

ORIGINAL RESEARCH

Fetomaternal Outcome in Women Undergoing Caesarean Section in First Stage Vs Second Stage of Labour

Kesavachandra Gunakala¹, P.M.Rekha Rao², Mude Vennela², P.Harika³

¹Associate Professor, Department of OBG, Government Medical College, Kadapa, YSR District, AP, India.

²Assistant Professors, Department of OBG, Government Medical College, Kadapa, YSR District, AP, India.

³Postgraduate, Department of OBG, Government Medical College, Kadapa, YSR District, AP, India.

ABSTRACT

Background:Second stage caesarean is technically more difficult due to deep engagement of fetal head, and this is associated with increased risk of maternal morbidity such as surgical injuries and intra operative excessive haemorrhage as well as fetal morbidity such as asphyxia and fetal injury. A Prospective study was done to compare the maternal and neonatal complications of caesarean sections performed in second stage compared to first stage of labour. **Objective:** To determine the maternal and perinatal outcome associated with caesarean sections performed in second stage versus first stage of labour.

Materials and Methods: It is an observational cross-sectional study where 7033 women were enrolled in the study, out of them 1272 underwent C- section in first stage of labour where as 152 underwent caesarean section in second stage of labour for various indications.

Results: It was found that the women who underwent caesarean section in second stage of labour had a higher risk of maternal morbidity than those who underwent caesarean in first stage of labour. The rate of intraoperative bleeding is >1000ml, uterine atony, longer duration of surgery, adhesions, fetal hypoxia, neonatal admissions to NICU, neonatal sepsis and early neonatal death were more common in second stage of labour as compared to first stage.

Conclusion: In conclusion, Present study suggests that women undergoing c-section in second stage of labour have increased chance of Uterine atony, rate of excessive bleeding, postoperative fever, wound infection, fetal hypoxia compared to first stage of labour and therefore require special care and should be handled and operated by experienced obstetricians. The rate of complications can be avoided by proper antenatal care, proper usage of partograph, pelvic assessment in early labour and timely intervention.

Keywords: Fetal hypoxia, NICU, Neonatal Sepsis, Fetal Morbidity.

Corresponding Author: Dr. Kesavachandra Gunakala, Associate Professor, Department of OBG, Government Medical College, Kadapa, YSR District, AP, India.

INTRODUCTION

Caesarean section is defined as the birth of fetus through abdominal and uterine incision after the period of viability. Caesarean section circumvents the birth canal and may avoid some of the difficulties of childbirth. Caesarean section is the most commonly performed abdominal

surgery in women in both industrialized and developing countries. Indications for caesarean delivery have been changing over the last few decades due to improved anesthesia techniques, powerful antibiotics, availability of blood transfusion facilities, and improvement in surgical techniques and operative skills and neonatal care. Caesarean section rate has been increasing continuously and the trend is likely to continue in the future.

A WHO study showed that caesarean section is a surgical procedure that is associated with adverse maternal and fetal outcome. And therefore c-section should only be performed when benefits are more than risks. For the same reason, caesarean section should not be considered as an alternative to vaginal delivery.

One important factor what we need to look for is the timing of caesarean section when it is performed i.e.elective, first stage or second stage. Hence the present study was done in our hospital to compare complications of caesarean section in first stage and second stage of labour, so that strategies to reduce maternal and fetal complications can be thought about.

MATERIALS & METHODS

This is a one-yearprospective study done in our hospital. Total number of deliveries during this period were 7033. Out of which 3510 were caesarean sections, of which 1272 were primary caesarean sections, of which 1120 were first stage C-sections, and 152 were C-section done in second stage of labour.

First stage of labour is defined as the period of time when there were regular contractions, associated with cervical dilatation of >4 cm to full dilatation of cervix. second stage of labour is defined as the period of time from full dilatation of cervix to delivery to baby.

Study Design: hospital based observational study

Study Duration: Jan 2021 to Dec 2021

Study Area: Department of Obstetrics and gynecology, GGH, Kadapa.

Study Population: All singleton pregnancies, admitted in our hospital, who fulfilled the inclusion criteria.

Inclusion Criteria

1. Willing to give consent
2. Singleton pregnancies.
3. Fetus with vertex presentation.
4. No maternal co morbidities.
5. Gestational age >37 weeks.

Exclusion Criteria

1. Pregnancy with major fetal abnormalities
2. Antepartum hemorrhage
3. Fetal growth restriction
4. Significant maternal disease.
5. Maternal co-morbidities
6. No previous caesarean or hysterotomy

Methodology

After getting an informed consent from the patients, a thorough history and physical examination was done.Information was collected in a structured format including the demographic data, relevant obstetric data, indications for c- section, maternal and neonatal complications. The maternal duration of hospital stay, birth weight and APGAR score of the newborn at the 5thmin and NICU admission data and post-operative data was recorded and study was done.

RESULTS

During this one-year period, total 7033 Deliveries took place, including both caesarean and normal vaginal deliveries, out of which 3510 were emergency C-sections.

Among these 3510 C-sections, 1272 were primary caesarean sections, 1120 women underwent C-section in the first stage of labour and 152 women underwent C-sections during the second stage of labour.

Maternal Demographics

Table 1: Age

	1 st stage	2 nd stage
20-25 Years	839	115
26-30 Years	220	23
>31 Years	61	14

There was no significant difference noted in mean maternal age. Women between the ages of 20-30 years have undergone more C-sections in both first stage and second stage of labour equally.

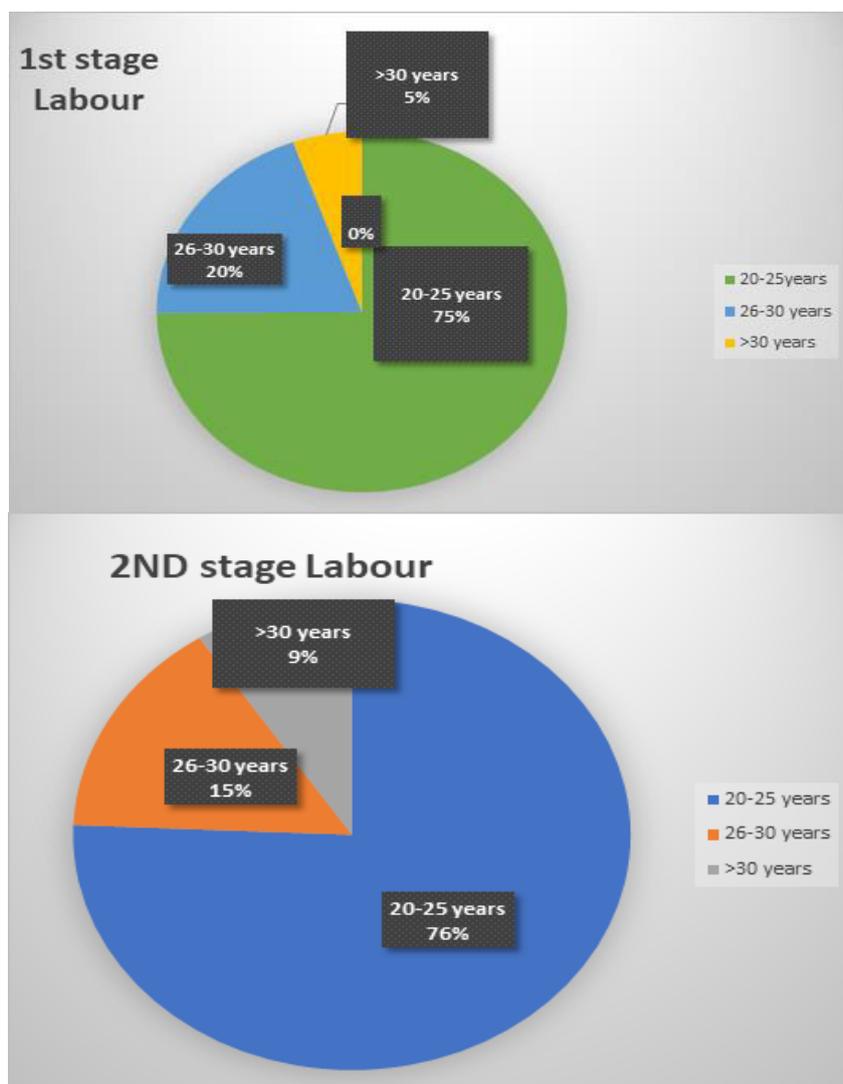


Figure 1: Age

Parity

In our study, in the first stage of labour 795 (70%) patients were primigravidae, while 197 (17%) were second grvida and 128 (11%) were third grvida. Where as in second stage of labour, 83 (54%) out of 152 were primi grvida, 42 (27%) were second grvida and 27 (17%) were third grvida.

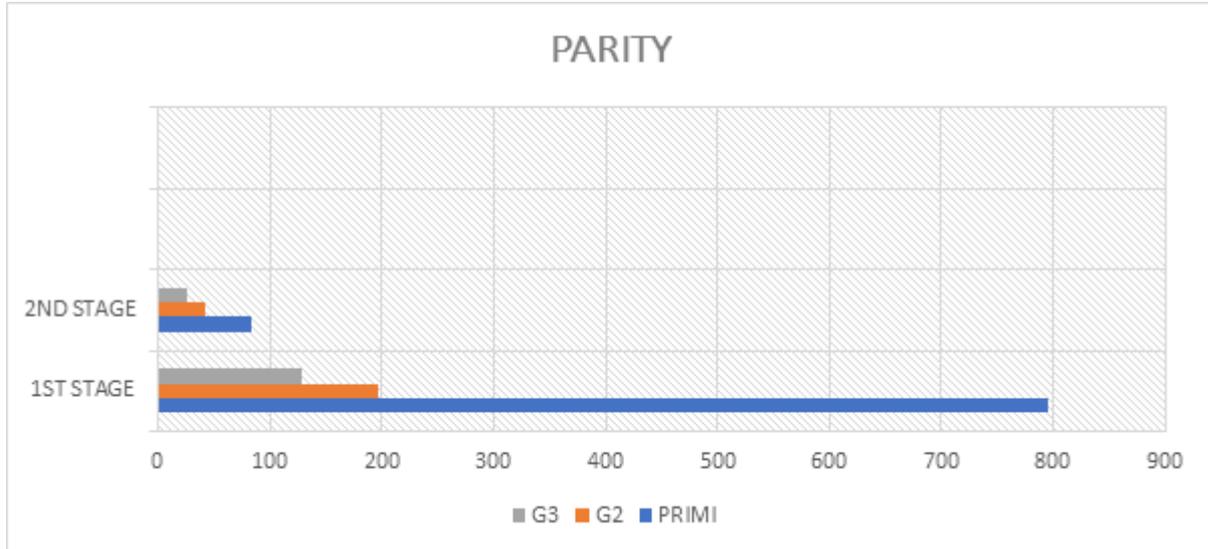


Figure 2: Parity

Gestational Age

It is noted in our study that the mean gestational age where women underwent C-section was between 37-40 weeks of gestation, both in first and second stage of labour respectively.

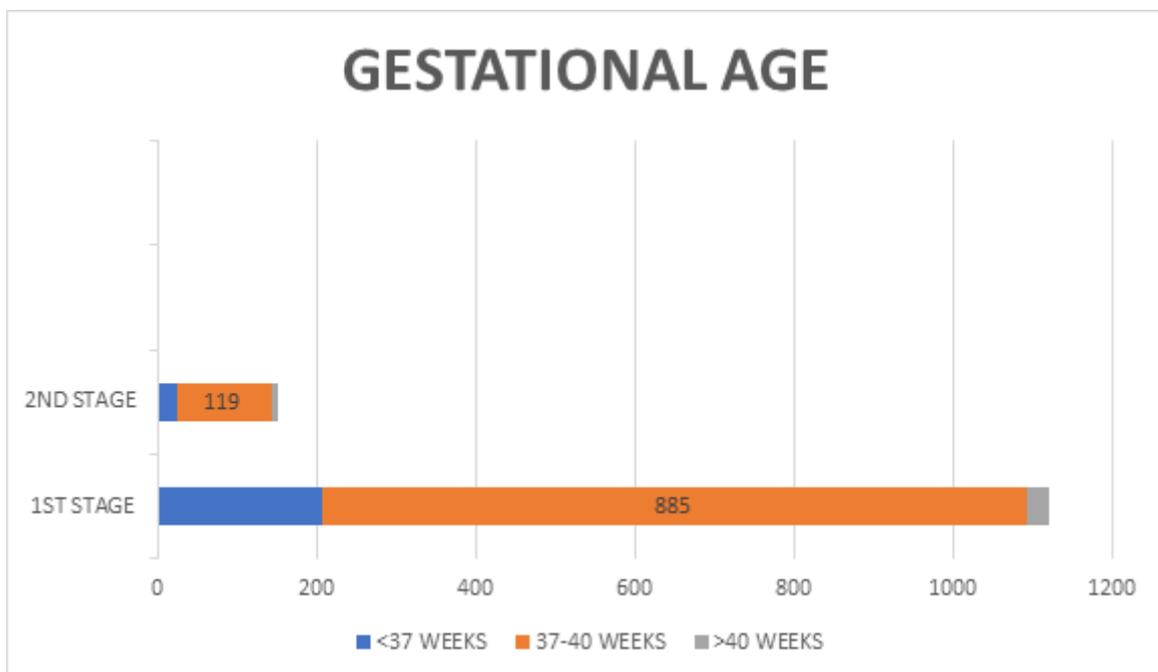


Figure 3: Gestational Age

Duration of Surgery

The mean duration of surgery was significantly lesser in 1st stage of labour (38 MIN) as compared to 2nd stage of labour(63 MIN).

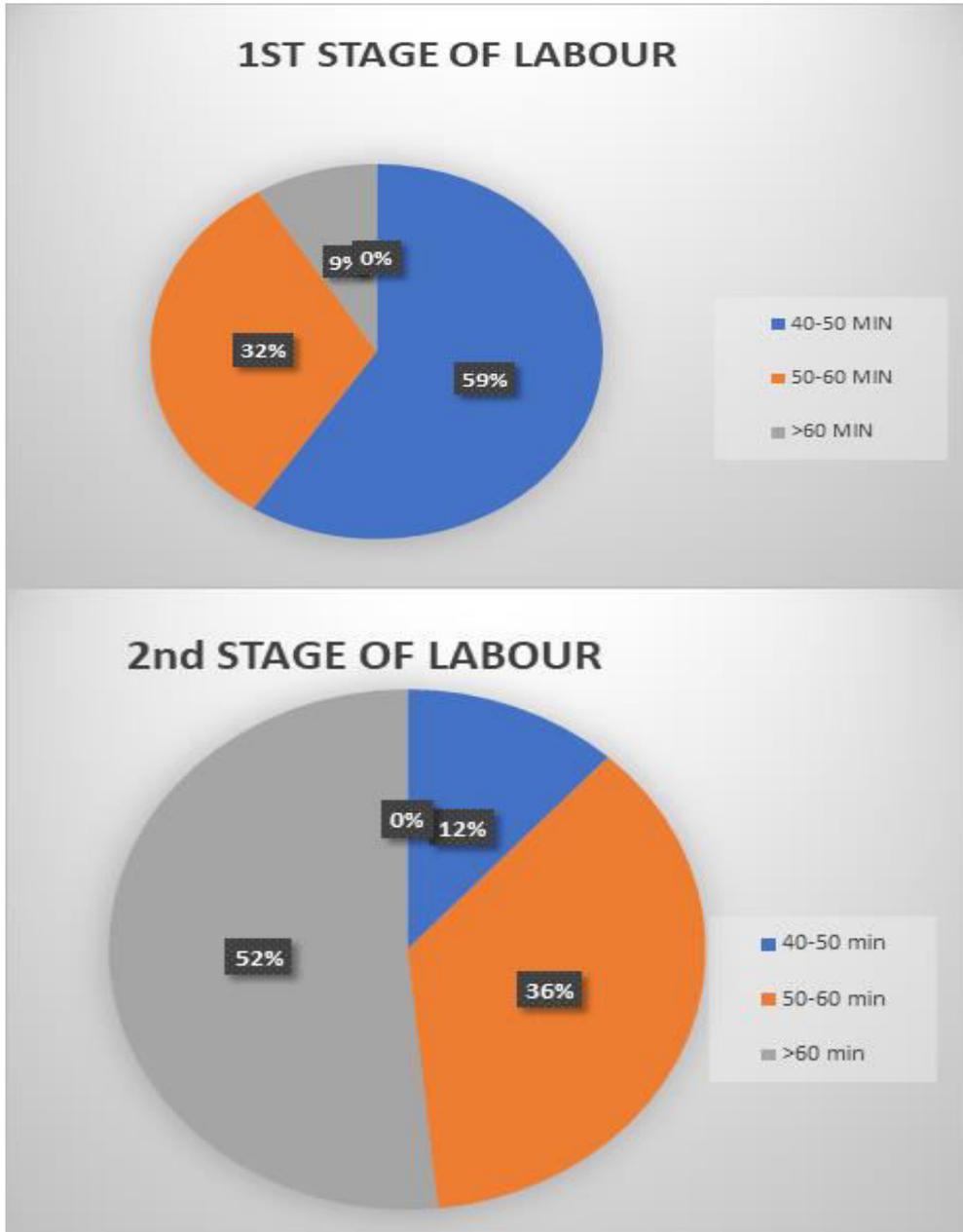


Figure 3: Duration of Surgery

Indications of Caesarean Section

Indications of caesarean section have been changing over with time. The major indications of caesarean section in first stage as compared to second stage are as follows.

Table 2: Indications of Caesarean Section

Indication	1st stage of labour		2nd syage of labour	
	Count	Percentage	Count	Percentage
Fetal distress	114	10%	66	43%
Secondary arrest of descent	0	0	47	30%
Failed induction of labour	495	44%	0	0
CPD	149256	22%	0	0
Failed progression of labour	106	9%	0	0
Meconium-stained liquor	149	13%	39	25%

Maternal Complications

The number of patients who had uterine atony were more in second stage c-sections as compared to first stage. Also increased requirement of blood transfusion reactions, SSI and post-operative fever were more in patients of second stage c-sections.

Table 3: Maternal Complications

Complications	1st stage of labour		2nd stage of labour	
Uterine atony	127	12%	26	35%
Post op fever	52	5%	30	25%
Surgical site infection	59	6%	20	13%
Bladder high up	46	4%	16	11%
Bloodtransfusion	104	10%	20	13%
No complications	732	63%	5	3%

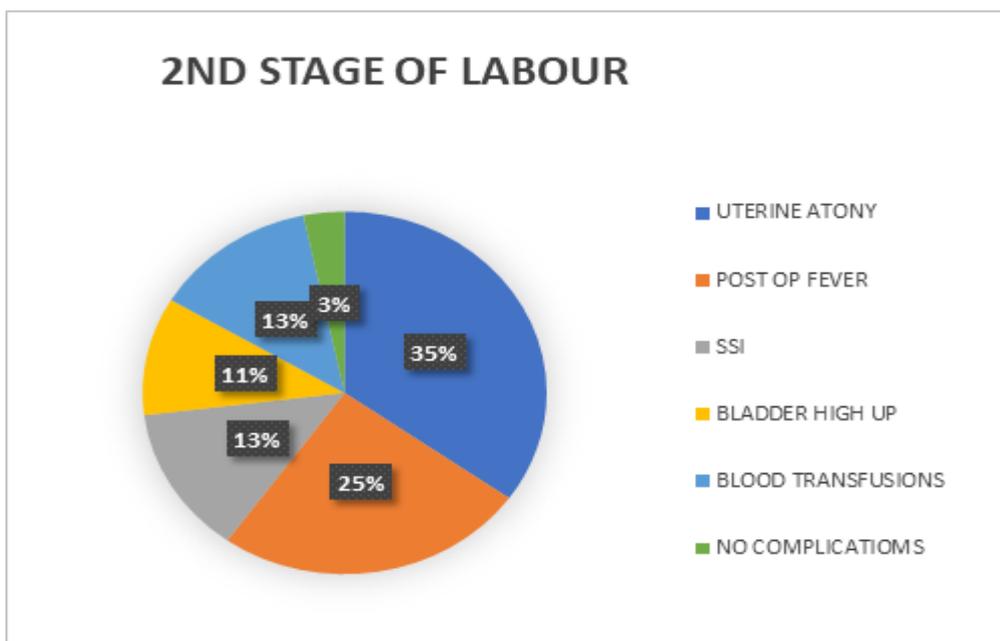
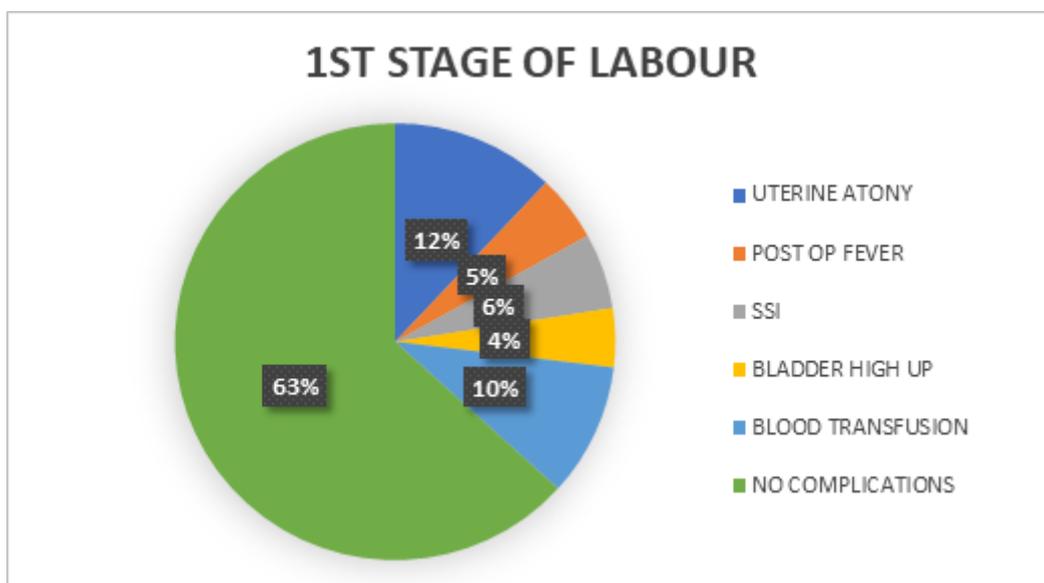


Figure 4: Neonatal Characteristics

Neonatal Characteristics

A total of 296 babies admitted in SNCU, out of which 120 were babies born from c-section during first stage of labour, and 40 babies were born from c section during second stage of labour.

Table 4: Neonatal Characteristics

Stage	Total babies	Admitted in SNCU	Percentage
First stage of labour	1120	120	10%
Second stage of labour	152	40	26%

Neonates requiring admission in SNCU was lesser in first stage section compared to the second stage. The incidence of neonatal seizures and septicemia was higher in second stage c-sections.

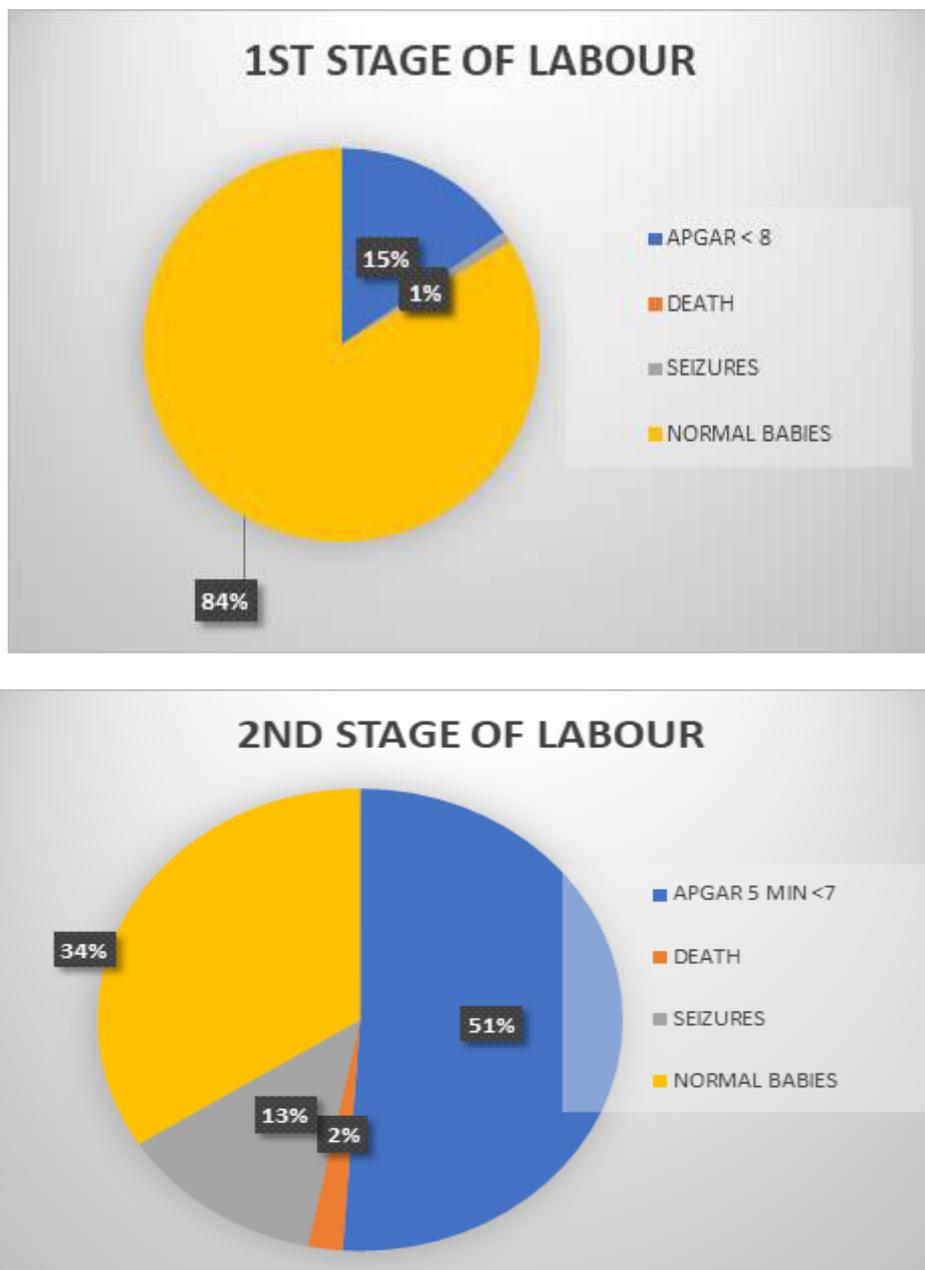


Figure 5: Neonatal Characters

	1st stage of labour	2nd stage of labour
Apgar 5min <7 death seizures	10	24
	0	1
	6	12
Normal babies	1094	112

DISCUSSION

In the present study we assessed whether maternal outcome of c section performed in second stage deferred from those of first stage. According to our study, there was no significant difference between the ages in both 1st stage and 2nd stage of labour. This is similar to the studies of Gupta N et. Al and Jayaram J et. Al study. In view of parity no significant difference was found in both first and second stage of labour. This is comparable to the study of Gupta et al and Sinha et al, who found no significant difference in maternal ages and period of gestation also.^[1-4]

Das et al noted similar observations in his study. In our study the mean duration of operation was lesser in first stage as compared to second stage, hence stating that second stage caesarean sections are more time consuming. It was also observed that duration of hospital stay was significantly lesser in first stage caesarean section as compared to second stage caesarean section. These finding were consistent with the retrospective study of Sinha et al. The duration of hospital stay was also shorter as compared to second stage C section.^[5]

The mean APGAR score at 1 and 5 min and NICU admission were significantly lesser in first stage c-sections sections as compared to 2nd stage c- section. The rate of fetal injury during delivery, admission to NICU ,septicemia, neonatal death were common in women who underwent c-section in second stage of labour.^[6]

A caesarean delivery in the second stage is technically more difficult because of the fetal head engagement in the maternal pelvis has already been completed and the maternal uterine muscle is very tense and thin. Additionally identification of bladder and lower segment is very difficult, and birthing relatively larger infants is more difficult and traumatic. Therefore duration of incision to delivery of baby is longer in second stage as compared o first stage of labour. Surgeons use different methods to deliver the fetal head, most commonly used method is the push method. Pushtechique is performed with a finger in the vagina pushing up the fetal head while surgeon delivers the head in standard fashion. This method is used for fetal head impacted deep in the pelvis. Despite this the rate of uterine vessel injury, uterine atony also increased. Estimated blood loss, and red blood cell transfusions, maternal morbidity, longer duration of surgery is more.^[7]

Caesarean section done in second stage of labour is more challenging surgical procedure and has adverse fetomaternal outcomes than performed in the first stage or before labour. Hence initiatives are being taken worldwide to reduce cesarean delivery rate by using proper antenatal care, usage of partograph, pelvic assessment in early labour and timely intervention.

CONCLUSION

Our results suggested that women undergoing c-section in second stage of labour have increased maternal and fetal morbidity and required special care particularly the second stage c-sections. Hence with proper monitoring, and usage of partograph will help to decrease the complications and proper measures can be taken at the earliest.

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