COMPARATIVE STUDY OF MATERNAL & FETAL OUTCOME IN PREGNANCIES OF GESTATIONAL AGE 40 COMPLETED WEEKS AND BEYOND

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ABSTRACT: AIMS AND OBJECTIVES: To study the maternal morbidity and mortality in pregnancy of gestational age 40 completed weeks and beyond. To study the fetal outcome in pregnancy of gestational age 40 completed weeks and beyond. **MATERIALS AND METHODS:** 166 pregnant women who completed 40 weeks of gestational age and more attended the outpatient department and LABOUR room at Shimoga institute of medical sciences hospital, Shimoga are selected for the study. Maternal and fetal outcome in terms of morbidity and mortality was determined in group of GA completed 40 weeks, 41 weeks of GA, and 42 completed weeks of GA respectively and statistically analyzed. **RESULTS:** In the present study, instrumental delivery and LSCS are statistically significantly increased in the pregnancies 40 completed weeks of GA and beyond. Compared to induced labour, spontaneous labour cases are undergone more of instrumental delivery and LSCS. Duration of labour is increased in pregnancies completed 40 weeks of gestational age and beyond, both in primigravida and multigravida. No significant maternal mortality seen in the study. Regarding the perinatal morbidity i.e. low Apgar score, Meconium stained liquor are significantly increased in the pregnancies completed 40 weeks and beyond. Perinatal mortality significantly increased in pregnancies completed 40 wks of GA and beyond.

KEY WORDS: Prolonged pregnancy, post term, MAS.

ABBREVIATIONS USED: GA-Gestational age, PPH-Post partum hemorrhage, LSCS-Lower segment caeserean section, MAS- Meconium aspiration syndrome.

INTRODUCTION: Approximately 3 to 10% of all pregnancies continue to at 42 weeks gestation. Advances in obstetric and neonatal care have lowered the absolute mortality risk. However, retrospective studies of these so- called post term pregnancies have found an increased risk to the mother and fetus. The perinatal mortality (i.e., stillbirths plus neonatal deaths) of two to three

deaths per 1,000 deliveries at 40 weeks gestation approximately doubles by 42 weeks and is four to six times greater at 44 weeks[1].

The issues of post term pregnancy, risk and its management have generated great controversy. The fetal risk associated with prolonged pregnancy is small but it is real. Therefore the pregnancy that continues beyond 294 days requires careful surveillance.

Women worry when they do not deliver by the estimated date of delivery. Thus it is important of counsel during the antenatal visits. The women should be told that she is most likely to deliver between 38 to 42 weeks and not on the date of EDD.

The anxiety increases even to the obstetrician when the women does not deliver by 41 weeks, because morbidity and mortality can occur between 41 and 42 weeks although it is more common beyond 42 weeks. Centres vary in the availability of tests for fetal surveillance and the ability to cope with the demand. Based on these factors, it is difficult to have a uniform policy for management of post term pregnancy[2].

AIMS OF THE STUDY:

- To study the maternal mortality and morbidity in pregnancy of gestational age 40 completed weeks and beyond.
- To study the fetal outcome in pregnancy of gestational age 40 completed weeks and beyond.

MATERIALS AND METHODS:

The present study was carried out in OBG department, Shimoga institute of medical sciences hospital, Shimoga, during the period between November 2008 to December 2010.

The present study included the pregnant women with gestation age of ≥ 40 weeks, i.e., pregnant women who have completed 40 weeks, 41 weeks and 42 completed weeks of gestation i.e., ≥ 294 days from the last menstrual period.

INCLUSION CRITERIA:

- Maternal age group 15-44 years.
- Singleton pregnancy, reliable dates, previous regular menstrual cycles.
- Cases in which ultrasonography was performed between 12-22 weeks of pregnancy.

EXCLUSION CRITERIA:

- Maternal age groups <15 and > 44 years.
- Unknown dates, irregular menstrual cycles, anomalous fetus, malpresentation, maternal complications like pre-eclampsia, diabetes and cardiac diseases in pregnancy.

Study adhered to ICMR guidelines of Experiments on Human participants and the subjects were included after obtaining Informed consent.

The study was approved by the ethical committee of our hospital. Totally 166 cases who attended the antenatal clinic and labour room fulfilled the criteria's and were included in the study. All the cases for the present study were taken after thorough general physical examination, cardiovascular system and respiratory system, per abdomen and per vaginal examination. Routine investigations like Hb%, routine urine examination, blood grouping and Rh typing, and ultrasonography were done. Comparison was done between the samples (i.e., ≥40, 41 & 42 weeks)

on the following parameters: Gestational age wise distribution, Age wise distribution, Parity Distribution, Mode of delivery, Duration of Labour, Maternal Morbidity and Mortality Birth weight and Perinatal morbidity and mortality.

RESULTS:- GESTATIONAL AGE WISE DISTRIBUTION: In the present study, there were 43.97% cases belonging to > 40 completed wks of GA, 34.3% cases to >41 completed wks of GA and 21.6% cases belonging to 42 completed wks of GA.

AGE WISE DISTRIBUTION: In present study, there is inverse relationship between maternal age incidence of prolonged pregnancy. 46.6% cases are between 15 -20 yrs age, 39.7 % of cases between 21-25 yrs of age, 10.9% cases b/w 26-30 yrs of age and 5.5% cases b/w 31-35 yrs of age in 40 completed wks of GA.

31.6% cases are between 15-20 yrs of age and 43.9% of cases are between 21-25 yrs of age, 19.3% cases b/w 26-30 yrs of age and 3.5% cases b/w 31-35 yrs of age in 41 completed wks of GA.

27.8% of cases are between 15-20 yrs of age and 40.5% of cases are between 21-25yrs of age, 25% cases b/w 26-30 yrs of age and 2.8% cases b/w 31-35 yrs of age in 42 wks completed GA.

PARITY DISTRIBUTION: In the present study prolonged pregnancy occurred more frequently in primigravida than in multigravida. About 58% cases belonged to primigravida and 44% cases belonged to multigravida.

Among 40 completed weeks of GA. 44% of cases belonged to primigravida and 45.2% in multigravida.

Among 41 wks of completed GA, 34.4% of cases belonged to primi and 34.2% of cases in multi.

Among 42 completed wks of GA, 21.5% cases belonged to primis and 20.6% of cases belonged to multigravida.

MODE OF DELIVERY:

TABLE-1: Mode of delivery in pregnancies extended beyond 40 weeks gestational age

GA (wks)	Normal vaginal delivery		Instrumental delivery		LSCS	
	No. Cases	%	No. Cases	%	No. Cases	%
>40	54	72.9	3	4	17	22.9
>41	29	53.7	5	25.9	20	37
>42	14	36.8	4	10.5	20	52.6

The rate of surgical intervention increased in cases of post term labour, because of increased frequency of prolonged labour, fetal hypoxia and failed induction. In our study the LSCS delivery rate was very high probably due to patients being referred to referral (Tertiary) hospital after a trial of labour being given in periphery.

LABOUR INDUCTION VERSUS SPONTANEOUS LABOUR: In present study, 100 cases had spontaneous labour and 64 cases were induced.

Among spontaneous labour, 26% cases had LSCS in 40 completed wks of GA. 42.1% cases underwent LSCS in 41 completed wks of GA and 58.3% underwent LSCS in 42 completed wks of GA.

Among induced labour, No cases had LSCS in 40 completed wks of GA, 31.6% cases underwent LSCS in 41 completed wks of GA and 47.6% had LSCS in 42 completed wks of GA.

DURATION OF LABOUR: In present study, the duration of labour in induced group was longer when compared to spontaneous labour and duration of labour is longer in primigravida than in multigravida.

TABLE-2: Duration of labour in pregnancy of gestational age completed 40 wks and beyond.
Primigravida:

GA (wks)	Duration of labour (hrs)					
	<6 hours		7- 12 hours		> 12 hours	
	No.	%	No.	%	No.	%
>40	1	3.1	29	90.6	2	6.2
>41	-	-	5	27.8	13	72.2
>42	-	-	1	12.5	7	87.5

TABLE 3: Duration of labour in Multigravida

GA (wks)	Duration of labour (hrs)					
	<6 hours		7- 12 hours		> 12 hours	
	No.	%	No.	%	No.	%
>40	4	16.7	17	70.8	3	12.5
>41	2	11.8	5	29.4	10	58.8
>42	1	12.5	3	37.5	4	50

Maternal Morbidity and Mortality:

TABLE- 4: Maternal morbidity in pregnancies of gestation age 40 wks and beyond.

	> 40 wk GA	> 41 wk GA		> 42 wk GA	
		No.	%	No.	%
PPH	-	2	3.5	1	2.7
Cervical tear	-	2	3.5	2	5.5
Perineal tear (II° – III°)	-	2	3.5	1	2.7
Shoulder dystocia				2	5.5

In present study there was no antenatal and postnatal death in pregnancies extending beyond 40 wks of GA.

The main cause of morbidity in the present study consists of increased rate of LSCS, Perineal tears, Cervical tears, Shoulder dystocia and Post partum haemorrhage.

No significant maternal morbidity in pregnancies of gestational age 40 wks and beyond. There was no maternal mortality in the present study

BIRTH WEIGHT:

In our present study the mean birth weight of babies in 40 completed wks of GA is around 2.8 kgs. And mean birth weight of babies in 41 wks completed GA is around 3.3 kg and in 42completed wks of GA is around 3.5kgs.

Perinatal morbidity and mortality:

TABLE-5: Perinatal mortality in pregnancies completed 40 wks gestational age and beyond.

	>40wk GA	>41 wk GA	>42wk GA
Still born	-	1(1.7%)	1(2.7%)
Neonatal death	1(1.4%)	4(7%)	7(19.4%)

1 case of stillbirth in 41 wks and 42 wks of GA each. The causes of neonatal deaths were Meconium aspiration syndrome and birth asphyxia.

DISCUSSION: GESTATIONAL AGE WISE DISTRIBUTION: In the present study, there were 43.97% cases belonging to > 40 completed wks of GA, 34.3% cases to >41 completed wks of GA and 21.6% cases belonging to 42 completed wks of GA. Observation from British Columbia Reproductive Care programme[3] (3 yrs study) shows that average of 12-13% in the 40 completed wks of GA, 1.5 to 2% in 41 completed wks of GA and 0.1% in 42 completed wks GA.

AGE WISE DISTRIBUTION: In present study, there is inverse relationship between maternal age incidences of prolonged pregnancy.
A similar observation was made by Eden et al [4] where the mean age of post term was 25.8 yrs.

PARITY DISTRIBUTION: In the present study prolonged pregnancy occurred more frequently in primigravida than multigravida. About 58% cases belonged to primigravida and 44% cases belonged to multigravida.

However no difference of duration of gestation was found between primigravida and multigravida in study by Holtorff et al and even no significant difference was seen in James M. Alexander[5] study in prolonged pregnancies.

MODE OF DELIVERY: The rate of surgical intervention increased in cases of post term labour, because of increased frequency of prolonged labour, fetal hypoxia and failed induction.

According to Alexander et al 2000[5], the LSCS delivery rate was 10% at term and 14% at post term. In our study the LSCS delivery rate was very high probably due to patients being referred to our (Tertiary) hospital after a trial of labour being given in periphery.

LABOUR INDUCTION VERSUS SPONTANEOUS LABOUR: In present study, 100 cases had spontaneous labour and 64 cases were induced.

Among spontaneous labour, 26% cases had LSCS in 40 completed wks of GA. 42.1% cases underwent LSCS in 41 completed wks of GA and 58.3% underwent LSCS in 42 completed wks of GA.

Among induced labour, No cases had LSCS in 40 completed wks of GA, 31.6% cases underwent LSCS in 41 completed wks of GA and 47.6% had LSCS in 42 completed wks of GA.

Hannah et al[6] also observed that, caesarean section rate was low in induction group compared to spontaneous group.

The most common indication for LSCS was fetal distress.

DURATION OF LABOUR: In present study, the duration of labour in induced group was longer when compared to spontaneous labour and duration of labour is longer in primigravida than in multigravida.

In Alexander et al[5] Women who entered spontaneous labour before their scheduled inductions, compared with those who required labour induction, labour was longer and epidural analgesia was more frequent in women who underwent induction than in those with spontaneous labour.

Maternal Morbidity and Mortality:

In present study there was no antenatal and postnatal death in pregnancies extending beyond 40 wks of GA.

The main cause of morbidity in the present study consists of increased rate of LSCS, Perineal tears, cervical tears, Shoulder dystocia and Post partum haemorrhage.

In his study by AB Caughey and JT Bishop[7], rate of LSCS delivery, operative vaginal delivery, III° to IV° perineal lacerations and rate of PPH are increased beyond 40 wks of GA.

BIRTH WEIGHT: Vorherr[8] quotes a mean birth weight of 3.7 kg at post term gestation and 3.3kgs at term gestation. The variations probably are because of maternal constitutional, nutritional and racial variations.

Perinatal morbidity and mortality:

Alexander et al[5] reported an incidence of 6% and 5% at post term and term respectively. When compared to above study, in the present study there was slight increase in perinatal mortality at 41 completed wks of GA and 42 completed wks of GA.

CONCLUSION: Our present study demonstrates definite increase in the maternal morbidity in the form of Instrumental deliveries, LSCS, PPH, Perineal laceration in pregnancies completed 40 wks and beyond. Above mentioned maternal morbidity increases in pregnancies >42 completed wks of GA.

Our present study also demonstrates that there is a significant increase in the perinatal mortality and morbidity in the form of meconium aspiration syndrome, birth asphyxia and neonatal death in pregnancies completed 40 wks and beyond especially even greater in completed > 42 wks of GA. Regarding the induction of labour in prolonged pregnancies, so much of controversy is when to do? Most of the study including the present study shows induction at 41 completed wks, if otherwise contraindicated is a better option.

In our study, induction of labour does not increase the rate of maternal morbidity.

In modern obstetrics, so much of scientific approaches in detection of fetus surveillance have developed, still in prolonged pregnancies, perinatal mortality is high.

We await larger multicentric trials and further scientific approaches towards fetal surveillance in decreasing the perinatal morbidity and mortality in prolonged pregnancies.

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