D.G.O., Professor and Head of Departement, Department of obstetrics and gynecology, Government Mohan Kumaramangalam Medical College Hospital, Salem, Tamil Nadu, India.***

Date:  
Place: Salem

*Signature of the Candidate*  
DR. R.G.Yamuna

**GOVERNMENT MOHAN KUMARAMANGALAM  
MEDICAL COLLEGE & HOSPITAL**



**CERTIFICATE BY THE GUIDE**

*This is to certify that this dissertation a comparative study of indications and fetomaternal outcomes in primary cesarean section in primi and multigravida is a bonafide work done by DR. R.G.YAMUNA in partial fulfillment of the requirement for the degree of M. D. in Obstetrics and Gynecology, examination to be held in 2018.*

Date:  
Place:Salem

*Signature of the Guide*  
**Prof. Dr. B. JEYAMANI , MD, DGO.,**  
Professor and Head of Department,  
Department of Obstetrics and Gynecology,  
Government Mohan Kumaramangalam  
Medical College & Hospital,  
Salem, Tamil Nadu.

**GOVERNMENT MOHAN KUMARAMANGALAM  
MEDICAL COLLEGE & HOSPITAL**



**ENDORSEMENT BY THE HEAD OF DEPARTMENT**

*This is to certify that this dissertation titled **a comparative study of indications and fetomaternal outcomes in primary cesarean section in primi and multigravida** is a bonafide work done by **Dr. R.G.Yamuna**, under overall guidance and supervision of **Prof. Dr .B.JEYAMANI, M.D., D.G.O., Professor and Head, Department of Obstetrics and Gynecology, Government Mohan Kumaramangalam Medical College Hospital, in partial fulfillment of the requirement for the degree of M. D. in Obstetrics and Gynecology, examination to be held in 2018.***

**Date :**

**Place : Salem**

*Seal & Signature of the HOD*

**Dr. B. JEYAMANI, MD.,DGO.,**  
Professor and Head  
Department of Obstetrics and Gynecology  
Government Mohan Kumaramangalam Medical College  
Hospital, Salem, Tamil Nadu, India

**GOVERNMENT MOHAN KUMARAMANGALAM  
MEDICAL COLLEGE & HOSPITAL**



**ENDORSEMENT BY THE DEAN OF THE INSTITUTION**

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*by **Dr. R.G.Yamuna** under guidance and supervision of **Prof. Dr. B.Jeyamani , MD., DGO.,** Professor and Head of Department, Department of Obstetrics and Gynecology, Government Mohan Kumaramangalam Medical College Hospital, in partial fulfillment of the requirement for the degree of **M. D. in Obstetrics and Gynecology,** examination to be held in 2018.*

**Date :**

**Place : Salem**

*Seal Signature of the Dean*

DEAN

Government Mohan Kumaramangalam

Medical College and Hospital

Salem, Tamil Nadu, India

**GOVERNMENT MOHAN KUMARAMANGALAM**

**MEDICAL COLLEGE & HOSPITAL**



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*Date:*

*Place: Salem*

*Signature of the Candidate*

*DR. R.G.Yamuna*

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## INTRODUCTION

As the current price in caesarean delivery has profound impact on maternal and child health, there are also social and economical repercussions associated with increase in caesareans that are not yet well understood. This dissertation examined several increasingly common factors including induction of labour and advanced maternal age that might also be associated with increased risk or increased likelihood of caesarean delivery. Additionally provider characteristics and experienced information were collected via a comparative study to explore clinician level information to identify factors that cause rise in caesarean section.

As a first step to achieve this long term goal, in this dissertation several analysis done to investigate obstetric characteristics and practice patterns associated with caesarean delivery in GMKMCH, Salem on existing data sets

The background chapter presents a brief history of caesarean delivery and reviews common indications of caesarean delivery. caesarean delivery is often considered to impose some risks to the parturient with the trade off of potentially conveying benefit to the fetus. Thus this study also reviews maternal and neonatal morbidity associated with caesarean delivery as well as potential health economic impact.

Next I examined the association between advanced maternal age and caesarean section. Delayed child bearing has become increasingly common. Increase in maternal age has been associated with high risk of adverse pregnancy outcomes. Through this analysis I observed that advanced maternal age was a risk factor for caesarean section.

According to previous studies done by Sarah Jacob the incidence of primary caesarean section in multiparous is 4.3%. the most common indication for primary caesarean section in multiparous women were fetopelvic disproportion, malpresentations & positions, placenta previa, fetal distress, cord prolapsed, BOH. Around 1 in 4 primary caesarean section in multiparous women take place in second stage of labour because most of the multiparous women come to the hospital in second stage of labour.

Notably second stage surgery is technically more difficult but the fetus is at the risk of hypoxia. Related morbidity of second stage caesarean section is because it takes significantly longer time than those done in first stage.

Intra op complications were significantly more frequent when caesarean section was done in the second stage of labour because higher rates of uterine atony, extension of uterine incision and cystotomy. Fetal injury is also more common. Anesthesia complications like failed regional anesthesia, spinal headache, high spinal, chemical meningitis was also

there. The risk of postpartum death is higher after caesarean section than normal vaginal delivery.

According to Leitch and Walker the related the rise in caesarean section to a change in medical practice and concluded that although indications did not change much over time , there has been lowering in the overall threshold concerning the decision to carry out a caesarean section .

Obstetrician while deciding on a repeat section considered that caesarean section once performed has potential of resulting in an increase in obstetric hysterectomy due to conditions like placenta accreta, scar rupture extending to lateral wall of uterus, atonic pph, ventral scar hernia and the adhesions between the lower abdominal wall with uterus.

Williams preached “the excellence of an obstetrician should be gauged not by the number of caesareans which he performs, but rather by those which he does not do”.

An unintended caesarean section in a low risk group, has 8 fold higher mortality, 8-12 times higher morbidity and a higher incidence of complications subsequently.

## **AIMS AND OBJECTIVES**

The aim of this study is to assess the incidence and more common indications in primigravida and multigravida undergoing primary caesarean section, and hence help in reducing caesarean section rates wherever possible by knowing unnecessary indications.

We also study the fetomaternal outcome in both groups and thereafter evaluate where we can intervene to improve the same, and hence reduce maternal morbidity and improve fetal outcome.

## REVIEW OF LITERATURE

1. A study was conducted at People's Medical College Hospital Shaheed Benazirabad in January 2011, named changing trends in rate and indications of caesarean section. It was a comparative study, between the years 2003 and 2010, with data collected from the hospital records. The rate was 29.7% in 2003 and drastically increased to 36.6% in 2010. In both years, the section rates were more in multigravida than primi. The most common indication in both years was previous caesarean section. Other indications were dystocia, fetal distress, placenta previa. This study was consistent with other studies done at Lahore and Karachi where also there was rising incidence of caesarean sections and the most common indication being repeat caesarean.

It was concluded in the study that internal audits were very important and proper management protocols and evidence based medicine must be practiced in the hospital to decrease the rate of caesarean section.

There has been a steady rise in caesarean deliveries all around the world and a study conducted in latin America showed that 12 states had rates below 15% whereas rest 12 states had a rate above 15%.

The rates in the United States reported by Rent kow IM was 21% in 1984, which rised upto 24% in 2001. In England, the rate was 9% in

1980, which plummeted to as high as 21% in 2000. There was a similar increase in Chile from 27% to 37% from 1986- 1994. The rates were unbelievably high upto 56% and 35% in Brazil and Greece respectively in 2006.

2. The study, caesarean sections in Althawra teaching hospital studies the rates in the same for 24 months from January 2004 to December 2005 and says that caesarean section though maybe an alternative to labour natural, is not a completely safe surgery. They also studied the different complications in caesarean deliveries and had one death due to uncontrolled intra-operative bleeding. The rate was 14.5% and about 25% was for previous caesarean section. The different complications were studied and blood transfusions were required in 11.5% , most cases being placenta previa and abruption placenta. Other complications were uterine lacerations, wound infections, atony and peripartum hysterectomy. Although the rates was 14.5%, which was within WHO recommendations, there was a threefold increase compared to previous years in this study the rates for breech were 60% which was increased than in 1998, which was due to the RCOG recommendation that planned caesarean delivery is best for breech, but it also suggests to decrease the incidence with the use of external cephalic version. This study suggested that VBAC is a solution to

reduce the rates and also external cephalic version be performed to reduce the rates since breech is not an absolute indication for CS.

3. In an article in the National Journal of medical research, STUDY OF MATERNAL OUTCOME OF EMERGENCY AND ELECTIVE CAESAREAN SECTION IN A SEMI-RURAL TERTIARY HOSPITAL, the maternal morbidity was compared between elective and emergency caesarean sections and increased morbidity was present in emergency CS. It was an observational study conducted at a tertiary care hospital during a one year period.

The caesarean section rates was 26% of which about 47% had elective caesarean and 53% had emergency surgery. More multigravida were taken up in the elective surgery group whereas the emergency group had more primi gravida. The indication common in the elective caesarean was previous section whereas in the emergency CS it was fetal distress. The emergency caesarean group was associated with more intraoperative and postoperative complications. The neonatal complications was significantly higher in the emergency group as 40% compared to elective where only 9% had neonatal complications. Hence this study emphasized the importance of bringing down emergency caesarean sections by proper selection of patients for induction of labour and acceleration.



4. In a research article of sharmila G et al,conducted at *Neiluefer Medical College* Hospital thelungana as STUDY OF PRIMARY CESAREAN SECTION IN MULTIGRAVIDA to know the incidence, indication and maternal and perinatal outcome in primary caesarean section in multigravida,: It was a prospective study of over 196 cases of caesarean section done for the first time in multigravida for a period of 2 years . For all the cases,basic blood investigations were done. Special investigations like LFT, RFT were done when required and for placental localization, abruption. Intrapartum cardiotocography done in required cases. This is a prospective study undertaken to analyze 196 cases of caesareansection done for first time in multigravidae during the study period of two years. Regarding the Incidence of cesarean section, There were 6580 deliveries during this period around 1932 cesarean sections which represented 29.3% of all deliveries. Incidence of primary cesarean section in multi parous women is 3% of all deliveries.Status of booked / unbooked cases, Only 31.2% parous women had undergone regular antenatal checkup and 68.8% had not received any antenatal care. cases in multigravida women who underwent primary caesarean were ,the number of cases which was referred 84 (42.86%).coming to the various maternal indications for caesarean section, mal presentations accounted for 23.4%,followed by ante partum hemorrhage (16.8 %), fetal indications

(15.3%), medical disorders 16.5% and cephalopelvic disproportion 15.8%. Failed induction are accounted for 11.7%. In fetal indications, fetal distress accounted for 7.6% and 3.7% cases are the non stress test was non reactive. Gynaecological disorders in multigravida women who underwent primary caesarean were 32 parous women who had antenatal complications (16.3%). 126 patients having mild anemia, incidence coming upto 64.2%, 4 patients had severe nutritional anemia with hemoglobin less than 7 grams/dl. 5 patients had Antepartum eclampsia, 2 persons with chronic hypertension, 2 had Gestational diabetes. From the above study it is very clear that, many unforeseen complications are seen in woman who previously had a normal vaginal delivery. Though vaginal delivery is always safer than caesarean section, difficult vaginal delivery and obstructed labour were causing more morbidity and perinatal mortality when compared to elective caesarean section.

5 In international journal of reproduction a study of Primary caesarean section in multigravida is published by Desai E et al conducted at SBKS Medical Institute and Research Centre, Pipariya, Ta-Waghodia, according to that Caesarean delivery is one of the most commonly performed operations in recent days. Caesarean births are becoming safer. Primary caesarean section in a multipara means first caesarean section done in the patients who had delivered vaginally once or more. Mainly the baby and

the placenta were responsible for caesarean section in multipara. It was a prospective randomized study of primary caesarean sections performed in multiparous patients at Dhiraj General Hospital at the Department of Obstetrics and Gynecology. In this study analysis of the cases in relation to different factors have been done. Amongst the various indications for caesarean section in multipara, the fetal distress (25.58%) and antepartum hemorrhage (22.09%) were have the highest incidence. Previous vaginal delivery/deliveries give the patient as well as her relatives a false sense of security. There were many cases where a caesarean becomes mandatory for her. The fact is that a multipara has had one or more vaginal deliveries should be regarded as an optimistic historical fact, not as diagnostic-criteria for spontaneous delivery of the pregnancy at hand

6. In international journal of pharma and bioscience, an article of study a comparative study of caesarean section in multiparous and primigravida conducted by Anupama Y et al in KMC Mangalore Manipal University to compare the indications for which caesarean section done in multipara and primipara, to compare the maternal morbidity and mortality, to study the incidence of perinatal mortality and to correlate the birth weight and multiparity in 100 patients. The study was conducted for a period of 1 year 2015-2016, in KMC Hospital Mangalore, Karnataka. Among them the incidence of caesarean section is 48.4%. Most common age group is 26-

30Yrs age group in multiparous women 16 (32%) and in primiparous were of age 20-25 yrs 14 cases ( 28%)of primi and 11 case (22%) of multies had underwent elective caesarean section compared to 28 cases (56%) of primis. 39 cases (78%) of multies had emergency caesarean section as compared to 22 cases (44%) of primis. Most of caesarean section in multiparous are performed for maternal indication.when incidence of elective and emergency LSCS in multi and primi were compared and it was found to be very highly significant ( $p=0.0005$ ). Among them grand multi-6cases, muliti-5 and primiparous 12 cases.Cephalopelvic disproportion is the more common indication in primiparous women. Hypertension and anaemia are commonly associated with multiparous women. Preeclamptic toxemia and anemia were common in primiparous women are common. It was concluded that women who had previous uneventful labours, may have different complications during subsequent pregnancy and due importance has to be given to each pregnant mother.

A study in FETOMATERNAL OUTCOME IN BREECH PREGNANCY IN PRIMIGRAVIDA AT TERM in Baroda Medical college at Vadodara by Modi A et al. According to that breech presentation is the commonest of all mal presentations. Incidence of breech 1 in 5 at 28 weeks, however before the onset of labour fetus usually turn spontaneously to a cephalic presentation. So it persists in only 3-4% of singleton

deliveries. This study is to determine the incidence of breech presentation, etiological factors responsible for full term breech presentation and to study factors affecting mode of delivery. This is also to study the maternal and perinatal morbidity in breech presentation and to compare the perinatal morbidity and mortality with vaginal delivery against cesarean section. It is a prospective case study which was carried out in department of obstetrics and gynecology, Shree Sayaji General hospital, Vadodara from 2010 to 2011. Out of 2711 in study period 215 (7.9%) are breech presentation, out of which 117 (4.3%) are primigravida. Among 100 patients, 27 delivered vaginally and 73 by cesarean delivery. Neonatal morbidity for patients who are delivered vaginally is 29.6% and neonatal mortality was 1%. But there is no neonatal morbidity or mortality for patients delivered by cesarean section. They have concluded that the dilemma is increased especially because of consumer protection act for mode of delivery. However whatever be the mode of delivery, our aim is to improve the perinatal result and minimum trauma to mother

8. An analysis by Muhammed S et al titled **AS TRIPLE P PROCEDURE FOR MORBIDLY ADHERENT PLACENTA: ANALYSIS OF UTERINE REMODELING AFTER 6 WEEKS** in which the incidence of morbidly adherent placenta is increasing recently reflecting the rise of caesarean deliveries. Placenta percretae are associated with significant maternal mortality and morbidity. Conservative management (intentional retention

of placenta) and serial monitoring of BHCG is associated with increased risk of sepsis and delayed hysterectomy due to secondary postpartum haemorrhage.

Triple P Procedure for morbidly adherent placenta involves peri-operative placental localization, pelvic devascularization, placental non separation and excision of the entire myometrium with morbidly adherent placenta and reconstruction of the uterine wall. The aim of this study is to assess the uterine remodelling in women who have undergone Triple P Procedure at six weeks post delivery and to assess the resorption any morbidly adherent placental tissue that is left in situ (i.e. invading the bladder) at the time of surgery by sonographic and biochemical assessment. It is a retrospective analysis of twenty nine women who underwent Triple P Procedure between 2010-2014 at St George's Hospital, London. Serum BhCG is measured on the day of surgery and then on third postoperative day and at 6 weeks post delivery. All patients have a follow-up scan at six weeks postpartum in which length of the uterine cavity, myometrial thickness and presence of retained placental tissue which invading the urinary bladder and was intentionally left behind all are assessed by a transvaginal scan. Postoperative assessment of uterine measurements revealed a remarkable remodelling capacity of a normal uterine cavity inspite of myometrial excision.

The incidence of the morbidly adherent placenta is increasing worldwide, due to the rise in caesarean sections. Planned preterm cesarean hysterectomy with the placenta left in situ is still considered the reference treatment for placenta percreta. One of the main concerns during the operative procedure is risk of severe hemorrhage. To reduce the morbidity associated with the morbidly adherent placenta several adjuvant therapies and different methods of treating these patients have been performed. Their objective was to provide sufficient evidence in order to make a possible comparison in terms of hemorrhage between each treatment described in the literature.

The cesarean hysterectomy without any adjuvant therapy was the treatment with the greatest blood loss, reporting blood losses greater than 5L, with a maximum of 17L.

Although the results are slightly better with the cesarean hysterectomy with occlusion balloons in the internal iliac arteries (5 articles out of 13 with blood losses greater than 5L), the morbidity was still very high with this technique, reporting total blood loss of 15L. With the conservative treatment, by leaving the placenta in situ, with or without adjunctive therapies blood losses greater than 5L during the cesarean section, with a maximum of 16L. The uterine artery embolization is mainly performed as an adjuvant to conservative treatment (leaving placenta in

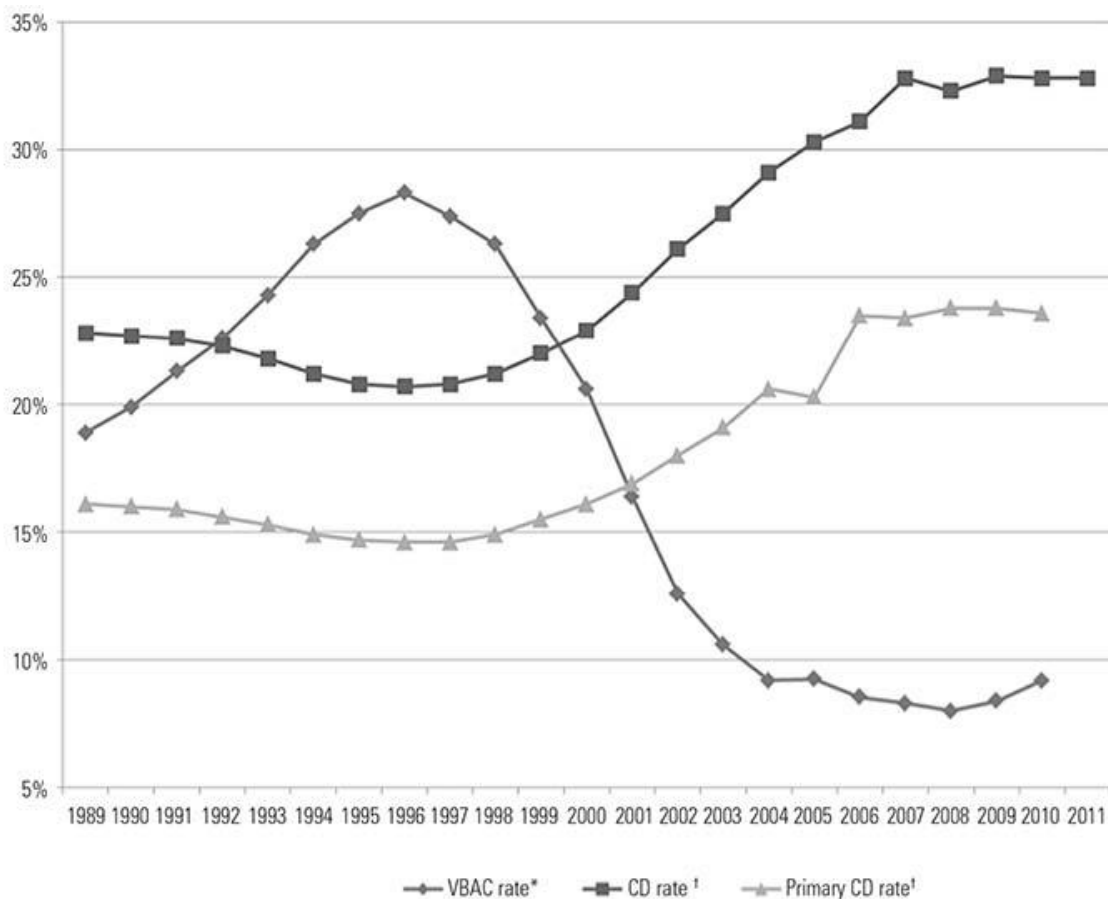
situ), reporting blood losses greater than 5L. Lastly, regarding the caesarean hysterectomy with balloon occlusion of the common iliac arteries and the conservative surgery - resection of the affected myometrium, although the results look attractive, the literature available is still scarce to provide definitive conclusions. They have concluded that notwithstanding the efforts made to reduce the morbidity of the placenta accreta the results are still far from the ideal. The best results seem to be associated with the uterine artery embolization when performing a conservative procedure, with the cesarean hysterectomy with balloon occlusion of the common iliac arteries and the conservative surgeries providing encouraging results. Nonetheless, it is important to take into consideration other variables (like infectious complications, technical skills, available equipment, long-term follow-up and future pregnancy desire) when choosing the best treatment in each centre.

According to ACOG document developed with assistance of Aaron et al, In 2011, one in three women who gave birth in the United States by cesarean delivery. Cesarean birth may be life-saving for the fetus, the mother, or both in certain cases. However, the rapid increase in cesarean birth rates from 1996 to 2011 without clear evidence of concomitant reduction in maternal or neonatal morbidity or mortality raises significant concern that cesarean delivery is overused. Variation in the rates of



nulliparous, term, singleton, vertex cesarean births also implies that clinical practice patterns affect the number of cesarean births performed. The most common indications for primary cesarean delivery are, in order of frequency, labor dystocia, abnormal or indeterminate (formerly, nonreassuring) fetal heart rate tracing, fetal malpresentation, multiple gestation, and suspected fetal macrosomia. Safe reduction of the rate of primary cesarean deliveries needs different approaches for each of these, as well as other, indications.

For example, it is necessary to revisit the definition of labor dystocia because recent data show that contemporary labor progresses at a rate substantially slower than what was historically taught. Additionally, improved and standardized fetal heart rate interpretation and management may have an effect. Increasing women's access to nonmedical interventions during labor, such as continuous labor and delivery support, also has been shown to reduce cesarean birth rates. External cephalic version for breech presentation and a trial of labor for women with twin gestations when the first twin is in cephalic presentation are other 1 examples of interventions that can contribute to the safe lowering of the primary cesarean delivery rate.



**Fig. 1.** U.S. delivery rates, 1989–2011. Data from National Vital Statistics. Abbreviations: CD, cesarean delivery; VBAC, vaginal birth after cesarean delivery. \*Percent of women who have a vaginal birth after prior cesarean delivery. †Rate based on total number of deliveries. (Data from Martin JA, Hamilton BE, Ventura SJ, Osterman MJ, Mathews TJ. Births: final data for 2011. Natl Vital Stat Rep 2013;62(2):1–90.)

<b>Table 1. Risk of Adverse Maternal and Neonatal Outcomes by Mode of Delivery</b>		
<b>Outcome</b>	<b>Risk</b>	
<i>Maternal</i>	<i>Vaginal Delivery</i>	<i>Cesarean Delivery</i>
Overall severe morbidity and mortality <sup>*†</sup>	8.6%	9.2%*
	0.9%	2.7%†
Maternal mortality <sup>‡</sup>	3.6:100,000	13.3:100,000
Amniotic fluid embolism <sup>§</sup>	3.3–7.7:100,000	15.8:100,000
Third-degree or fourth-degree perineal laceration <sup>  </sup>	1.0–3.0%	NA (scheduled delivery)
Placental abnormalities <sup>¶</sup>	Increased with prior cesarean delivery versus vaginal delivery, and risk continues to increase with each subsequent cesarean delivery.	
Urinary incontinence <sup>#</sup>	No difference between cesarean delivery and vaginal delivery at 2 years.	
Postpartum depression <sup>  </sup>	No difference between cesarean delivery and vaginal delivery.	
<i>Neonatal</i>		
	<i>Vaginal Delivery</i>	<i>Cesarean Delivery</i>
Laceration <sup>**</sup>	NA	1.0–2.0%
Respiratory morbidity <sup>**</sup>	< 1.0%	1.0–4.0% (without labor)
Shoulder dystocia	1.0–2.0%	0%

It is difficult to isolate the morbidity caused specifically due to route of delivery. For example, in one of the few randomized trials of approach to delivery, women with a breech presentation were randomized to undergo planned cesarean delivery or planned vaginal delivery, although there is crossover in both treatment arms. In this study, at 3-month follow-up, women are more likely to have urinary, but not fecal incontinence if they had been randomized to the planned vaginal delivery group. However, this difference was no longer significant at 2-year follow-up. Because of the size of this randomized trial, it is not powered to look at other measures of maternal morbidity.

A large population based study from Canada found that the risk of severe maternal morbidities—like hemorrhage that requires hysterectomy or transfusion, uterine rupture, anesthetic complications, shock, cardiac arrest, acute renal failure, assisted ventilation, venous thromboembolism, major infection, or in-hospital wound disruption or hematoma—has increased threefold for cesarean delivery as compared with vaginal delivery (2.7% versus 0.9%, respectively). There were also concerns regarding the long-term risks associated with cesarean delivery, particularly those were associated with subsequent pregnancies. The incidence of placental abnormalities, such as placenta previa, subsequent pregnancies increases

with each subsequent cesarean delivery, from 1% with one prior cesarean delivery to almost 3% with three or more prior cesarean deliveries.

In addition, an increase in number of prior cesareans was associated with the morbidity of placental previa: after three cesarean deliveries, the risks that as placenta previa will be complicated by placenta accreta is nearly 40% . This combination of complications not only significantly increases maternal morbidity but also increases the risk of adverse neonatal outcomes, such as neonatal intensive care unit admission and perinatal death . Thus, although the initial cesarean delivery is associated with some increases in morbidity and mortality, the downstream effects were even greater because of the risks incidence in repeat cesareans in future pregnancies

In order to understand the degree to which cesarean deliveries will be preventable, it is important to know why cesareans are performed. In a 2011 population-based study, the most common indications for primary cesarean delivery included, in order of frequency, labor dystocia, abnormal or indeterminate (formerly, nonreassuring) fetal heart rate tracing, fetal malpresentation, multiple gestation, and suspected fetal macrosomia . Arrest of labor and abnormal or indeterminate fetal heart rate tracing cause for more than one half of all primary cesarean deliveries in the study population.

Safe reduction of the rate of primary cesarean deliveries requires different approaches for each of the indications. Improved and standardized fetal heart rate interpretation and management also have an effect. Increasing women's access to nonmedical interventions during labor, such as continuous labor support, also have some effect to reduce cesarean birth rates. External cephalic version for breech presentation and a trial of labor for women with twin gestations when the first twin is in cephalic presentation also will contribute to the lowering of the primary cesarean delivery rate.

*This study analysed what organizational actions are really necessary for the primary cesarean delivery rate to decline safely*

- A number of approaches were needed to reduce the primary cesarean delivery rate, which in turn would lower the repeat cesarean delivery rate.
- Although national and regional organizations only can take the lead in setting the agenda regarding the safe prevention of primary cesarean delivery, such an agenda will have to be prioritized at the level of practices, hospitals, primary health care systems, and, of course, patients.
- The local culture and attitudes of obstetric care providers were kept on changing regarding the issues involved in cesarean delivery

therefore reduction also will be challenging. Several studies have demonstrated the feasibility of using systematic interventions to reduce the rate of cesarean delivery across indications and across community and academic settings.

- A 2007 ACOG review conclude that the cesarean delivery rate was reduced by 13% when audit and feedback were used exclusively but decreased by 27% when audit and feedback were used as part of a multifaceted intervention, which involved second opinions and culture changes.
- Systemic interventions, therefore, was an important strategic opportunity for reducing cesarean delivery rates. However, the specific interventional approaches are yet to be studied in large, prospective trials, thus specific recommendations cannot be made.
- A necessary component of culture change will reform because the practice environment is extremely vulnerable to external medico-legal pressures.
- A broad range of evidence based approaches are necessary including changes in individual clinician practice patterns, development of clinical management guidelines from a broad range of organizations, implementation of systemic approaches at the organizational level

and regional level, will ensure that unnecessary cesarean deliveries are reduced.

- In addition, individuals, organizations, and governing bodies has to ensure that research is conducted to provide a better knowledge base to guide decisions regarding cesarean delivery and to encourage policy changes that safely lower the rate of primary cesarean delivery.



## **NEED FOR THE STUDY**

Caesarean section rate had risen to 29.1%. primary caesarean section rate increases upto 20.6%, highest national rates ever reported. The indications for performing caesarean section have changed a lot in recent years and keep changing for varying circumstances. The present study focuses on the indications for caesarean section in multiparous (who delivered vaginally earlier) and primi gravida. The caesarean section done in second stage will also be included for their maternal and fetal outcome.

Recent increase in primary caesarean section rates are consequences of change in maternal characteristics & obstetric practice. Obstetrical practice which has altered due to changes in concerns related to fetal and maternal safety has also contributed to rise in caesarean section rate. Delivery by caesarean section is associated with increase in maternal mortality and morbidity. It has also been well documented that rise in caesarean section rates is not responsible for dramatic improvement in perinatal mortality.

## **MATERIALS AND METHOD**

- **SOURCE OF DATA;** Patients admitted in Government Mohan Kumaramangalam Medical College, Salem, undergoing primary cesarean section, between July 2016 and June 2017.
- **STUDY DESIGN;** Randomized Controlled Trial
- **SAMPLE SIZE;** 200 women 18-30yrs of age undergoing primary caesarean section.
- **PLACE OF STUDY;** GMKMCH,Salem.
- **Period of study;** July 2016-June 2017
- **Consent;** written informed consent from patient
- 200 patients aged 18-30 years pregnancy >28wks undergoing primary caesarean section (100 will be primi and 100 will be multigravda) will be included in this prospective, randomized, study after obtaining approval of the local ethical committee and an informed written consent from all participants
- **INCLUSION CRITERIA;** - Women between 18 -30years
  - with > 28wks of gestation
  - without previous uterine surgeries

- **EXCLUSION CRITERIA;**

- patient refusal

- previous lscs

- previous hysterotomy

- previous myomectomy

- deterioration of renal/liver function

**study population will be divided into two groups;**

- group 1; 100 primigravida undergoing caesarean section
- group 2; 100 multigravida undergoing primi caesarean section
- On admission, thorough clinical examination including general physical examination, built, nourishment, Ht, weight, BP, pulse along with pallor, pedal edema is noted.
- CVS, RS examination done
- abdominal examination done for height of uterus in weeks, lie of the fetus, presentation, position of the fetus, fetal heart rate.
- blood investigations including CBC,RBS, RFT, LFT, urine routine evaluated. USG with doppler done for fetalwell being.

- maternal vitals will be monitored by ½ hrly PTR, 2 hrly BP chart.

Preoperatively and postoperatively

INDICATIONS WILL BE COMPARED IN BOTH GROUPS

- fetal distress
- nonprogression of labour
- malpresentation
- CPD
- APH
- failed induction
- obstructed labour
- others

maternal outcome in both groups including ,

- % of elective and emergency caesarean section,
- PPH
- uerperal infection ,
- deep vein thrombosis
- postop blood transfusion

FETAL OUTCOME IN BOTH GROUPS ARE COMPARED INCLUDING

- APGAR scores,
- Incidence of NICU admissions will be compared between both groups studied

## RESULTS

### **Statistical methods:**

Gravida, Age, Indications like Fetal distress, CPD, Malpresentation, Placenta previa, failed induction, non progression of labour, obstructed labour, IUGR, severe oligohydrannios were compared. Maternal outcomes like PPH, Blood transfusions postoperatively, post op fever/Wound sepsis, Newborn APGAR and NICU admissions are considered as outcome variables. Primigravida and multigravida who are all underwent caesarean section for the first time were consider as primary explanatory variable. Demographic age, was consider as other explanatory variable.

**Descriptive analysis:** Descriptive analysis was carried out by mean and standard deviation for quantitative variables, frequency and proportion for categorical variables. Data was also represented using appropriate diagrams like bar diagram, pie diagram and box plots. Both the study groups , were compared with respect to all the potential confounding baseline variables.

The association between categorical explanatory variables and quantitative outcome was assessed by comparing the mean values. The mean differences along with their 95% CI were presented. Independent sample t-test. Association between quantitative explanatory and outcome

variables was assessed by calculating person correlation coefficient and the data was represented in a scatter diagram.

**Categorical outcome:**

The association between explanatory variables and categorical outcomes was assessed by cross tabulation and comparison of percentages. Chi square test was used to test statistical significance.

P value  $< 0.05$  was considered statistically significant. IBM SPSS version 22 was used for statistical analysis.

**TABLE 1****ASSOCIATION OF STUDY GROUP WITH AGE OF STUDY  
POPULATION (N=100)**

Age	Primi	Multi
$\leq 25$	54	21
26 – 30	40	29
31 – 35	5	47
> 35	1	3
Total	100	100
Mean	24.64	29.4
SD	3.757	4.144
P' Value	<0.001 significant	

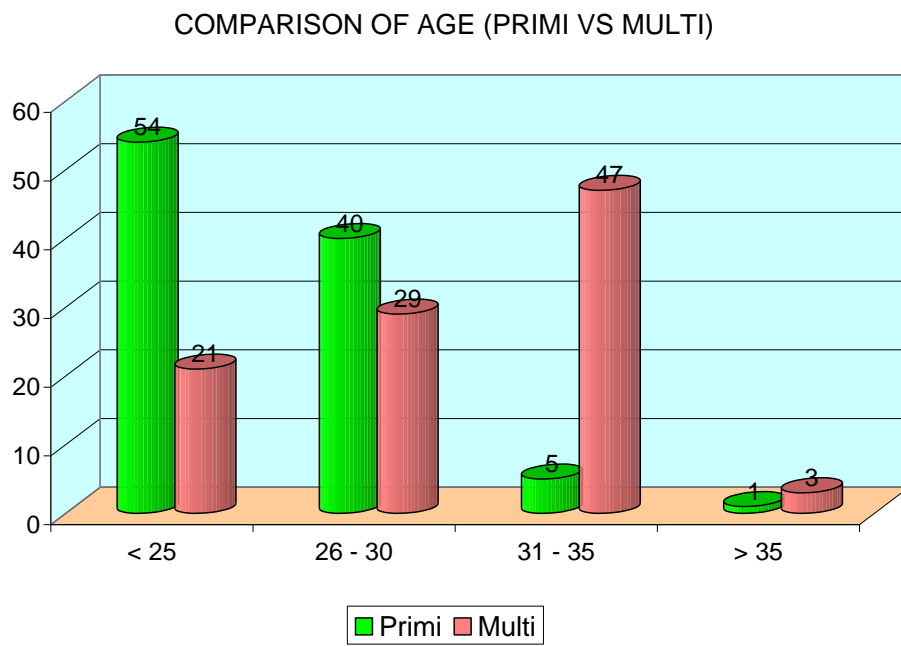
Mean age group of primi is 24.6 and in multipara it is 29.4. maximum numbers of primi are in <25 yrs, and multipara in 31-35 yrs.

P value is <0.001 so it is statistically significant.



**FIGURE 1**

**BAR CHART OF COMPARING AGE OF TWO STUDY GROUPS**



## ASSOCIATIONS OF INDICATIONS IN STUDY GROUPS

**TABLE 2**

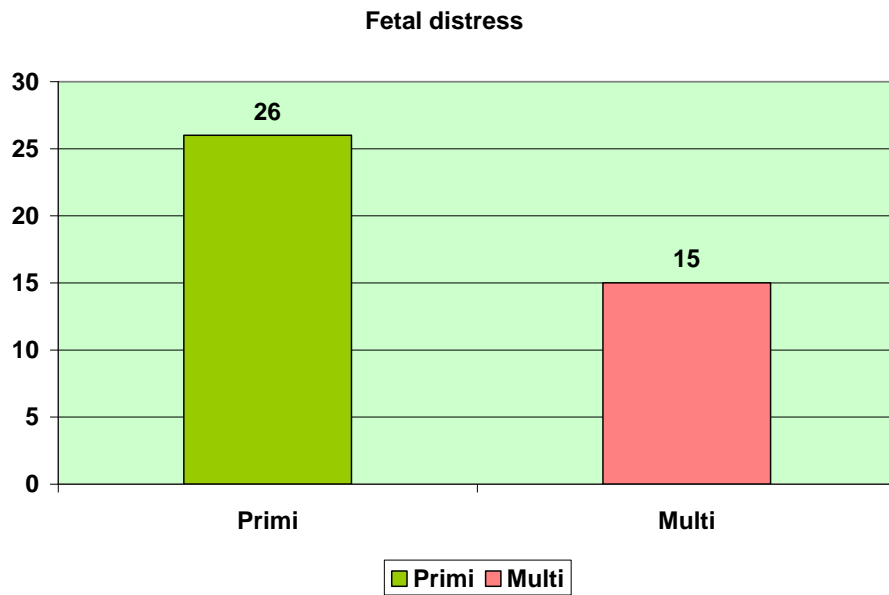
### ASSOCIATION OF STUDY GROUP WITH FETAL DISTRESS

INDICATION	Primi	Multi
Fetal distress	26	15
Other than fetal distress	74	85
Total	100	100
Chi square P' value	0.008 Not significant	

Around 26% of Primigravida and 15% of multigravida were underwent primary caesarean section rate for the indication of fetal distress. The Chi –square P value is 0.008 which is statistically not significant.

**FIGURE 2**

**BAR CHART OF COMPARISON OF FETAL DISTRESS AS AN INDICATION IN STUDY GROUPS**



**TABLE 3**

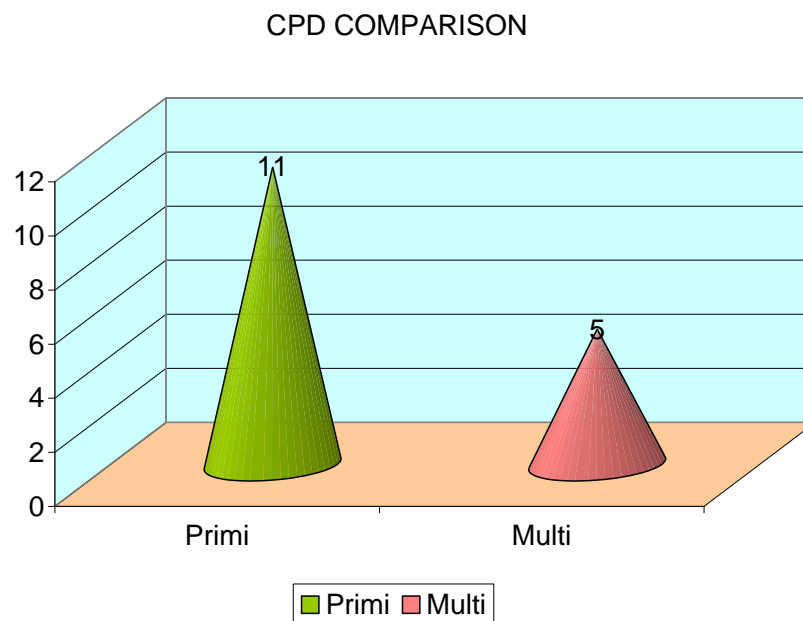
**ASSOCIATION OF STUDY GROUP WITH CPD**

INDICATION	Primi	Multi
CPD	11	5
Other than CPD	89	95
Total	100	100
Chi square P'value	0.193	Not Significant

In study group CPD contributes as an indication in 11% of primi and 5% of multigravida who underwent primary caesarean section. P value is 0.193 and it is not significant statistically

**FIGURE 3**

**BAR CHART OF COMPARISON OF CPD AS AN INDICATION  
IN STUDY GROUPS**



**TABLE4**

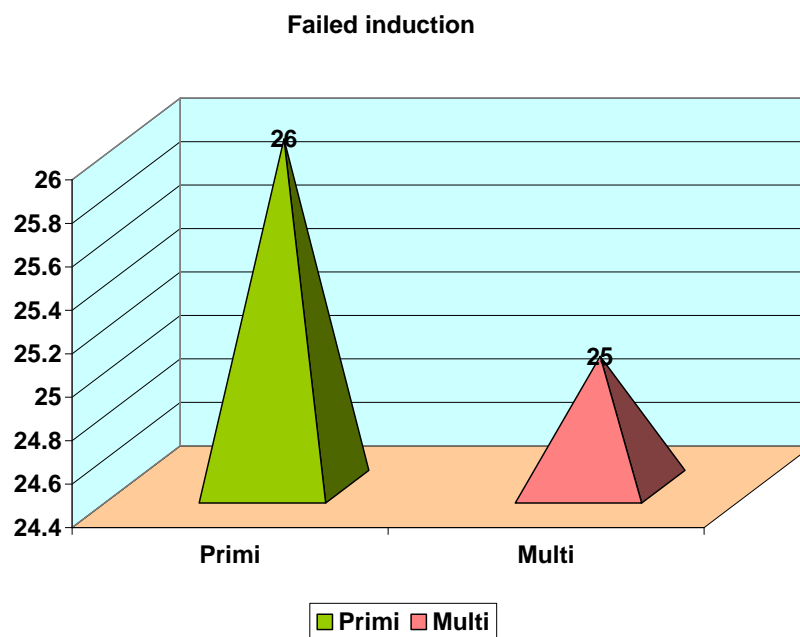
**ASSOCIATION OF STUDY GROUP WITH FAILED INDUCTION  
OF LABOUR AS AN INDICATION**

INDICATION	Primi	Multi
failed induction	26	25
Other than failed induction	74	75
Total	100	100
Chi square P' value	0.968	Not Sig

Failed induction contributes almost equal number of caesarean section as indication both in primi and multipara. P value is 0.968 which is statistically not significant.

**FIGURE 4**

**BAR CHART OF COMPARISON OF FAILED INDUCTION AS  
AN INDICATION IN STUDY GROUPS**



**TABLE 5**

**ASSOCIATION OF STUDY GROUP WITH NONPROGRESSION  
OF LABOUR AS AN INDICATION(N=100)**

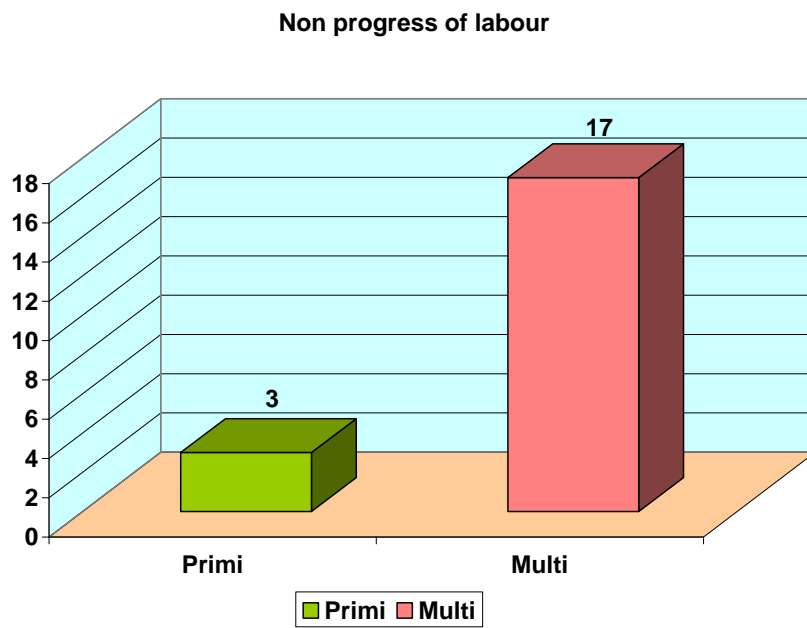
INDICATION	Primi	Multi
non progress of labour	3	17
Other than non progression of labour	97	83
Total	100	100
Chi square P' value	0.002	Significant

Non progression of labour contributes only 3% in primi, but it is significantly high in multigravida 17%.P value is 0,002 it is statistically significant.



**FIGURE 5**

**ASSOCIATION OF STUDY GROUP WITH NONPROGRESSION  
OF LABOUR AS AN INDICATION**



**TABLE 6**

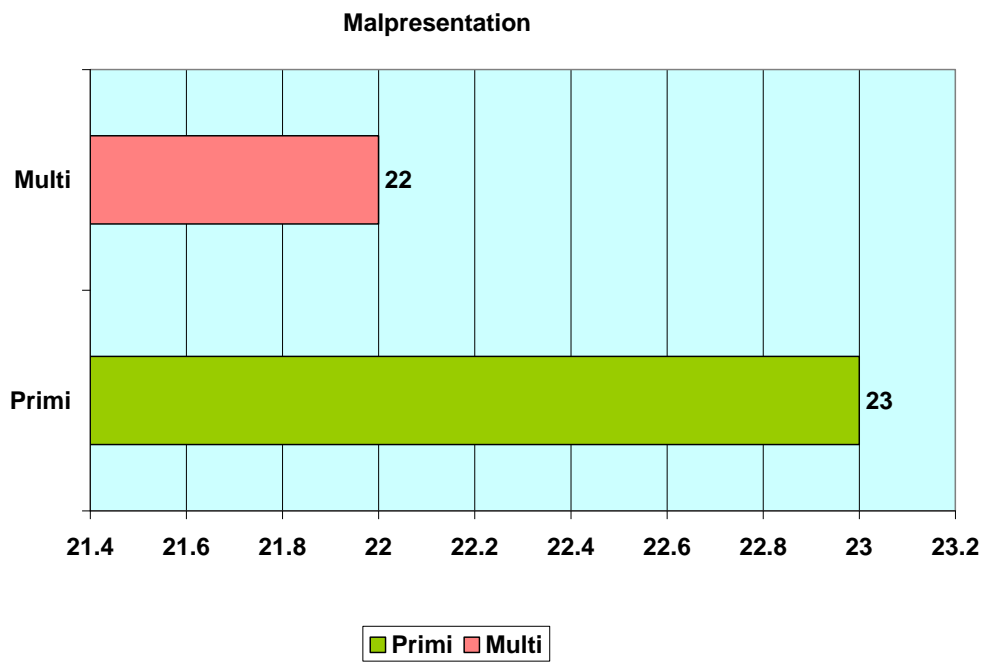
**ASSOCIATION OF STUDY GROUP WITH MALPRESENTATION  
OF LABOUR AS AN INDICATION**

INDICATION	Primi	Multi
malpresentation	23	22
Other than malpresertation	77	78
Total	100	100
Chi square P' value	1.000	Not Sig

Malpresentation contributes 23% of primi gravida and 22% of multi gravida. P value is 1.000 so statistically non significant .

**FIGURE 6**

**ASSOCIATION OF STUDY GROUP WITH MALPRESENTATION  
OF LABOUR AS AN INDICATION**



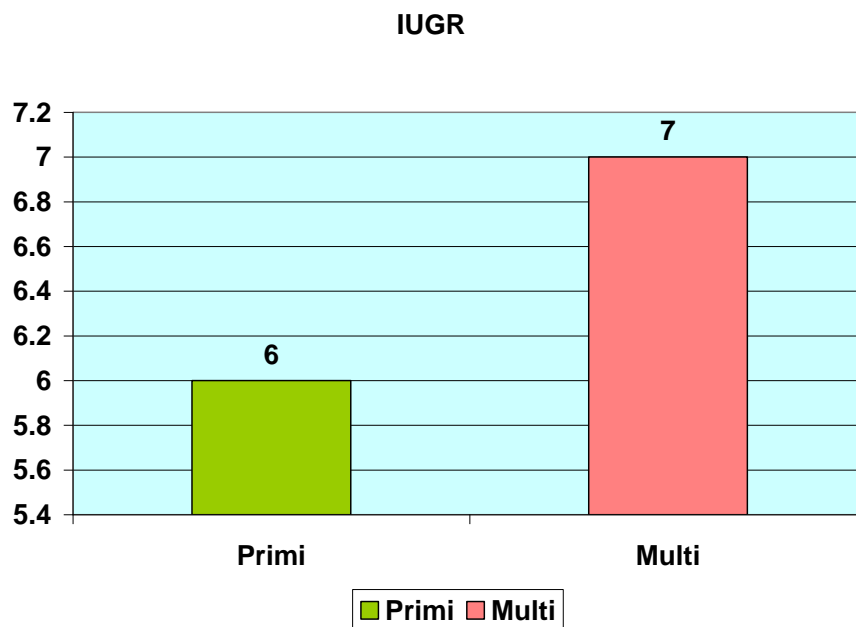
**TABLE 7**  
**ASSOCIATION OF STUDY GROUP WITH IUGR AS AN**  
**INDICATION**

INDICATION	Primi	Multi
IUGR	6	7
Other than IUGR	94	93
Total	100	100
Chi square P' value	0.968	Not significant

Among the study groups IUGR contributes equally as indication in both primi gravida and multigravida undergoing primary caesarean section. P value is 0.968 statistically not significant.

**FIGURE 7**

**ASSOCIATION OF STUDY GROUP WITH IUGR AS AN INDICATION**



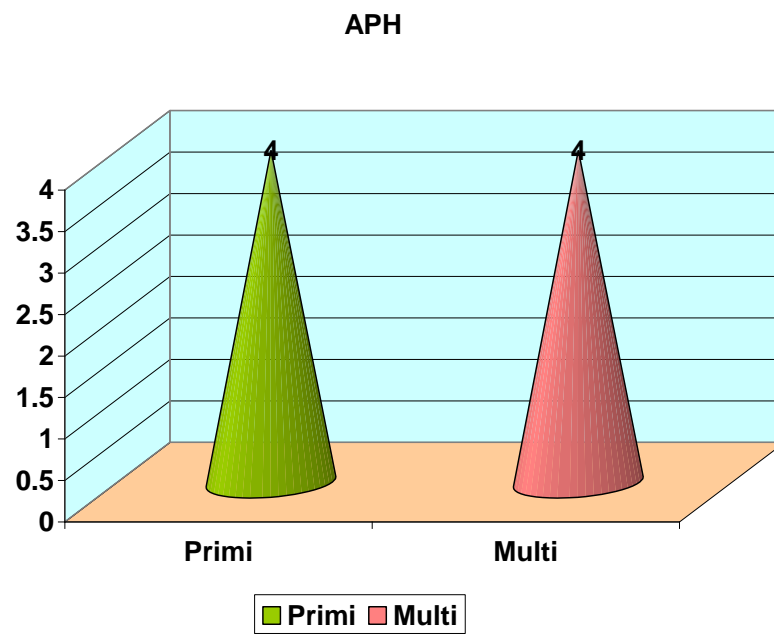
**TABLE 8**  
**ASSOCIATION OF STUDY GROUP WITH APH AS AN**  
**INDICATION**

INDICATION	Primi	Multi
APH	4	4
Other than APH	96	96
Total	100	100
Chi square P' value	0.718	Not significant

Among the study groups APH contributes equally as indication in both primi gravida and multigravida undergoing primary caesarean section. P value is 0.968 statistically not significant.

**FIGURE 8**

**ASSOCIATION OF STUDY GROUP WITH APH AS AN  
INDICATION**



**TABLE 9**

**ASSOCIATION OF STUDY GROUP WITH SEVERE  
OLIGOHYDRAMNIOS AS AN INDICATION**

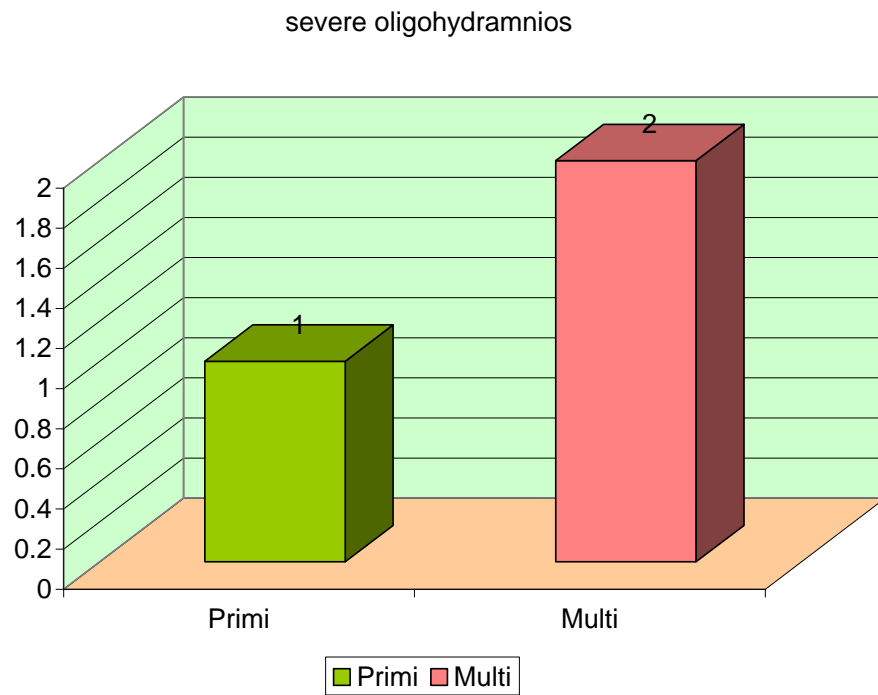
INDICATION	Primi	Multi
severe oligohydramnios	1	2
NIL	99	98
Total	100	100
Chi square P' value	0.968	Not sig

Among the study groups severe oligohydramnios contributes equally as indication in both primi gravida and multigravida undergoing primary caesarean section. P value is 0.968 statistically not significant.



**FIGURE 9**

**ASSOCIATION OF STUDY GROUP WITH SEVERE  
OLIGOHYDRAMNIOS AS AN INDICATION**



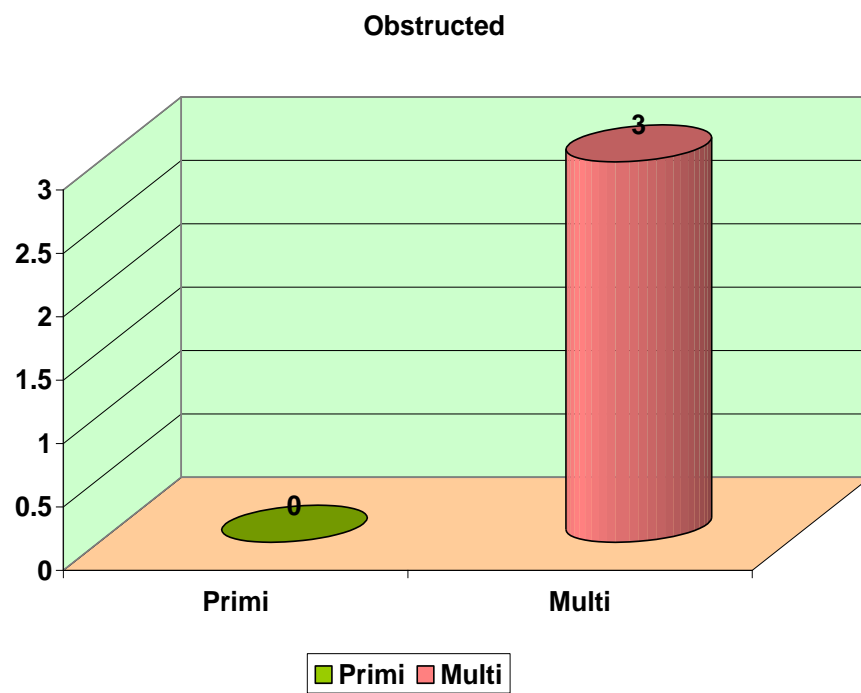
**TABLE 10**

**ASSOCIATION OF STUDY GROUP WITH OBSTRUCTED  
LABOUR AS AN INDICATION**

INDICATION	Primi	Multi
Obstructed labour	0	3
Other than Obstructed labour	100	97
Total	100	100
Chi square P' value	0.245	Not significant

**FIGURE 10**

**ASSOCIATION OF STUDY GROUP WITH OBSTRUCTED  
LABOUR AS AN INDICATION**



**COMPARISON OF MATERNAL OUTCOMES OF PRIMARY  
CAESAERIN SECTION IN PRIMI AND MULTIGRAVIDA**

**TABLE 11**

**ASSOCIATION OF STUDY GROUP WITH PPH AS A  
COMPLICATION**

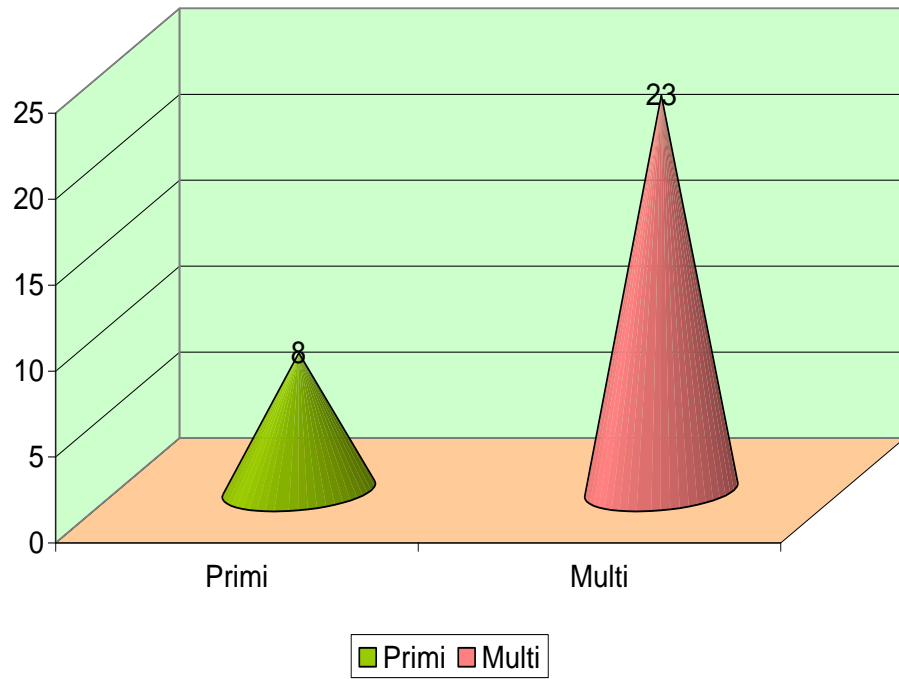
MATERNAL OUTCOME	Primi	Multi
PPH	8	23
NIL	92	77
Total	100	100
Chi square P' value	0.006	Significant

The incidence of PPH is significantly high in multigravida compared to primi this is because of most of the caesarean section in multigravida

were done during second second stage of labour .P value is 0.006 hence statistically significant.

**Figure – 11**

MATERNAL OUTCOME - PPH



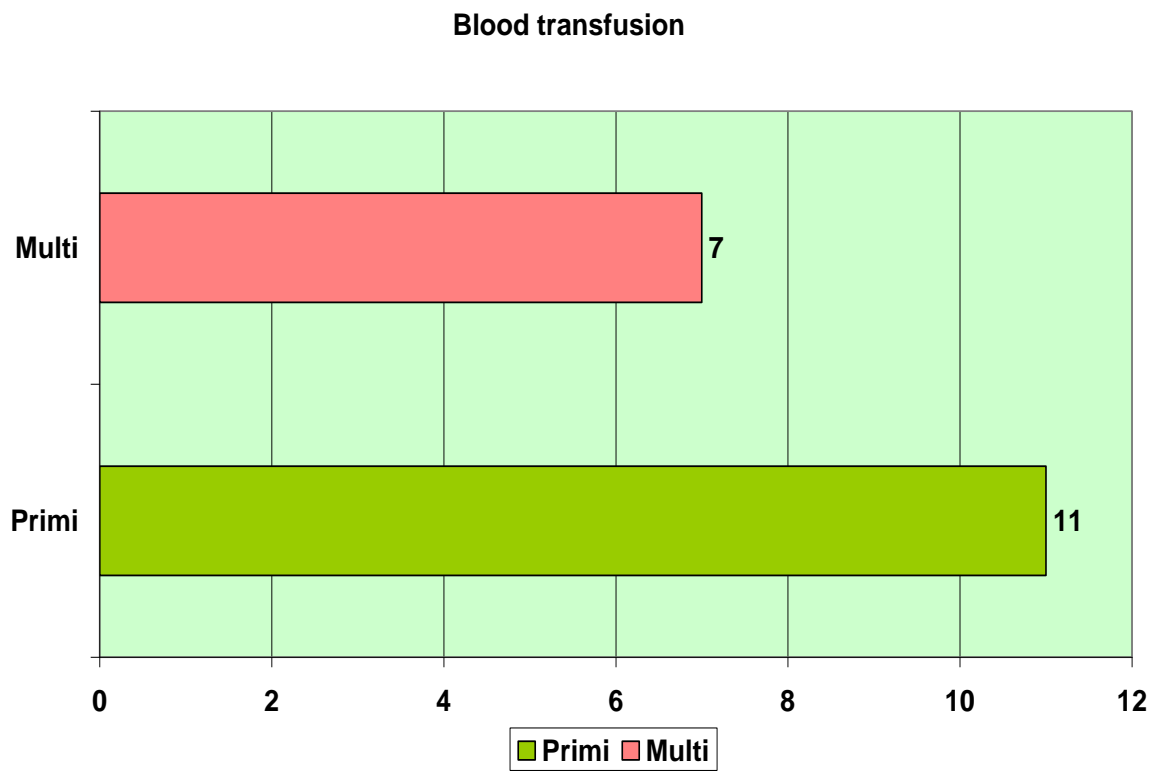
**TABLE 12**

**ASSOCIATION OF STUDY GROUP WITH BLOOD  
TRANSFUSION AS A COMPLICATION**

MATERNAL OUTCOME	Primi	Multi
blood transfusion	11	7
No. of patients not underwent blood transfusion	89	93
Total	100	100
Chi square P' value	0.459	Not sig

No significant difference in the incidence of postoperative anemia in both primi gravida and multigravida undergoing primary caesarean section. P value is 0.459 is statistically not significant.

**Figure – 12**





**TABLE 13**

**ASSOCIATION OF STUDY GROUP WITH WOUND  
SEPSIS/FEVER AS A COMPLICATION**

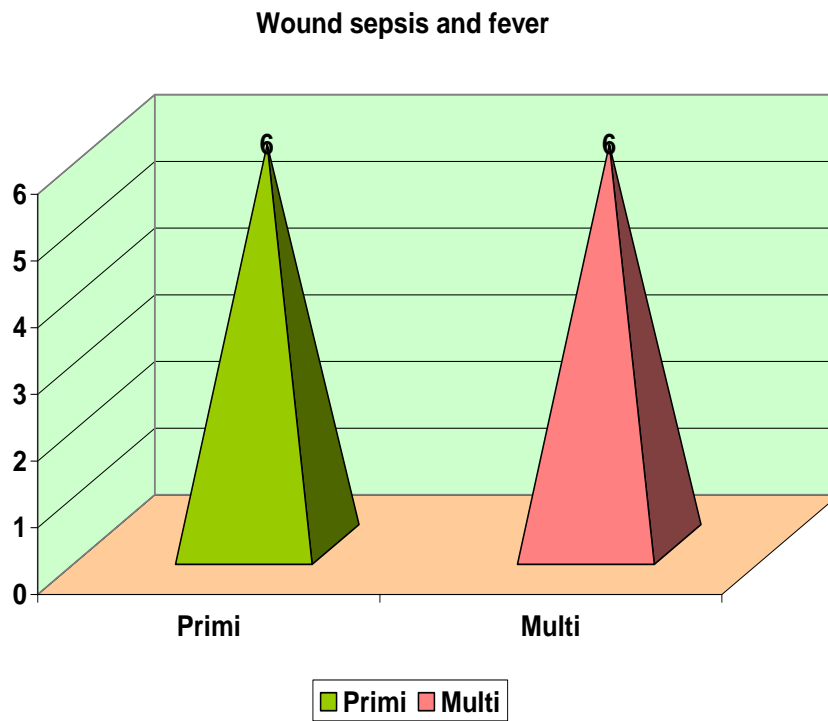
MATERNAL OUTCOME	Primi	Multi
wound sepsis and fever	6	6
No. Of patients wound sepsis and fever	94	94
Total	100	100
Chi square P' value	0.776	Not significant

Wound sepsis incidence is same in both primi gravida and multigravida undergoing primary caesarean section. P value is 0.776 is statistically not significant

**FIGURE 13**

**ASSOCIATION OF STUDY GROUP WITH WOUND**

**SEPSIS/FEVER AS A COMPLICATION**



## FETAL OUTCOMES

TABLE 14

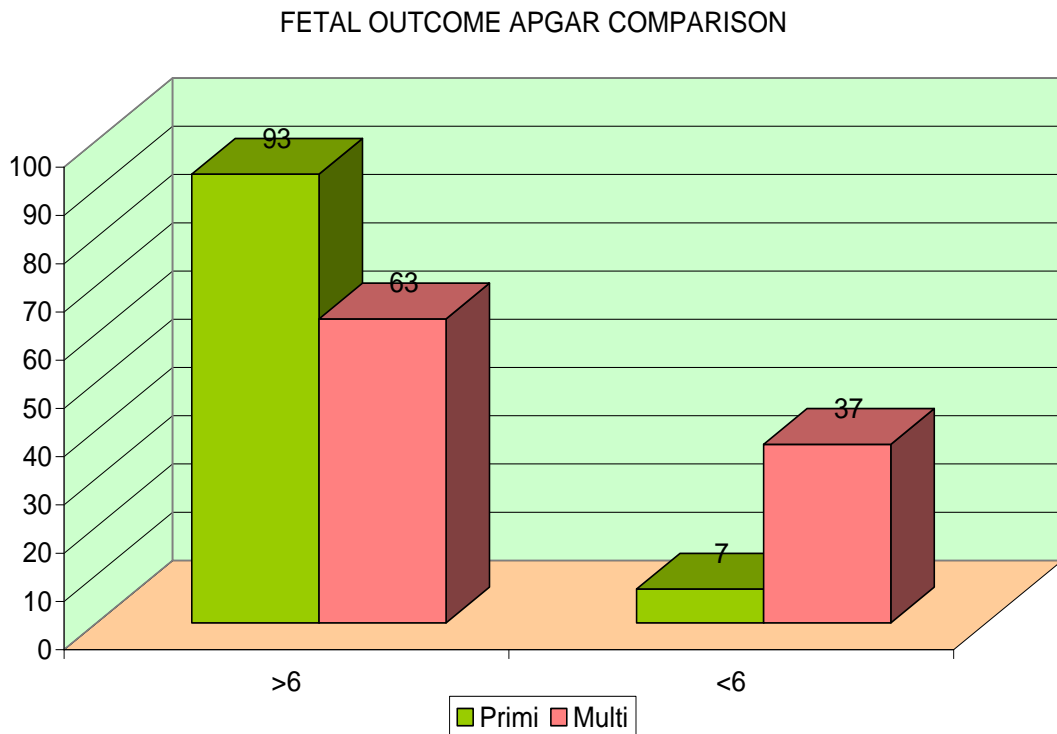
COMPARISON OF APGAR IN NEWBORN BORN TO BOTH  
PRIMI GRAVIDA AND MULTIGRAVIDA UNDERGOING  
PRIMARY CAESAREAN SECTION.

FETAL OUTCOME(Apgar)	Primi	Multi
>6	93	63
<6	7	37
Total	100	100
Chi square P' value	<0.001	Significant

Among the study groups fetal distress is more prevalent in multigravida underwent primary caesarean section when compared to primi gravid. It is significantly high this is probably because of more of primary caesarean section of multigravida are done in second stage of labour in which fetal complications like hypoxia, fetal injuries are common .P value is <0.001 which is statistically significant.

**FIGURE 14**

**BAR CHART FOR COMPARISON OF APGAR IN NEWBORN  
BORN TO BOTH PRIMI GRAVIDA AND MULTIGRAVIDA  
UNDERGOING PRIMARY CAESAREAN SECTION.**



**TABLE 15**

**TABLE COMPARING OF NICU ADMISSIONS IN NEWBORN BORN TO BOTH PRIMI GRAVIDA AND MULTIGRAVIDA UNDERGOING PRIMARY CAESAREAN SECTION.**

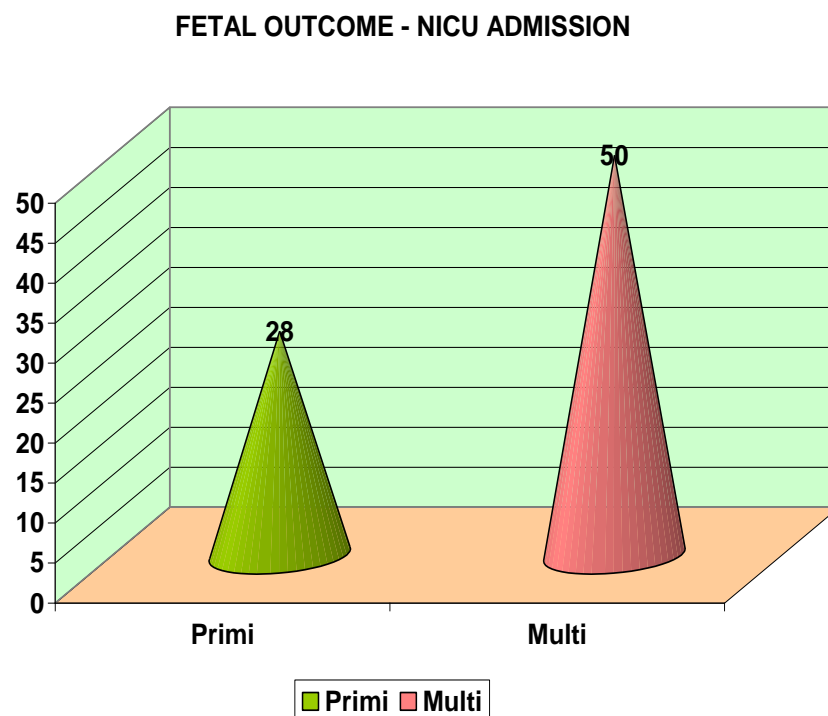
FETAL OUTCOME(NICU Admission)	Primi	Multi
YES	28	50
NO	72	50
Total	100	100
Chi square P' value	0.002	Significant

Among the study groups, as it is discussed earlier NICU admissions of newborns is more prevalent in multigravida who underwent primary caesarean section when compared to primi gravida. It is significantly high and this is probably due to more of primary caesarean section of

multigravida are done in second stage of labour in which fetal complications like hypoxia, fetal injuries are common .P value is 0.002 which is statistically significant.

**FIGURE 15**

**CHART COMPARING OF NICU ADMISSIONS IN NEWBORN BORN TO BOTH PRIMI GRAVIDA AND MULTIGRAVIDA UNDERGOING PRIMARY CAESAREAN SECTION.**





**TABLE – 16**

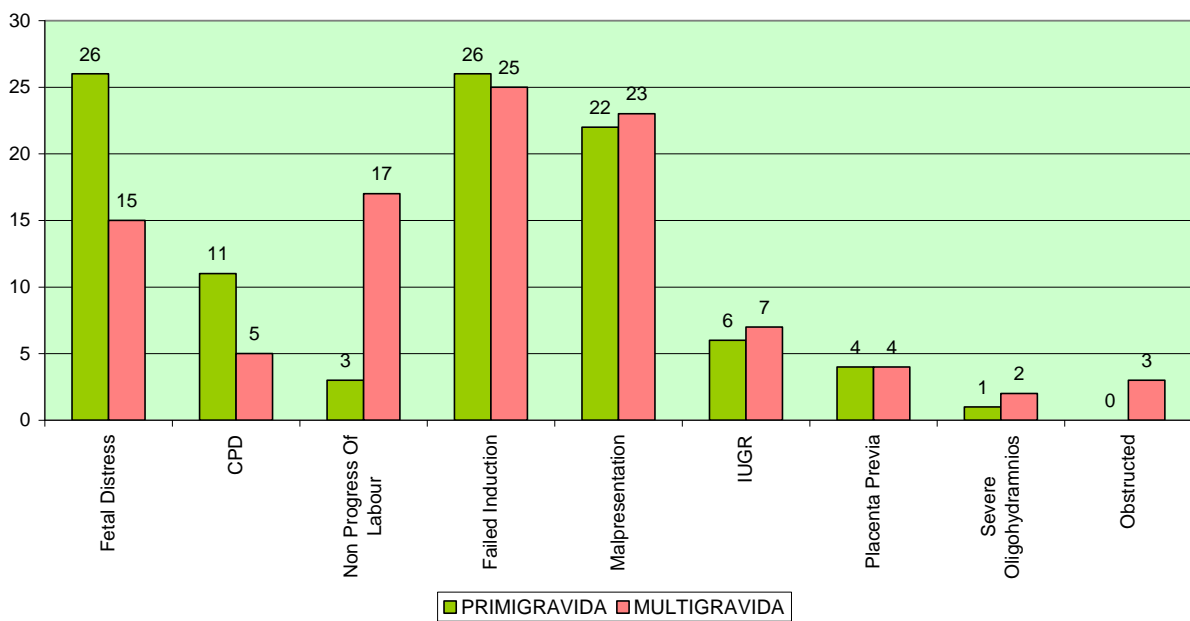
**COMPARISON OF INCIDENCE, INDICATION AND  
COMPLICATION OF *PRIMARY CESAREAN SECTION*  
*IN PRIMIGRAVIDA AND MULTIGRAVIDA***

<b>INDICATIONS</b>	<b>PRIMIGRAVIDA</b>	<b>MULTIGRAVIDA</b>
Fetal Distress	26	15
CPD	11	5
Non Progress Of Labour	3	17
Failed Induction	26	25
Malpresentation	22	23
IUGR	6	7
Placenta Previa	4	4
Severe Oligohydramnios	1	2
Obstructed	0	3



**FIGURE 16**

INDICATIONS

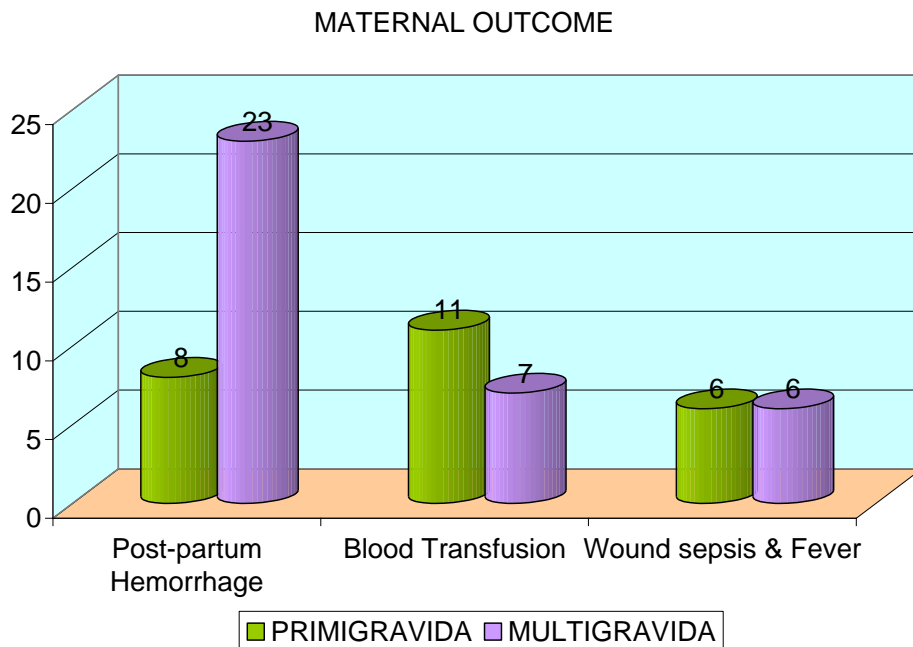


**TABLE – 17**

**MATERNAL OUTCOME**

<b>MATERNAL OUTCOME</b>	<b>PRIMIGRAVIDA</b>	<b>MULTIGRAVIDA</b>
Post-partum Hemorrhage	8	23
Blood Transfusion	11	7
Wound sepsis & Fever	6	6

**FIGURE 17**



## DISCUSSION

There were total 200 deliveries during this period of which 100 were primigravida and 100 were multigravida who gave birth vaginally one or more babies previously, underwent caesarean section for the first time. Among them, Mean age group of primi is 24.6 and in multipara it is 29.4. maximum numbers of primi are in <25 yrs, and multipara in 31-35yrs. P value is <0.001 so it is statistically significant.

Because of distribution of elderly patients in multigravida, It infers that age related morbidity like hypertensive disorder, DM, thyroid would be anticipated in multipara group. Delayed child bearing has become increasingly common. Increase in maternal age has been associated with high risk of adverse pregnancy outcomes. Through this analysis I observed that advanced maternal age was a risk factor for caesarean section.

At the same time patient in primigravida were significantly high in the age group of <25 yrs. Hence health problem related to adolescent age like anemia, would be more in primigravida. Hence age is also a contributor of fetomaternal outcome. Thus the first labor and mode of delivery of a patient plays a pivotal role in increasing the overall rate of cesarean section.

Coming to the comparison of indications of primary caesarean sections, in primigravida fetal distress(26%) is the most common cause in this group.

Followed by failed induction(25%),

- mal presentation(22%),
- CPD(11%),
- IUGR(6%),
- placenta previa(4%)
- severe oligohydramnios(1%) in the decreasing order .

In multigravida the most common indication is failed induction it contributes around

25% of cases . other indications in decreasing order is

- malpresentation -23%
- non progression of labour-17%
- fetal distress-15%
- IUGR-7%
- CPD-5%
- Placentaprevia-4%
- Oligohydramnios-2%
- Obstructed labour-3%

In my study, failed induction contributes 26% of primigravida and 25% of multigravida as an indication for primary caesarean section. Hence it is essential to find or develop predictive tools to identify those women exposed to induction of labour (IOL) who may not reach the active phase of labour. IOL is a very common procedure performed in all obstetrical setup. Around 20% of pregnancies, labor is induced for a variety of reasons, post term pregnancy being the most frequent indication. It is comparable to a study in Journal named FETAL DIAGNOSIS AND THERAPY in which following things are analysed. Definition of failed IOL, induction methods, IOL indications, failed IOL rate, cesarean section because of failed IOL and predictors of failed IOL. In that study they defined failed IOL as the inability to reach cervical dilatation of >4 cm after  $12 \pm 3$  h of oxytocin administration (with a goal of 200-225 MVU or 3 contractions/10 min). Higher rates of maternal and fetal morbidity especially with an increased risk of cesarean section is usually associated with IOL.

Although the definition of labour induction is simple, criteria for successful and failed IOL yet to be standardized and no consensus has been reached to date.

As prelabor cervical status is recognized as the most important predictor of induction success .pre labour cervical status is assessed by Bishop score which is also known as cervix score. The components are cervical dilatation, effacement, position, consistency and fetal station. Bishop score of >6 indicates favourable cervix.

On the other hand, cervical ripening is defined as a prelude to the onset of labor, whereby the cervix has become soft and compliant, either occurring naturally or as a result of physical or pharmacological interventions .Cervical ripening (by physical or pharmacological methods) and labour induction is usually be confused, eventhough the literature usually refers to labour induction as the process also including the cervical ripening. Although the definition of labour induction is simple, criteria for successful and failed IOL yet to be standardized and no consensus has been reached to date.

Parameter	Score				Description
	0	1	2	3	
<b>Position</b>	Posterior	Middle	Anterior	–	The position of the cervix changes with menstrual cycles and also tends to become more anterior (nearer the opening of the vagina) as labour becomes closer.
<b>Consistency</b>	Firm	Medium	Soft	–	In <u>primigravid</u> women the cervix is typically tougher and resistant to stretching, much like a balloon that has not been previously inflated (it feels like the bottom of a chin). With subsequent vaginal deliveries the cervix becomes less rigid and allows for easier dilation at term.
<b>Effacement</b>	0-30%	40-50%	60-70%	80+%	Effacement translates to how 'thin' the cervix is. The cervix is normally approximately three centimetres long, as it prepares for labour and labour continues the cervix will efface till it is 'fully effaced' (paper thin).
<b><u>Dilation</u></b>	Closed	1–2 cm	3–4 cm	5+cm	Dilation is a measure of how open the cervical os is (the hole). It is usually the most important indicator of progression through the first stage of labour.
<b>Fetal station</b>	–3	–2	–1, 0	+1, +2	Fetal station describes the position of the fetus' head in relation to the distance from the <u>ischial spines</u>

IOL should maximize the number of women progressing to the active phase of labor while maintaining a low incidence of adverse maternal and neonatal outcomes. It is defined as failed IOL as the inability to achieve cervical dilatation  $>4$  cm after  $12 \pm 3$  h of oxytocin administration (with a goal of 200–225 MVU or 3 contractions/10 min). If the criteria for failed induction is strictly maintained, number of primary cesarean section may be reduced. A higher rate of maternal and fetal morbidity especially with an increased risk of cesarean section has been associated with IOL.

Malpresentation is also an indication in primary caesarean section. It contributes as an indication in 45 patients, 22% of primi and 23% of multigravida. according to ACOG journal, Breech presentation at 37 weeks of gestation and beyond is diagnosed 3.8% of pregnancies, and more than 85% of pregnant women with a persistent breech presentation are delivered by cesarean

In one recent study, the rate of attempted external cephalic version was 46% and it is very much decreased during the study period. Thus, external cephalic version for fetal malpresentation is usually underutilized, especially when considering that most patients with a successful external cephalic version will give birth vaginally. Obstetricians have to offer and perform external cephalic version whenever possible. Furthermore,



whenever external cephalic versions are planned, there is evidence that success may be enhanced by regional analgesia . Fetal presentation should be assessed and documented beginning at 36 weeks of gestation to allow for external cephalic version to be offered . Before a vaginal breech delivery is planned, women should be informed that the risk of perinatal or neonatal mortality or serious neonatal morbidity may be higher than if a cesarean delivery is planned, and the patient's informed consent should be obtained.

In this study fetal distress was an indication of caesarean delivery in 41 patients ,26% of primi and 15% of multipara. Study of primary caesarean section in multipara by Desai et al revealed fetal distress as the most common indication (25.58% cases) and APH was an indication in 22.09% cases. Study of Himabindu et al on primary caesarean section on multipara had fetal distress as an indication in 24.7% cases .

One of the greatest challenges an obstetrician faces is to deliver a vigorous and neurologically well baby. When the neonatal outcome is poor, the audit includes a thorough evaluation of the intrapartum fetal monitoring done to find out what has been missed or gone unrecognised . Marsac's report as early as 1600 described fetal heart rate monitoring during labour. It was Von Winckel in 1800s who said fetal distress occurs when FHR is below 100bpm or more than 160bpm. Until 20<sup>th</sup> century,

fetal monitoring was done by intermittent auscultation. Then came the continuous electronic fetal heart monitoring, which was first introduced in 1970s in the USA. But this resulted in many unwanted interventions and increased rate of caesarean sections due to early interventions. Freeman, one of the pioneers in fetal monitoring both intrapartum and postpartum, said that the benefit thought to be obtained from continuous EFM has not been recognised well.

The parameters monitored in cardiotocography are baseline fetal heart rate, beat to beat variability, accelerations, decelerations. The most sensitive indicator of these is the beat to beat variability. The limited efficacy of intrapartum fetal monitoring , as discussed by Parer and King in their paper are lack of standard definitions of FHR, high expectations, poor reliability in the interpretation of the trace, and no validity in detecting fetal hypoxia. This has led to increased rates of caesarean sections. One alternative to this is the intermittent auscultation of FHR by staff nurse in the ratio of 1:1 patient care, but the reliability on their work in our poor resource settings rules out this.

Larma et al conducted a study and determined the sensitivity, specificity, PPV, NPV of fetal monitoring in diagnosing hypoxic ischemic encephalopathy. They concluded that fetal heart variability was the most predictive aspect of the fetal testing with a

positive predictive value of 2.7% , sensitivity of 92% and specificity of 62% and negative predictive value of 89%.

The ACOG guidelines are as follows: level A recommendation: the false positive rates of detecting fetal distress is very high with continuous EFM which leads to increased unnecessary interventions. Amnioinfusion may be tried in severe variable decelerations which may be useful and reduce caesarean section rates. There is no proven benefit in EFM in reducing cerebral palsy rates. Level B recommendations: EFM should be used only in high risk pregnancies for monitoring in labour.

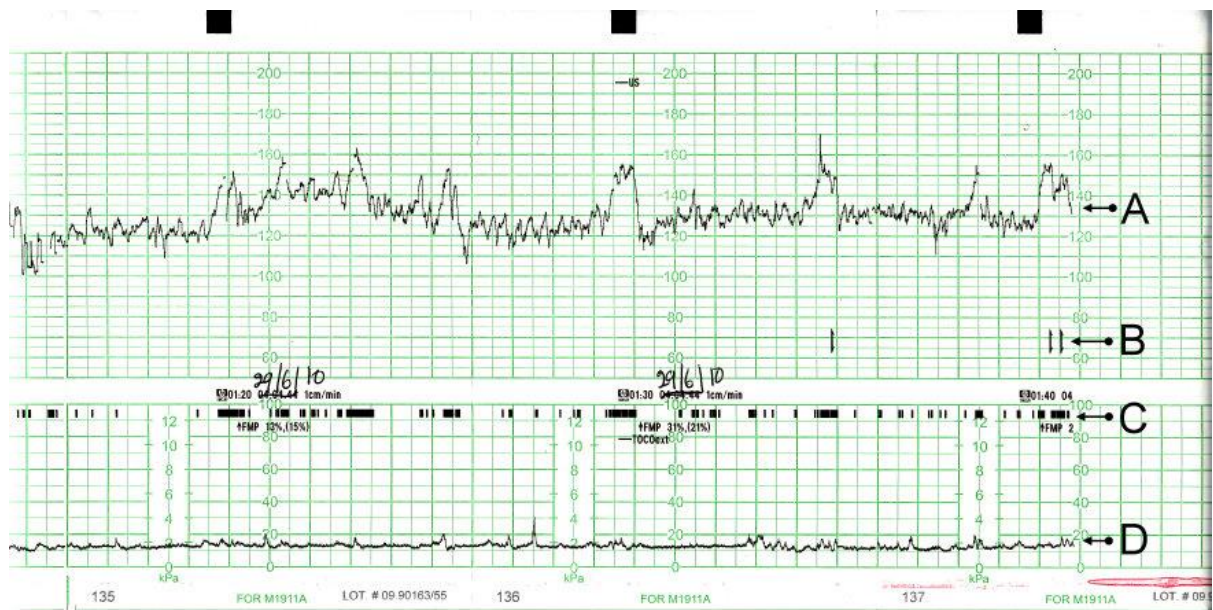
The EFM device consists of the following:

Uterine activity is monitored using an external tocodynamometer. It tells about the frequency and duration of contractions.

The fetal heart rate is measured using a Doppler ultrasound transducer located on the maternal abdomen in a position where the fetal heart is most easily heard. There maybe artifacts due to maternal obesity, changes in position and fetal movement.

Internal or direct fetal heart monitoring is done with fetal spiral electrode to the fetal presenting part.

These measurements are done in a graph paper at a rate of 3cm/minute. The lower part of the CTG is for uterine contractions and has a range of 0-100 mm Hg , and the upper part is for fetal heart rate which has a recording range of 30-240 bpm.



**The interpretations of the CTG are as follows:**

Uterine contractions-normal 5 contractions in a 30 minute period.

More than that is considered as tachysystole.

Baseline fetal heart rate – 110-160bpm is normal. Less than 110 is bradycardia and more than 160 is tachycardia.

Fetal heart variability- it reflects the oxygenation to the fetal central nervous system. Moderate or absent variability suggests fetal hypoxia or acidemia. They may be graded as absent variability, minimal, moderate, marked accordingly as 5 beats, 6-25 beats, >25 beats.

Accelerations – normal is defined as more than 15bpm lasting more than 15 secs.

Decelerations- may be early, variable or late. Early decelerations are due to fetal head compression, late due to placental insufficiency and variable due to cord compression. The late and variable decelerations are dangerous and must be acted upon immediately.

The Cochrane review states that CTG reduces fetal seizures, but has no proven benefits in correctly identifying fetal distress and in fact increased the rates of caesarean section.

During the study period there are 3% patients in whom caesarean section was proceeded to hysterectomy. among them 2% are multigravida and 1% in primigravida for atonic PPH. one maternal death occurred in primi group due to APH with DIC. There is no classical caesarean section done in these two study group.

As per first table of maternal outcome the incidence of PPH is significantly high in multi group 23% when compared to primi 3% . This is because of most of the section in multi are done in second stage of labour so that possibilities of uterine inertia, extension of uterine incision are common. This can be overcome by proper intra partum monitoring with partograph and timely referral to tertiary care.

Because of the above reasons only, the obstructed labour is noted in 3% of multi group.

## CONCLUSION

Our study is a comparative study including 200 patients, 100 primigravida and 100 multigravida, done over the period of one year during June 2016 to June 2017 in our hospital, Government Mohan Kumaramangalam Medical College Hospital, Salem. The need for the study is the increasing rates of caesarean delivery all over and also in our institution, and hence a study of indications and fetomaternal outcomes would be of help in reducing the same.

Age distribution in this study group, maximum number of primigravidas were <25yrs and in multigravidas maximum number were in 31-35years. Those who were <25years are prone for adolescent health problems like anaemia, whereas multigravidas are prone for age related disease like hypertensive disorders, diabetes mellitus, obesity, incidence of big baby, spondylolisthesis of joints. These age related problems are risk factors for caesarean section

Indications & fetomaternal outcomes were compared in both groups. In this study, among the indications, most common was failed induction of labour. Caesarean section done for non progression of labour was significantly high in multigravida compared to primigravida. Analysing the most common indication in primigravida, we found that fetal distress was the first common indication.

The maternal outcome was measured in terms of PPH, wound infection and wound sepsis. PPH was most common in multigravida due to the obvious reason of atony being commoner in multi, and also our observation that non-progress being the most common indication in multi, there was more chances of extension of LSCS incisions due to thinned out lower segment and more atonicity in the second stage of labour. This is due to the fact that most multigravida are admitted or referred in the later stage of labour after tolerating more pain or after waiting for normal labour upto later stage. This can be reduced by earlier admission and earlier referrals. The incidence of wound infection was equal in both the primi and multigravida and there was no significant difference between the two groups.

Regarding the fetal outcomes, the NICU admissions were more in the multigravida. Our inference is that, this is due to nonprogress of labour being more common in the multi meaning that delayed decision for caesarean in these patients were the cause for NICU admissions being more in this group. Though the primi group was taken up more for fetal distress the apgar scores and NICU admissions were better in them. Our conclusion is that this maybe the group having unnecessary sections due to early interventions. This can be reduced by more standardised fetal heart monitoring and avoiding hasty decisions.



## BIBLIOGRAPHY

- 1) Wagner M. Choosing caesarean section. *Lancet*. 2000; 356:1677-80.
- 2) Macfarlane A, Chamberlain G. What is happening to caesarean section rates? *Lancet* 1993; 342:1005-6.
- 3) Treffers PE, Pel M. The rising trend for caesarean birth *BMJ* 1993; 307:1017-8.
- 4) Turner MJ, Brassil M, Gordon H. Active management of labour associated with a decrease in caesarean rate in nulliparas. *Obstet Gynaecol* 1998; 71:150-4.
- 5) O Driscoll K, Strong JM, Minogue M. Active management of labour. *BMJ* 1973; 3:135-7.
- 6) Thomas J, Paranjothy S. National sentinel caesarean section audit report. Royal College of Obstetricians and Gynaecologists Clinical Effectiveness Support Unit. London: RCOG Press, 2001; 29.
- 7) Government Statistical Service for the Department of Health. NHS maternity statistics, England: 1995-6 to 1997-8. London: Department of Health, 2001.
- 8) World Health Organization. Appropriate technology for birth. *Lancet* 1985; 436-7.
- 9) Thomas J, Paranjothy S and The Royal College of Obstetricians and Gynaecologists, Clinical Effectiveness Support Unit. The National Sentinel Caesarean Section Audit Report. London: RCOG press, 2001.
- 10) Sweet RD, Ledger WJ. Puerperal infectious morbidity- A two year review. *Am J Obstet Gynaecol* 1973; 117:1093-100.
- 11) Annibale DJ, Hulsey TC, Wagner CL, Southgate WM. Comparative neonatal morbidity of abdominal and vaginal deliveries after uncomplicated pregnancies. *Arch pediatr Adolesc Med* 1995; 149: 862-7.
- 12) Banta HD, Thacker SB. Assessing the costs and benefits of electronic fetal monitoring. *Obstet Gynecol Surv* 1979; 34: 627-42.
- 13) Quilligan EJ. Caesarean section, 1988— To have or have not. *West J Med* 1988; 149: 700- 3.
- 14) Shearer E. Caesarean section: medical benefits and costs. *Soc Sci Med*

- 1993; 37:1223-31.
- 15) Gould JB, Davey B, Stafford RS. Socioeconomic differences in rates of caesaren section. *N Engl J Med* 1989; 321:233-9.
  - 16) Minkoff H, Chervenak FA. Elective primary caesaren delivery *N Engl J Med* 2003; 348:946-50.
  - 17) Hannah ME. Planned Elective Caesaren Section: a reasonable choice foe some women? *CMAJ* 2004; 170:813-4.
  - 18) Belzian JM, Althabe F, Barros FC, Alexander S. Rates and implications of caesaren section in Latin America ecological study. *BMJ* 1999;319:1397-402.
  - 19) Haider G, Zehra N, Munir AA, Haider A. Frequeny and indication of caesarean section in a tertiary care hospital. *Pak J Med Sci* 2009;25(5)791-796.
  - 20) Shamshad. Factors leading to increased caesarean section rate. *Gomal J Med Sci* 2008;(6): 1: 1-5.
  - 21) Rutkow IM: Obstetric and gynecologic operatins in the United States, 1979 to 1984. *Obstt Gynecol* 1986;76:755- 759.
  - 22) Martin JA, Hamilton BE, Ventura SJ, et al: Births: Final data for 2001. *Natl Vital Stat Rep* 2002;51:1-102.
  - 23) Treffers PE, Pel M: The rising trend for caesarean birth. *BMJ* 1993;307:1017-1018.
  - 24) Royal college of Obstetricians and Gynaecologists: The national sentinel caesarean section audit report. RCOG clinical effectiveness support unit. London, RCOG Press, 2001.
  - 25) Murray SF, Serani Pradenas F: Caesarean birth trends in Chile, 1986 to 1994. *Birth* 1997;24:258-263.
  - 26) Belizan JM, Althabe F, Barros FC, Alezander S: Rates and implications of caesarean sections in Latin America: Ecological study. *BMJ* 1993;319:1397-1400.
  - 27) Dinas K et al: Current caesarean delivery rates and indications in a major public hospital in northern Greece. *Aust N Z J Obstet Gynaecol* 2008 Apr 48(2):142-6.
  - 28) Qazi GR, Akhter S. Obstetrical correlates of the first time c-section, compared with repeated c-section. *J Coll Physicians Surg Pak.* 2007 Oct;17(10):611-4.
  - 29) Najmi RS, Rehan N. Prevalence and determinants of c-section in a teaching

- hospital of Pakistan. *J Obstet Gynaecol.* 2000 sep;20(5):479-83.
- 30) Lubna Ali, Subhana Tayyab, Fouzia Perveen. Cesarean c-section rate: current trends. *J Surg Pak* jun 2007; 12(2):64-6.
  - 31) Leitch CR, Walker JJ. The rise in caesarean section rate: the same indication but a lower threshold. *Br J Obstet Gynaecol* 1998; 105:621-6.
  - 32) Khawaja NP, Yousaf T, Tayyeb R .Analysis of caesaren delivery at a tertiary care hospital in Pakistan. *J Obstet Gynaecol* 2004; 24:139- 41.
  - 33) Krychowsaka A, Kosinska K, Karwan-Plonska A Comparison of indications for caesaren section in 1985-86 and 2000-01: Analysis of changes. *Ginek Pol* 2004; 75: 926-31.
  - 34) WALKER R., TUMBULL D. and WILKINSON C.: Strategies to address global cesarean section rate: A review of the evidence, *Birth*, 29 (1): 28-39, 2002.
  - 35) BETRAN A.P., MERIALDI M., LAUER J.A., et al.: Rates of cesarean section: analysis of global and national esti-mates. *Paediatr Perinat Epidemiol.*, 21 (2): 98-113, 2007.
  - 36) AKASHEH H.F. and AMARIN V.: Cesarean section at Queen Alia military hospital, Jordan: A sex year review. *Eastern Mediterranean Health Journal*, 6 (1): 41-45, 2000.
  - 37) BALDO M.H.: Cesarean section in countries of the eastern Mediterranean region. *Eastern Mediterranean Health Journal*, 14 (2): 47-88, 2008.
  - 38) MOINI A., RIAZI K., EBRAHIMI A. and OSTOVAN A.: Cesarean section rate in teaching hospital in Tahrn: 1999-2003. *Eastern Mediterranean Health Journal*, 13 (2): 457-60, 2007.
  - 39) BUCKENS P., CURTIS S. and ALAYON S.: Demographic and health surveys C/S rates in sub-Saharan Africa. *British medical Journal*, 326: 136, 2003.
  - 40) STANTON C.K. and HOLTZ S.A.: Levels and trends in cesarean birth in the developing world. *Stud fam plann*, 37 (1): 41-8, 2006.
  41. Clark SI, Belfort M, Dildy G, Herbst M, Mayaers J, Hankins G. Maternal death in the 21st century: caus... [*Am J Obstet Gynecol.* 2008] - PubMed - NCBI. *American journal of obstetrics and gynecology.* 2008 Jul;1(199):36.

42. Gasprovic Elvedi, Klepac P, Peter B. Maternal and fetal outcome in elective versus [Coll Antropol. 2006] - PubMed -NCBI. Coll anthropology. 2006 Mar;1(30):113–8.
43. National Vital Statistics Reports Volume 62, Number 1 June 28, 2013 - nvsr62\_01.pdf
44. Ghazi A, Karim F, Hussain A, Ali T, Jabbar S. Maternal morbidity in eme... [J Ayub Med Coll Abbottabad. 2012 Jan-Mar] - PubMed - NCBI. Journal Of Ayub Medical College Abottabad. 2012 Mar;24(1):10–3.
45. Najam R, Sharma R. Maternal and fetal outcomes in elective and emergency caesarean sections at a teaching hospital in North India. A retrospective study. - Journal Of Advance Researches In Biological Sciences (A Peer Reviewed Indexed Medical Journal) - ScopeMed.org - Online Journal Management System. Journal Of advanced researches in Biological Sciences. 5(3):5–9.
46. Nwobodo E, Isaah A, Panti A. Elective caesarean section in a tertiary hospital in Sokoto, north western Nigeria Nwobodo E I, Isah A Y, Panti A - Niger Med J. Nigerian Medical Journal. 2011;52(4):263–5.
47. Pomela J, Harmesh Bains, Vidhushi B, Annika J. A Comparison of Maternal and Fetal Outcome in Elective and Emergency Caesarean Sections - Indian Obstetrics and Gynaecology. Indian Obstetricsand Gynecology [Internet]. 2012 Sep [cited 2013 Dec 20];2(3).
48. Gary Cunningham F, Kenneth J. Leveno, Steven L.Bloom, John C Hauth, Dwight J. Rouse, Catherine Y. Spong. Caesarean delivery and peripartum hysterectomy In Williams Obstetrics. 23<sup>rd</sup> edition. McGraw Hill Medical Publishers. 2010; pp. 544-562.
49. Muhammad Ali, et al. Maternal and fetal outcome –comparison between emergency and elective caesarean. The Professional January-March 2005; Vol. 12 (1): pp.32-38
50. B Unnikrishnan A recent way of evaluating cesarean birth. J Obstet Gynecol India. November-December 2009; Vol. 59(6): pp. 547-51
51. Susan F, Claudia A, Zhang J, Lawrence W. A national estimate of elective caesarean delivery rate. J Obstet Gynecol. 2005;105(9):751-6.

52. Omar, Adnan A. Abu, and Suleiman H. Abu Anza. "Frequency Rate and Indications of Caesarean Sections at Prince Zaid Bin Al Hussein Hospital- Jordan." JRMS. 2012; 19(1): 82-86.
53. Desai E, Leuva H, Leuva B, Kanani M. A study of primary caesarean section in multipara. Int J Reprod Contracept Obstet Gynecol. 2013; 320-324.
54. Rao J, Rampure N. Study of primary caesarean section in multiparous women. jemds. 2013;2(24):4414-4418
55. Saluja, J. K., P. K. Roy, and K. Mahadik. "Study of primary caesarean section in multiparous women." NJIRM. 2014; 5(2) :27-29
56. P.Himabindu,M. Tripura Sundari,K.V.Sireesha, M V. Sairam. "Primary Caesarean Section In Multipara." 2015; 14(5): 22-25
57. Sethi P, Vijaylaxmi S, Shailaja G, Bodhare T, Devi S. A study of primary caesarean section in multigravidae. Perspectives in medical research 2014;2:3-7.

## **PATIENT CONSENT FORM**

**STUDY TITLE: COMPARITIVE STUDY OF INDICATIONS &  
FETOMATERNAL OUTCOME OF PRIMARY CAESAREAN SECTION  
IN PRIMI AND MULTIGRAVIDA**

**DEPARTMENT OF OBSTETRICS AND GYNECOLOGY, GMKMCH SALEM**

PARTICIPANT NAME:  
SEX:

AGE:

I.P. NO:

I confirm that I have understood the purpose of the above study. I have the opportunity to ask the question and all my questions and doubts have been answered to my satisfaction.

I have been explained about the possible complications that may occur during and after the study. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving any reason.

I understand that investigator, regulatory authorities and the ethics committee will not need my permission to look at my health records both in respect to the current study and any further research that may be conducted in relation to it, even if I withdraw from the study. I understand that my identity will not be revealed in any information released to third parties or published, unless as required under the law. I agree not to restrict the use of any data or results that arise from the study.

I hereby consent to participate in this study.

Patient name;

Date:

Signature / Thumb Impression of Patient:

Place

Name and signature of the Investigator

**PROFORMA**

**COMPARITIVE STUDY OF INDICATIONS & FETOMATERNAL  
OUTCOME OF PRIMARY CAESAREAN SECTION IN PRIMI AND  
MULTIGRAVIDA**

- **GROUP 1; 100 PRIMIGRAVIDA 18-30YRS WITH >28WKS OF GESTATION UNDERGOING CAESAREAN SECTION**
- **GROUP 2; 100 MULTIGRAVIDA 18-30YRS WITH >28WKS OF GESTATION UNDERGOING PRIMARY CAESAREAN SECTION**

**PATIENT DETAILS :**

- Name :
- Age/Sex :
- IP. Number :
- Ward/Unit :

**OUTCOME ;INDICATIONS WILL BE COMPARED IN BOTH GROUPS**

- FETAL DISTRESS
- NONPROGRESSION OF LABOUR
- MALPRESENTATION
- CPD
- APH
- OTHERS

**MATERNAL OUTCOME IN BOTH GROUPS INCLUDING ,**

- % OF ELECTIVE AND EMERGENCY CAESAREAN SECTION,

- PPH
- PEURPERAL INFECTION
- UTI
- VENOUS THROMBOSIS

FETAL OUTCOME IN BOTH GROUPS INCLUDING

- APGAR SCORES
  - INCIDENCE OF NICU ADMISSIONS WILL BE COMPARED

sno	name	age (yrs)	gravidia primi-1 ; multi- 2	indications fetal distress-1 ; cpd-2 ; non progress of labour-3 ; failed induction-4 ;malpresentation-5 ; IUGR- 6;Placentaprevia- 7;severe oligohydramnios-8; obstructed-9;others- 10.	maternal outcome pph-1 ; blood transfusion- 2 ; wound sepsis and fever-3	fetal outcome apgar - >6-1 <6-2	nicu admssion no-1; yes-2
1	Bharathi	20	1	7	0	1	2
2	kiruthika	21	1	3	3	1	1
3	anjalidevi	19	1	3	0	1	1
4	nandhini	20	1	2	2	1	1
5	anjalai	20	1	6	0	1	1
6	anusiya	21	1	1	0	2	2
7	radha	30	1	5	0	1	2
8	kalaivani	30	1	5	0	1	1
9	deepika	20	1	4	0	1	1
10	geetha	21	1	2	0	1	1
11	jasmine	26	1	5	0	1	2
12	jothimani	26	1	3	0	1	1
13	ramya	29	1	4	2	1	2
14	suganya	20	1	1	0	1	1
15	nithya	21	1	2	2	1	2
16	sathyadevi	37	1	2	0	1	1
17	gomatha	21	1	2	0	1	1
18	priya	27	1	2	0	1	1
19	vanitha	25	1	1	1	1	1
20	rekha	20	1	2	0	1	1
21	rasathi	22	1	1	2	1	2



22	deepa	24	1	2	0	1	2
23	dhanam	25	1	6	2	1	1
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28	selvi	27	1	7	0	2	2
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30	ramya	28	1	5	0	1	1
31	saroja	22	1	2	0	1	1
32	divya	29	1	6	0	1	1
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35	kasthuri	29	1	1	0	1	1
36	rasathi	31	1	1	0	1	1
37	kalpana	26	1	5	0	1	1
38	surabhi	20	1	1	1	1	1
39	kavitha	19	1	8	0	2	2
40	nathiya	21	1	2	0	1	1
41	dharani	24	1	2	1	1	1
42	kirupa	23	1	1	0	1	1
43	vidhya	24	1	5	0	1	1
44	nisha	27	1	6	2	1	1
45	anitha	27	1	4	0	1	1
46	jayasree	23	1	5	0	1	1
47	shalini	25	1	4	3	1	1
48	pornima	31	1	5	0	1	2
49	ajitha	26	1	1	0	1	1
50	megala	22	1	4	2	1	2
51	monisha	24	1	1	0	1	1
52	aaisha	21	1	1	1	1	1
53	parvatham	26	1	1	0	1	1
54	kavya	24	1	1	1	1	1
55	latha	27	1	5	0	1	2
56	pushpa	28	1	7	0	1	2
57	veni	29	1	5	2	1	1
58	jayanthi	21	1	4	3	1	1
59	sundari	22	1	5	0	1	1
60	lalitha	19	1	1	0	1	1
61	eswari	31	1	5	0	1	2
62	pavithra	21	1	1	0	1	1
63	rani	24	1	6	1	2	2
64	shanthi	27	1	1	0	1	1
65	janaki	29	1	4	2	1	2

66	karthika	26	1	1	0	1	1
67	jeevitha	26	1	4	0	1	1
68	prabha	29	1	5	0	1	1
69	sindhu	21	1	1	0	1	1
70	miruna	29	1	5	0	1	1
71	indhu	22	1	4	0	1	1
72	roja	26	1	1	0	1	1
73	karpagam	21	1	5	0	1	2
74	ranjani	29	1	4	1	1	1
75	mahalaxmi	27	1	5	0	1	1
76	kavipriya	21	1	4	0	1	1
77	manjula	22	1	1	0	1	1
78	latha	28	1	4	0	1	1
79	vasuki	21	1	1	0	1	1
80	vennila	21	1	4	0	1	1
81	kiruthika	26	1	5	0	1	2
82	agila	28	1	4	0	1	1
83	viji	27	1	5	0	1	2
84	selvi	27	1	4	0	1	1
85	devi	22	1	5	0	1	1
86	meenakshi	21	1	4	0	1	1
87	prabha	26	1	1	0	1	1
88	bhrathi	27	1	4	1	1	1
89	tamilarasi	31	1	5	3	1	2
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96	kavinilavu	28	1	7	2	1	2
97	malathi	29	1	4	0	1	2
98	sarika	31	1	4	0	1	2
99	anusiya	21	1	5	0	1	1
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101	lekhasree	22	2	1	0	1	1
102	suguna	25	2	5	0	1	1
103	chithra	24	2	4	0	1	1
104	swathi	27	2	6	0	2	2
105	kerthana	23	2	4	2	1	2
106	rukmani	28	2	1	0	1	1
107	arathana	21	2	4	0	1	1
108	angayee	34	2	1	1	1	2
109	parimala	31	2	2	1	1	1

110	rasathi	32	2	4	2	1	2
111	bannari	29	2	7	0	1	1
112	saral	30	2	5	1	2	2
113	eswari	33	2	1	3	1	1
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115	valli	24	2	4	0	1	1
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117	vetriselvi	32	2	1	2	2	2
118	vaithegi	33	2	4	0	1	1
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123	latha	34	2	5	1	2	2
124	surithi	31	2	8	0	1	1
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127	ponni	29	2	5	1	2	2
128	karpagam	33	2	9	0	1	1
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130	kanika	34	2	3	0	1	1
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132	porvika	28	2	5	1	2	2
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136	reena	29	2	4	0	1	2
137	sornam	31	2	3	0	1	2
138	divya	32	2	5	1	2	2
139	srilatha	34	2	3	1	2	2
140	anitha	27	2	6	0	1	1
141	susmitha	26	2	5	1	2	2
142	arthi	29	2	4	0	1	2
143	mayil	27	2	3	1	2	2
144	kanimozhi	32	2	4	0	1	1
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146	saraswathi	32	2	5	1	2	2
147	sasikala	32	2	4	0	1	1
148	manisha	34	2	9	0	1	1
149	deepika	33	2	4	0	1	1
150	nisha	35	2	5	1	2	2
151	ananthi	25	2	4	0	2	2
152	seetha	27	2	3	0	1	1
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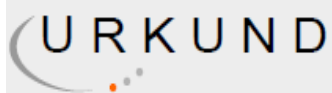
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155	kirubasree	32	2	5	3	2	2
156	laila	32	2	5	0	1	1
157	mumtaj	33	2	3	0	1	1
158	kaveri	34	2	6	0	1	2
159	visvasree	31	2	3	0	1	1
160	pooja	33	2	4	0	1	2
161	kanmani	34	2	4	0	1	1
162	vaithegi	24	2	5	1	2	2
163	reena	26	2	4	0	2	2
164	smitha	28	2	3	0	1	1
165	rani	32	2	8	0	1	1
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167	nathiya	32	2	4	0	2	2
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170	parvathi	32	2	5	1	2	2
171	geetha	33	2	4	0	1	1
172	waheetha banu	25	2	5	0	2	2
173	sreeja	29	2	6	1	2	2
174	vanitha	32	2	5	0	2	2
175	kavipriya	32	2	4	2	2	2
176	laxmi	31	2	3	3	2	2
177	kalaivani	28	2	3	0	2	2
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181	vanitha	27	2	1	2	2	2
182	varuni	29	2	4	0	1	1
183	barani	38	2	1	0	1	1
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185	samundi	35	2	2	1	1	1
186	devi	23	2	1	0	1	1
187	praba	26	2	3	0	1	1
188	praveena	23	2	2	0	1	2
189	saranya	28	2	1	0	1	1
190	sangeentha	31	2	4	2	1	2
191	pattal	30	2	5	0	1	1
192	angelin	22	2	1	0	2	2
193	pavai	23	2	1	3	1	1
194	parvatham	39	2	1	0	1	1
195	julie	19	2	4	0	1	1
196	chinnaponnu	21	2	5	3	2	2

197	lurthumary	22	2	6	0	1	1
198	victoria	24	2	7	0	1	2
199	ragavi	34	2	9	0	1	1
200	ponni	28	2	1	1	2	2

## ABBREVIATIONS

IOL	-	INDUCTION OF LABOUR
CS	-	CESAREAN SECTION
ACOG	-	AMERICAN COLLEGE OF OBSTETRICS AND GYNECOLOGY
CPD	-	CEPHALO PELVIC DISPROPOTION
APH	-	ANTEPARTUM HEMORRAGE
PPH	-	POST PARTUM HEMMORRAGE
APGAR	-	APPEARENCE , PULSE, GRIMACE, ACTIVITY RESPIRATION
NICU	-	NEWBORN INTENSIVE CARE UNIT
CTG	-	CARDIO TOCOGRAM
EFM	-	ELECTRONIC FETAL MON ITORING
VBAC	-	VAGINAL BIRTH AFTER CESAREAN SECTION
USG	-	ULTRASONOGRAM
CBC	-	COMPLETE BLOOD COUNT
RBS	-	RANDOM BLOOD SUGAR
RFT	-	RENAL FUNCTION TEST

LFT - LIVER FUNCTION TEST  
PTR - PULSE, TEMPERATURE, RESPIRATORY RATE  
BP - BLOOD PRESSURE



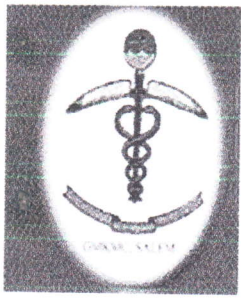
## Urkund Analysis Result

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**GOVERNMENT MOHAN KUMARAMANGALAM  
MEDICAL COLLEGE & HOSPITAL  
SALEM, TAMILNADU**

College: phone No.0427-2383313 Fax No; 0427-2383193

E-Mail ID: deangmkmcslm@gmail.com

Hospital: Phone No: 0427-2210674, 2210757 Fax: 0427-2210876

E.Mail Id: msgmkmchsalem@gmail.com

**Communication of Decision of the Institutional Ethics Committee(IEC)**

Ref. No. GMKMCH/ 2623 / IEC/ 01/2016 -17

Dated: 30.12.2016

Protocol title	"COMPARITIVE STUDY OF INDICATIONS, FETOMATERNAL OUTCOMES IN PRIMARY CESAREAN SECTION IN PRIMI AND MULTIGRAVIDA"
Principal Investigator	Dr.R.G. Yamuna, II Year, Post Graduate Student of MS (Obstetrics & Gynecology), GMKMC, Salem.
Name of the Guide / Co- Investigator	PROF .DR.B.JEYAMANI, MD., D.G.O., Professor and HOD of Obstetrics & Gynecology
Name & Address of Institution	Government Mohan Kumaramangalam Medical College & Hospital, Salem, Tamil Nadu
Type Of Review	<input checked="" type="checkbox"/> New review <input type="checkbox"/> Revised review <input type="checkbox"/> Expedited review
Date of review (D/M/Y)	25.11.2016
Date of previous review, if revised application:	Nil
Decision of the IEC	<input checked="" type="checkbox"/> Recommended <input type="checkbox"/> Recommended with suggestions <input type="checkbox"/> Revision <input type="checkbox"/> Rejected
Suggestions/ Reasons/Remarks:	Nil
Recommended for a period of:	3 years

**PLEASE NOTE:**

- ❖ Inform IEC immediately in case of any adverse events and Serious adverse events.
- ❖ Inform IEC in case of any change of study procedure, site and investigator
- ❖ This permission is only for period mentioned above, Annual report to be submitted to IEC
- ❖ Members of IEC have right to monitor the trial with prior intimation.

Signature of Member Secretary

30/12/16

DEAN,  
Govt. Mohan Kumaramangalam  
Medical College  
SALEM- 636 030