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A study of maternal and fetal outcome in pregnancy beyond 40 weeks of gestation

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Abstract
Background: Pregnancy beyond dates is one of the most frequent clinical dilemma faced by the obstetricians. It is controversial whether to choose expectant management with antepartum foetal surveillance or to induce labour.
Materials and Methods: This Prospective cross sectional study included 200 pregnant women both primigravida and multigravida beyond 40 weeks of gestation admitted in Dept. of OBG, Al-Ameen Medical College, Vijayapur, India from December 2018 to May 2020. A detailed history and examination was carried out along with close observation till delivery and postnatal period. Patients who did not enter into labour spontaneously after 40 weeks of gestation were offered induction of labour. Data was documented and analysed.
Results: Out of 200 patients studied, 124 were multigravida and 76 were primigravida's which was significant. 166 cases were in the gestational age group of 40 wk – 40 wk 6 days and only 8 cases were beyond 42 weeks of gestation. 73.5 % of the cases delivered vaginally, the rate of caesarean section was 26.5 %. Severe oligohydramnios was the most common indication for caesarean section. The rate of induction was 13%. The overall rate of NICU admission was 12.5%.
Conclusion: The rate of caesarean section and perinatal morbidity increased as the gestational age increased in our study. According to the present study it seems reasonable to induce labour at 40 weeks of gestation to have a favourable outcome.

Keywords: caesarean section, induction of labour, oligohydramnios.

Introduction
Prolonged pregnancy is defined by FIGO, ACOG [1] and WHO [2] as that pregnancy which is equal to or beyond 294 days or 42 weeks of gestation from the first day of the last menstrual period.
The overall, incidence of prolonged pregnancy ranges from 4-14% (7%) [3]. It is 14% and 6% beyond 41 weeks and 42 weeks of gestational age respectively [4].
The most common cause for prolonged pregnancy is inaccurate dates or an error in the calculation of EDD. Only 10-40% of women can recall their exact of the first date of their LMP. The increasing availability of USG is known to improve the accuracy of dating a pregnancy markedly. Pregnancy continuing beyond 40 weeks of gestation is associated with increased maternal morbidities. The rate of caesarean section also rise with the increase in the gestational age. The perinatal morbidity and mortality is significantly more at ≥41 weeks of gestational age, although the absolute risk of perinatal death is low. (*Zeitlin et al)* [5].
The mothers are prone to labour dystocia, cephalopelvic disproportion, operative deliveries and caesarean sections with advancing gestational age, cervical tears, 3rd and 4th degree perineal lacerations, post-partum haemorrhage and puerperal infections.
There is increased risk for macrosomia (*Nahum and colleagues*) [6], subsequent risk of shoulder dystocia and fetal distress during labour. With decrease in placental function, there is a reduction in the amniotic fluid volume after term and may often result in oligohydramnios. These pregnancies are at an universal risk of cord compressions.
Oligohydramnios is related with a greater probability of meconium stained liquor leading to meconium ingestion and aspiration syndrome. The rate of stillbirths double at 42 weeks of gestational age and increases by six fold at 43 weeks of gestational age. There is increased NICU admissions [7].
These adverse outcomes can be reduced by counselling for regular antenatal check-ups and

follow up during pregnancy and induction of labour at an earlier gestational age.

Aims and Objectives

1. To study the incidence of vaginal deliveries and caesarean section in postdated pregnancy
2. To asses maternal and fetal outcome in postdated pregnancy.

Methods

This was a prospective cross sectional study carried out in Dept. of OBG, Al-Ameen Medical College, Vijayapur, India from December 2018 to May 2020 for a period of 18 months. Written informed consent was taken from the patients. A total of 200 patients were included.

Inclusion criteria

Pregnant women more than 40 weeks of gestation.
Those who were willing to participate and give consent were included.

Exclusion criteria

Mothers with medical disorders.
Women with previous LSCS.

Patients fulfilling the inclusion and exclusion criteria were included in the study. Detailed history of the patient was taken and the GA was assigned based on the mother's statement of first date of LMP if she was able to recollect and was reliable or was taken by the EDD obtained from the first trimester USG. General, systemic and obstetrical examination was carried out. Fetal presentation, liquor adequacy were assessed. Fetal weight was estimated clinically and then vaginal examination to assess the cervical status and CPD. An admission NST was carried out. Patient's blood sample was collected for routine investigations such as CBC, blood grouping and Serology.
In patients who went into spontaneous labour between 40 wks 1 day to 40 wks 6 days of gestation, 41 to 41 wks 6 days of gestation, 42 wks and above, a partogram was used to monitor the progress of labour and active management of labour was done by ARM and administration of oxytocin if required. In Patients who did not enter into labour spontaneously after 40 weeks of gestation were offered induction of labour. Until then expectant management with antepartum fetal surveillance was done which consisted of biweekly non stress test and estimation of AFI. Intracervical PGE2 gel with dosage of 0.5mg was used for induction of labour.
The mode of delivery was decided accordingly. Any maternal complication during labour or intraoperatively during a caesarean section were documented. Perinatal outcome assessment was in the form Apgar score at 1 minute and 5 minutes and NICU admissions in all the groups. All the results were compared to arrive at an optimum period of intervention in the pregnancies that advance beyond 40 weeks of gestation. Record of the treatment given to the neonate and the mother during her stay in the hospital was maintained.

Results

Maximum 151(75.5%) patients were between 21 to 30 years of age, 39 patients (19.5%) were less than 20 years and 10 (5%) were between 31-35 years of age(Table 1).

Table 1: Distribution of Cases according to Age

Age (years)	N	Percent
≤20	39	19.5
21-30	151	75.5
31-35	10	5
Total	200	100

Of the 200 cases, 124 (62%) were multigravidas and 76 (38%) were primigravida's (table 2).

Table 2: Distribution of Cases according to Gravida

Gravida	N	Percent
Multigravida	124	62
Primigravida	76	38
Total	200	100

166 (83%)cases were in 40wk-40wks 6days GA group, 26 (13%) in 41 weeks to 41 weeks 6 days GA group and 8 (4%) were in ≥42 weeks GA group (table 3).

Table 3: Distribution of Cases according to GA

GA(wks)	N	Percent
40 wk-40wk 6d	166	83
41 wk - 41 wk 6d	26	13
>42 wks	8	4
Total	200	100

In this study there were 7 (87.5%) primigravida's and 1(12.5%) multigravida in the gestational age group of ≥ 42 wks , whereas in gestational age groups of 40 wk-40 wk6D and 41 wk-41 wk-6 D the primigravida and multigravidas were 57 (34.3%) ,109(65.7%) , and 12(46.2%), 14 (53.8%) respectively. This was statistically significant (table 4).

Table 4: Association between Gravida and GA

Gravida	GA(wks)						p value
	40 wk-40wk 6d		41 wk - 41 wk 6d		>42 wks		
	N	%	N	%	N	%	
Multi	109	65.7	14	53.8	1	12.5	0.007*
Primi	57	34.3	12	46.2	7	87.5	
Total	166	100.0	26	100.0	8	100.0	

Note: * significant at 5% level of significance (p<0.05)
147(73.5%) patients delivered vaginally, whereas 53(26.5%) cases underwent caesarean section (table 5).

Table 5: Distribution of Cases according to Mode of Delivery

Mode of delivery	N	Percent
Vaginal delivery	147	73.5
Caesarean Section	53	26.5
Total	200	100

Of the 147 women who delivered vaginally, 122 (83%) cases delivered spontaneously, 21(14.3%) cases were induced successfully and only in 4 (2.7%) cases forceps were applied (table 6).

Table 6: Distribution of Cases according to Vaginal delivery

Vaginal delivery	N	Percent
Spontaneous delivery	122	83.0
Successful Induction	21	14.3
Instrumental delivery (forceps)	4	2.7
Total	147	100.0

Severe oligohydramnios was the most common indication for caesarean section with 8.4 % and 15.3 % in the gestational age groups of 40 wk-40 wks 6D and 41 wk - 41 wks 6 days respectively. In the gestational age group of above 42 weeks caesarean section was done for CPD in 25% and 12.5 % for severe oligohydramnios (figure 1).

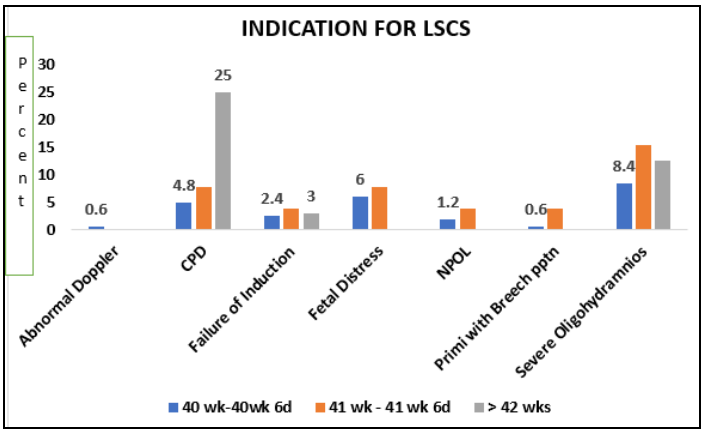

Fig 1: Indication of Cesarean Section by GA

There was 2nd perineal tear in 1.2% and 3.8 % in the gestational age groups of 40 wk - 40 wk 6 D group and 41 wk - wk 6 D respectively. There was uterine extension in 3.8 % of cases in the gestational age group of 41 wk - 41 wk 6 D (figure 2). Only 6 % of the neonates had an apgar score of < 4 at 5 minutes between the gestational age group of 40 wk – 40 wk6D. 11.5% and 25% of the neonates had an apgar score < 4 at 5 minutes in the gestational age group of 41 wk-41 wk 6 D and ≥42 wks respectively (table 7).

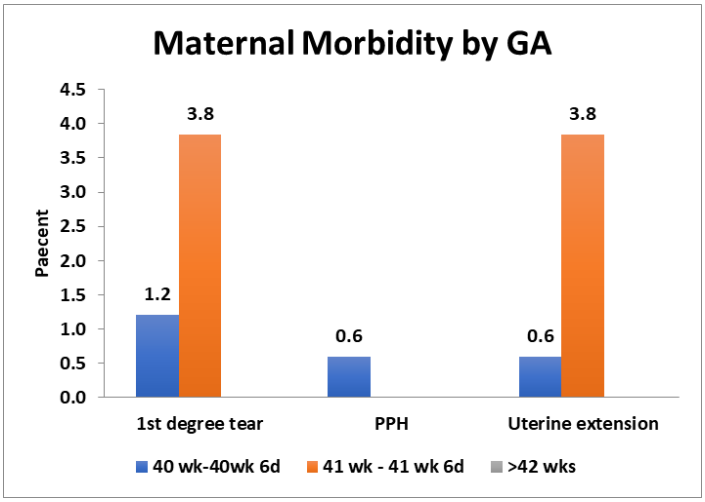

Fig 2: Maternal Morbidity according to GA

Table 7: Gestational age & neonatal APGAR score

Apgar score		40 wk - 40 wk 6D N=166	41 wk-41 wk 6D` N= 26	≥ 42 wks N=8
1 min	<4	13	3	2
	5-7	133	22	6
	>7	20	1	0
5 min	<4	10	3	2
	5-7	136	7	6
	>7	20	16	0

Admissions to NICU was highest at the gestational age group ≥ 42 wks (25%), in comparison to 11.4% and 15.4 % in the gestational age groups of 40 wk-40 wk 6 day and 41 wk -41 wk 6d group respectively (figure 3).

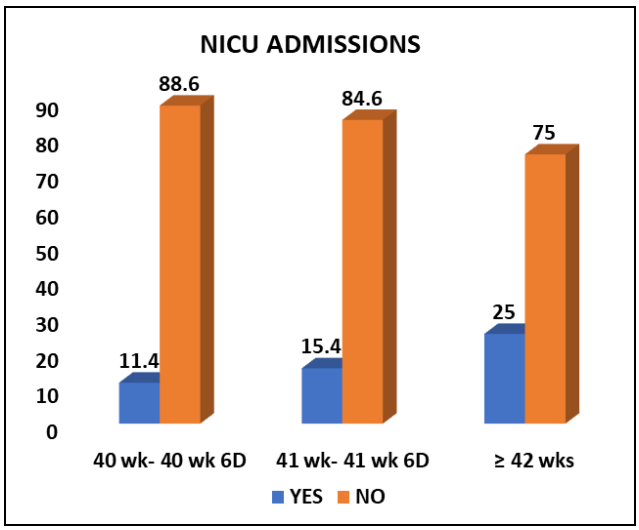

Fig 3: NICU admission by GA

Discussion

Of the 200 patients in our study, 151 (75.5 %) cases were under 21-30 years, 39 (19.5%) cases were under 20 years and 10 (5%) cases were between 31-35 years. The mean age in our study was 24 years, which was similar to the mean age (24 years) in Mahapatro's study [8], and (23.56 years) in Bhriegu *et al*'s study [9]. Whereas the mean age in Eden *et al*'s [10] study was 25.8 years. 76 (38%) of them were primigravida and 124 (62%) of them were multigravida which was significant. Majority of the cases in our study were multigravida which is similar to cases in Eden *et al*'s study [10]. However, in the studies done by Bhriegu *et al*. [9] and Mahapatro *et al* [8] there were 62% and 71 % primigravidas respectively. 147(73.5%) cases in our study delivered vaginally, the rate of induction of labour was 13 % and the 53(26.5%) cases underwent caesarean section. The caesarean section rate in Hannah *et al*'s study [11] was 24% which was similar to our study. Whereas, in the studies conducted by Mahapatro [8] and Alexander *et al*. [12] it is 16.7% and 14 % respectively. In our study the rate of caesarean deliverey is high probably due the patients being referred to our tertiary hospital after a trial of labour was given. The cesareasn section rate in studies done by Dobriya *et al*. [13] (32.14%) and Bhriegu *et al*. [9] (34%) was higher in comparison to the caesarean section rate in our study. Six randomised trials compared a policy of routine induction at 40 weeks, (Cole *et al*, Martin *et al*, Tylleskar *et al*, Breart *et al*, Sande *et al*, Egarter *et al*.,) against expectant

management until 42 weeks of gestation. These trials revealed no evidence of any major benefit or risk to routine induction at 40 weeks. There was no effect on caesarean section. However, it was observed that, induction around 40 weeks significantly decreased the incidence of meconium staining in the labour [14]. The main causes of maternal morbidity in prolonged pregnancy is mainly due to increased caesarean section rate, perineal tears and postpartum haemorrhage. In a study by Dobriya *et al* [13] the rate of PPH was 5.95%, whereas in our study it was 0.5%.

Perinatal morbidity as measured by low Apgar score was high in our study as compared to the study conducted by Alexander *et al*, [12] this difference may be attributed to the less number of cases studied in our study. Admission to NICU also increased progressively with the increasing gestational age beyond 40 weeks. It was 25% in our study beyond 42 weeks of gestation whereas in Alexander *et al*'s [12] study it was 0.6%.

Table 8: Comparison of perinatal outcome of our study with Alexander *et al*' study

Perinatal outcome	40 wks – 40 wks 6 D		41 wks - 42 wks		≥ 42 wks	
	Alexander [12]	Present study	Alexander [12]	Present study	Alexander [12]	Present study
Apgar score< at 5 min	0.2 %	6%	0.2%	11.5%	0.3%	25%
NICU Admissions	0.4 %	11.4%	0.5 %	15.4%	0.6%	25%

Alexander *et al*. [12] concluded that routine intervention at 41 weeks of gestation would likely increase labour complications with little or no benefit.

Conclusion

In today's world with the norm of a small family, every pregnancy is considered precious. Pregnancy beyond due dates is known to evoke anxiety and stress in the patients and obstetricians. Easy availability and increasing use of USG has significantly improved dating pregnancies accurately, and this has led to continuing pregnancies beyond EDD a rarity. The timely onset of labour is an important determinant of perinatal outcome. However, prolonged gestation continues to be associated with adverse outcomes. The rate of caesarean section and perinatal morbidity increased as the gestational age increased in our study. According to the present study it seems reasonable to induce labour at 40 weeks of gestation to have a favourable outcome.

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