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FETOMATERNAL OUTCOME IN POST DATED PREGNANCY: A RETROSPECTIVE STUDY

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Abstract

Introduction: Postdated pregnancy is defined as pregnancy extended beyond 40 weeks of gestation or 280 days. FIGO and WHO defined post term pregnancy as a pregnancy which has gestational length of 294 days or more, Post term pregnancy is defined as pregnancy that has extended to or beyond 42 weeks of gestation, or estimated date of delivery (EDD)+14 days. Therefore we conducted this study to evaluate fetomaternal outcome in post dated pregnancies.

Material & Methods: This was a retrospective hospital based study conducted on 400 pregnant women beyond 40 weeks of gestational age from the period of November 2018 to October 2019. A detailed history and clinical examination were recorded in performa from hospital records. Data pertaining to the onset of labour, mode of delivery, caesarean section due to fetal distress/ meconium stained liquor birth weight, Apgar score at 1minute and 5minute,NICU admission and perinatal death were analysed. The data obtained were entered in Microsoft excel and were analysed using appropriate statistical test (chi square test). P value of <0.05 was taken as significant.

Results: Majority of cases belonged to rural area where total 57.3% cases were found while 171(42.7%) cases belonged to urban area. 184(46%) cases were booked and 216(54%) cases were unbooked. 260(65%) cases were referred from other centers, 140(35%) cases were not referred. 253(63.3%) cases were primigravida, 87(21.8%) cases were second gravida and 14.9% cases were multigravida.As a induction of labour oxytocin was used in 126(31.5%)cases, CP gel was used in 73(18.3%) of cases while miso was used in 26(6.5%) of cases.

Conclusion: Maternal morbidity increased in the form of emergency LSCS, postpartum hemorrhage, instrumental deliveries, as the gestational age increased beyond 40 weeks. Maternal and fetal morbidity and mortality can be reduced by electively inducing pregnant women at 40 weeks as allowing them to continue beyond this gestational age has shown adverse feto-maternal outcomes.

Keywords: Fetomaternal, LSCS, Maternal Morbidity

Introduction

The accepted normal duration of pregnancy is 266 days after ovulation. The timing of an ovulatory event may be estimated as occurring 14 days after the first day of the last menstrual period if cycles occur at 28-day intervals.

Postdate pregnancy and post maturity syndrome should not be used as interchangeable terms. Post date pregnancy is defined as pregnancy extended beyond 40 week of gestation or 280 day.

Post term pregnancy is defined as pregnancy that has extended to or beyond 42 weeks of gestation (294 days), or estimated date of delivery (EDD) + 14 days (ACOG, 2004).

The post maturity syndrome was described in detail by Clifford[1] and advocates the use of a staging system to quantify increasingly severe clinical manifestations of placental dysfunction. Stage I is typified by a long, lean infant with wrinkled, peeling skin. Stage II includes the clinical findings of stage I and adds greenish meconium staining of amniotic fluid, fetal skin and placental membranes. Stage III is characterized by a high incidence of fetal distress and yellow-brown meconium staining, indicative of the presence of meconium for several days. The incidence of the post maturity syndrome increases with the length of pregnancy; at 42 weeks, about 20% of fetuses have stigmata of post maturity.

The incidence of post term pregnancy varies depending on whether the calculation is based on the history and clinical examination alone, or whether early pregnancy ultrasound examination is used to estimate gestational age[5,6].

The incidence of postdatism decreases as the accuracy of the dating criteria used increases. The reported incidence of postdate pregnancy ranges from 3 to 17%[5-7].

When menstrual dating is the prevailing criteria, the incidence of postdate pregnancies is 8.8%[8]. When early ultrasound corroborates the menstrual dating, the incidence of postdate pregnancies falls to about 6.9%[9].

Sonography is most useful when performed before the 20th week of gestation, with measurement of the crown-rump length in the first trimester as the most accurate parameter. Menstrual recall, early palpation of uterine size and Doppler auscultation of fetal heart sound are less accurate but helpful methods used to determine the estimated date of delivery. Menstrual dating biases towards an overestimation of gestational age compared to ultrasound dating. It is also less accurate than ultrasound dating due to errors in the patient's ability to correctly recall the timing of her last menstrual period. Amenorrhea caused by recent abortion, discontinuation of contraceptive pill use, or breast-feeding also obscure the timing of ovulation and conception.

Primigravida[9,10] low socioeconomic status[11] maternal weight gain[12], obesity 4 and smoking 4 are associated with a higher incidence of prolonged pregnancy.

Materials and Methods

A retrospective hospital based study was carried out in Department of Obstetrics and Gynaecology S.P. Medical College & Associate Group of Hospital, Bikaner. Four hundred pregnant women beyond 40 weeks period of gestation age were taken from the period November 2018 to October 2019.

Sample size

The sample size is 400 pregnant women with post dated pregnancy.

Sample selection

Inclusion criteria

- Pregnant women more than 40 weeks period of gestation (last three menstrual cycles regular, not used contraceptive pills for the past 3 months, not conceived during lactational amenorrhea, with first trimester scan).
- Singleton pregnancy with vertex presentation.
- Delivered at S.P. Medical College and P.B.M. Associate Group of Hospitals, Bikaner.

Exclusion criteria

- Pregnant women with any associated complications such as previous lower segment caesarean section (LSCS), mal-presentations, placenta previa, abruption and PIH.
- Pregnant women with fetal anomalies
- Pregnant women with medical disorder (Heart Disease, Diabetes Mellitus, Renal Disease etc).

Methodology

400 pregnant women with post dated pregnancy admitted in labour room of department of Obstetrics and Gynaecology, S.P. Medical College, Bikaner were included in the study.

A detailed history regarding age, parity, last menstrual period, lactational amenorrhea, menstrual irregularity (delayed), use of OCP pill, past medical history and first trimester scan was taken from the patient's hospital record and were entered in Performa.

General physical examination to note pallor, pedal oedema, pulse and BP was taken from hospital record. Abdominal examination to note fundal height presentation, lie, engagement of presenting part, fetal heart sound and per vaginal examination for calculating modified Bishop score and pelvic adequacy was taken from hospital record. A patient was considered postdate by correlating her LMP (Naegele's),clinical examination and obstetric ultrasound finding. On the basis of Bishop score if cervix was unfavourable(bishop score< 6) for induction, cervical ripening agents like Dinoprostone gel or Misoprostol tablets or oxytocin were used and if cervix was favourable(bishop score≥ 6), oxytocin augmentation was done after assessing the uterine contraction. If the liquor was thick meconium+Fetal distress, fetal distress and spontaneous vaginal delivery could not be possible, then the decision of LSCS was taken. All these data was taken from patient hospital record.

Data pertaining to the onset of labour (spontaneous/Induced), mode of delivery (operative vaginal delivery, Normal vaginal delivery, caesarean section), caesarean section due to fetal distress, meconium stained liquor and for other indication, Modified Bishop score were analysed.

The patient was followed up to discharge after delivery and following perinatal outcome were recorded in terms of birth weight, APGAR Score at 1minute and 5minute,NICU admission rate and perinatal death were analysed.

Statistical analysis

The data obtained were entered in Microsoft excel and were analysed using appropriate statistical test (chi square test). P value of <0.05 was taken as significant.

Results

A retrospective hospital based study was carried out in Department of Obstetrics and Gynaecology S.P. Medical College & Associate Group of Hospital, Bikaner. Pregnant women beyond 40 weeks of gestation age were taken from the period November 2018 to October 2019. The following points were drawn

In present study, majority of cases (55%) had their age between 21-25 years, followed by 4.8% cases had their age >30 years, 21% cases had their age between 18-20 years, and 19.3% cases had their age between 26-30 years. Majority of cases belonged to rural area where total 57.3% cases were found while 171(42.7%) females belonged to urban area. Out of total 400 cases, 199(49.8%) cases

belonged to lower socioeconomic status, 159(39.8%) cases belonged to middle socioeconomic status while 42(10.5%) cases belonged to upper socioeconomic status. Out of total 400 cases, 184(46%) cases were booked and 216(54%) cases were unbooked. Out of total 400 cases, 260(65%) cases were referred from other centers while 140(35%) cases were not referred. In present study, out of total 400 cases, 253(63.3%) cases were primi gravida while 87(21.8%) cases were second gravida and 14.9% cases were multigravida (Table 1).

In present study, majority of cases had their modified bishop score ≤ 4 where total 177(44.3%) cases were found followed by bishop score between 5-8_where total 133 (33.3%) cases were found and 90 (22.5%) cases had their modified bishop score ≥ 9 (Table 2).

In present study vaginal delivery rate highest after spontaneous labour which was 82.8% and least after Misoprostol induction 38.5%. Vaginal delivery rate after oxytocin and CP gel induction was 45.2% and 48% respectively. Out of 247 cases, 145(82.8%) cases had spontaneous vaginal delivery, and 102(45.3%) cases delivery vaginally after induction. Vaginal delivery rate after spontaneous labour was 82.8% and after induction was 45.3% (Table 3).

In present study caesarean section rate was 38.4% in 40wk+1d- 40wk+6d period of gestation group ,36.7% in 41wk-42wk period of gestation group and 50% in >42wk period of gestation group (Table 4).

In present study perinatal morbidity and mortality was highest in >42wk period of gestation 12.5% NICU admission and 25% perinatal mortality. As compare to in 41wk-42wk period of gestation 10.7% NICU admission and 5.4% perinatal mortality, in 40wk+1d-40wk+6d period of gestation 9.8% NICU admission and 3.3% perinatal mortality (Table 5).

Table 1: Distribution of cases according to different parameters

Characteristics		No. of Cases	Percentage	Mean±SD
Age Group (Years)	18-20	84	21.0	23.61±3.53
	21-25	220	55.0	
	26-30	77	19.3	
	>30	19	4.8	
Residential Area	Rural	229	57.3	-
	Urban	171	42.7	
Socioeconomic Status	Lower	199	49.8	
	Middle	159	39.8	
	Upper	42	10.5	
Booking Status	Booked	184	46.0	
	Unbooked	216	54.0	
Referral/non referral	Referred	260	65.0	
	Non Referred	140	35.0	
Gravida	1	253	63.3	
	2	87	21.8	
	≥3	60	14.9	

Table 2: Distribution of cases according to modified Bishop Score

Modified Bishop Score	No. of Cases	Percentage
≤4	177	44.3
5-8	133	33.3
≥9	90	22.4
Total	400	100
3Mean±SD	4.83±1.58	

Table 3: Vaginal delivery rate after spontaneous labour and after induction

Type of Induction	No. of Cases	Delivered Vaginally	Percentage
Oxytocin	126	57	45.2
CP gel	73	35	48.0
Misoprostol	26	10	38.5
Spontaneous	175	145	82.8
Total	400	247	

Table 4: Period of gestation and caesarean section rate

Period of gestation	No. of cases	Percentage
40wk+1d-40wk+6d	117/305	38.4
41wk-42wk	32/87	36.7
>42wk	4/8	50.0
Total	153	

Table 5: Period of gestation and perinatal morbidity and mortality

Period of gestation	NICU admission	%	Perinatal death	%
40wk+1d-40wk+6d	33	9.8	11	3.3
41wk-42wk	6	10.7	3	5.4
>42wk	1	12.5	2	25.0
Total	40		16	

Discussion

Post-dated pregnancy is defined as one which has crossed expected date of delivery. The incidence of PTP varies depending on whether the calculation is based on the history and clinical examination alone, or whether early pregnancy ultrasound examination is used to estimate gestational age. A series of changes occur in the amniotic fluid, placenta and foetus which are associated with prolonged gestation. It has been reported that in a pregnancy which has crossed the EDD, there is an increased risk of intrapartum foetal distress mostly due to oligohydramnios, meconium stained liquor, macrosomia, foetal post maturity syndrome and Caesarean delivery. Prolonged pregnancy has always been regarded as a high risk condition because perinatal morbidity and mortality is known to rise. The interest in postdatism (just beyond expected date of delivery) has been recent and the management is controversial, more so with the advent of sonography providing information about placental aging and amount of amniotic fluid. The aim of the present retrospective study was to analyse the outcome of pregnancies which crossed the expected date of delivery.

How long should a pregnancy last? Should pregnancy be allowed to run a natural course (or) is intervention necessary?

Majority of cases (55%) had their age between 21-25 years, followed by 4.8% cases had their age >30 years, 21% cases had their age between 18-20 years, and 19.3% cases had their age between 26-30 years (Table 1).

Majority of cases belonged to rural area where total 229 (57.3%) cases were found while 171(42.7%) females belonged to urban area. In our study most of the cases belonged to rural area because lack of knowledge about complication associated with postdated pregnancy and poor health facility in rural area (Table 1).

Out of total 400 cases, 199(49.8%) cases belonged to lower socioeconomic status, 159(39.8%) cases belonged to middle socioeconomic status while 42(10.5%) cases belonged to upper socioeconomic status (Table 1).

In present study, out of total 400 cases, 184(46%) cases were booked and 216(54%) cases were unbooked. In our study unbooked patients mainly belonged to rural area and low socioeconomic status (Table 1).

Out of total 400 cases, 260(65%) cases were referred from other centers while 140(35%) cases were not referred. In our study most of the patients referred to periphery because lack of facility of skilled obstetrician, pediatrician, blood bank and operation theatre (Table 1).

In present study, out of total 400 cases, 253(63.3%) cases were primi gravida while 87(21.8%) cases were second gravida and 14.9% cases were multigravida (Table 1).

Nulliparity increases risk of prolonged pregnancy, but in various recent studies incidence of late term and post term is equal or slightly increased in multigravida. Marahatta et al[11], studied distribution of parity and found 54% patients were multigravida. Naz et al[12], in their study found maximum (54%) patients were multigravida. Mahapatro et al[13], found maximum (72%) of patients were primigravida. Akhter[14], also found in his study that maximum (53%) patients were multigravida.

Poor Bishop's score is associated with failure of induction and lesser chances of vaginal delivery. In present study, majority of cases had their modified bishop score ≤ 4 where total 177(44.3%) cases were found followed by bishop score between 5-8 where total 133 (33.3%) cases were and 90 (22.5%) cases had their modified bishop score ≥ 9. Bishop score < 6 needed further intervention by induction of labour (Table 2).

(INDUCTION OF LABOUR):-In present study out of 400 cases as a mode of induction, oxytocin was used in 126(31.5%), CP gel was used in 73(18.3%) of cases while misoprostol was used in 26(6.5%) of cases. Out of 400 cases 175 (43.7%) went into spontaneous labour, 225(56.3%) were induced. In our study 14 cases undergoes failed induction, 9cases after cp gel and 5cases after misoprostol induction. In our study vaginal delivery rate is more after CP gel induction which is 48% as compare to oxytocin and Misoprostol in which it was 45.2% and 38.5% respectively (Table 3).

In study conducted by Patel et al[15], showed maximum induction by Tab Misoprostol 25mcg in 12 (57.14%) followed by Dinoprostone gel in 9 patients (42.85%).

A prospective study was conducted by Singal et al[16] to evaluate the maternal and fetal outcome in prolonged pregnancy at Ajmer in which labor started spontaneously in 54% and induction was done in 46% of the total 150 postdated patients.

(CAESAREAN SECTION RATE):- In present study caesarean section rate height after Misoprostol induction which was 61.5% and least with spontaneous labour 17.2%. Caesarean section rate after oxytocin and CP gel induction was 54.7% and 52% respectively. Overall caesarean section rate after induction was 54.6%. In present study caesarean section rate was 38.4% in 40wk+1d- 40wk+6d period of gestation group, 36.7% in 41wk- 42wk period of gestation group and 50% in >42wk period of gestation group (Table 4). The result of a study conducted by Behra et al[17] showed that caesarean section rate was considerably less in PGE2 group (18%) as compared to the oxytocin group (45%).

(PERINATAL MORTALITY):-In present study, out of total 400 cases, only 16(4%) perinatal death were observed. Out of 16 perinatal deaths 4 cases were IUFD and 12 cases were show neonatal death. The causes of neonatal deaths were meconium aspiration syndrome and birth asphyxia mainly. There were 4 IUFD which were due to postmaturity, which were occurred at home as patients came late. 10 perinatal death occur between 40wk+1d -40wk+6d, 4 perinatal death occur between 41wk-42wk and 2 perinatal death occur in >42wk period of gestation (Table 5).

In present study perinatal morbidity and mortality was highest in>42wk. Period of gestation 12.5% NICU admission and 25% perinatal mortality. Perinatal mortality according to Akhter et al[14] is 5.4%.

(MATERNAL MORTALITY):-There was no maternal mortality observed in present study till discharge

Conclusion

The present study was conducted on pregnant women in the Obstetrics and Gynecology Department, P.B.M. Hospital, Sardar Patel Medical College, Bikaner from period of November 2018 to October 2019.A total of 400 pregnant women beyond 40wk period of gestation were included in the study.

With regular antenatal check-up, incidence of postdated pregnancy can be decreased. We conclude postdated pregnancies require early detection, effective and proper planning management. Perinatal morbidity and mortality in postdated pregnancy which could be decreased by timely and judicious induction of labour.

We concluded that maternal morbidity increased in the form emergency LSCS, instrumental delivery, perinatal morbidity and mortality increased in the form of birth asphyxia, meconium aspiration syndrome, IUFD, NICU admission and perinatal death while maximum cases had their BISHOP score ≤ 4.

We also concluded that increased rate of induction and augmentation of labour in postdated pregnancy. Postdated pregnancy was more common in primigravida. Caesarean section rate was very high after induction as compare to spontaneous labour. CP gel was best for induction of labour as compare to oxytocin and misoprostal. Cesarean section rate, NICU admission and perinatal death were very high after 42 wk period of gestation.

This was a small sample size study so further evaluation were needed in a large cohort study.

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