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Original Research Article

A study of fetomaternal outcome in pregnancy beyond expected date of delivery in obstetrics and gynaecology department of a tertiary health care center of South Gujarat

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ABSTRACT

Background: Post-dated pregnancy is that extends beyond 40 weeks plus one or more days (anytime past the estimated due date). Mother and the foetus are at increased risk of adverse events when the pregnancy continues beyond the expected date of delivery (EDD).

Method: This prospective observational study was conducted at obstetrics and gynaecology department of tertiary care centre of South Gujarat for 1 year period after official approval from human research ethical committee.

Results: In our study total 200 postdated pregnant women included. Majority i.e. 134 (67%) patients had delivered as normal vaginally, whereas 68 (34%) patients required caesarean section. The most common indication for cesarean section was meconium-stained liquor (42.6%, n=68) follow by fetal distress, 2nd stage CPD, non-progress of labor, failure of induction etc. Altogether 19 newborn need NICU admission for different complication of which the most common neonate's complication was perinatal asphyxia followed by meconium aspiration syndrome and RDS and only one neonate had early neonate death (END) due to RDS.

Conclusions: In pregnancies beyond 40 weeks, timely confirmed of postdated pregnancy, effective fetal monitoring and timely induction and with proper intervention could preclude the adverse fetomaternal outcome

Keywords: Post-dated pregnancy, Fetal outcome, Maternal outcome

INTRODUCTION

The WHO and the international federation of gynecology and obstetrics have accepted "post-term", "prolonged" "post-date" and "after term" pregnancy as synonyms.¹ Post-dated pregnancy could also be used as a term that explains a pregnancy that extends beyond 40 weeks plus one or more days (anytime past the estimated due date).²

Incidence of prolonged pregnancy is 4 to 12%.³ Thus incidence of postdated pregnancy depends on whether calculation is based on history/ early pregnancy ultrasonography is also used to find EDD.⁴ Due to lower margin of error 1st trimester USG seems to be superior to mid-trimester ultrasound for pregnancy dating.⁵ A

postdated pregnancy is the one which extends to or beyond 40 weeks or 280 days from 1st day of LMP and has incidence of 4-14% and 1 which extends beyond 42 weeks then incidence is 5 to 10%.^{6,7} In Indian population, fetus mature 1 week earlier than western population and risk of still birth began to rise 1 week earlier.

Most cases of postdated pregnancy are due to inaccurate calculation of EDD.⁸ Primigravidity and prior postdated pregnancy are the most common identifiable risk factors.^{9,10} Both the mother and the fetus are at increased risk of adverse events when the pregnancy continues beyond the EDD. The post maturity syndrome complicates 20-43% of prolonged pregnancies.¹¹ The incidence of birth injury is higher in postdated pregnancies and it is related

to a higher incidence (2 time) of macrosomia (>4000 gm) compared with term infants.¹² Potential maternal risks, besides the obvious emotional trauma accompanying an unexpected fetal death or serious complication, include potential increased risk of labor dystocia (9-12% versus 2-7% at term), injury to the pelvic floor associated with difficult deliveries of macrosomic infants (3.3% versus 2.6% at term)¹³, increased risk for caesarean section due to increased incidence of fetal distress, meconium stain liquor in early phase of labor and failed induction. Also doubling in caesarean delivery rate with associated endometritis, PPH and thrombophlebitis.¹⁴

Postdated pregnancy is associated with significant risks to the foetus. The perinatal morbidity and mortality increase with the increase in gestational age after 40 completed weeks of gestation.¹⁵ (Still birth plus early neonatal deaths) and other adverse outcomes associated with uteroplacental insufficiency include meconium aspiration, growth restriction and intrapartum asphyxia, oligohydramnios. In other cases, continued growth of the foetus leads to macrosomia, increasing the risk of labour abnormalities, shoulder dystocia and brachial plexus injuries. Postdated pregnancy is also an independent risk factor for low umbilical artery pH levels at delivery and low 5-minute APGAR scores.

So, the management of patient as per international guidelines will not be universally applicable to all population. The majority of postdated pregnancies have no known cause.

Hence identification of postdated pregnancy with timely assessment of risk factors, accurate dating and proper management plays crucial role in preventing perinatal complications and results in better obstetric outcome.

Aim and objectives

Aims and objectives were to study the maternal outcome, complication and morbidity in pregnancy beyond the EDD and to study the fetal outcome, complication, morbidity and mortality in pregnancies that beyond the EDD.

METHODS

This prospective observational study was conducted at obstetrics and gynecology department of tertiary care center of government medical college Surat of South Gujarat from July 2022 to July 2023 over 1 year period after official approval from ethical committee and taking into consideration consecutive 200 (taking account of statistics of 2019 in our department) consenting patients admitted with pregnancy beyond EDD in obstetrics and gynecology department based on inclusion criteria.

Inclusion criteria

In this study inclusion of pregnancy beyond EDD confirmed by Naegele's formula or based on first trimester

USG if LMP is not known and women with accurate recall of LMP with at least 3 regular periods before conception and inclusion of single foetus in cephalic presentation with normal fetal anatomy.

Exclusion criteria

In this study wrong dates, multiple gestation, malpresentation, IUFD, previous LSCS, anomalous baby, preeclampsia and eclampsia, APH, DM, heart disease and other medical condition are excluded from study.

Data were entered into a computer database using Microsoft excel software. Results are presented as frequencies, percentage and descriptive statistics.

RESULTS

After applying inclusion and exclusion criteria of study, total 200 postdated pregnant women were taken into consideration and pregnancy outcomes assessed.

Table 1: Distribution of patients according to age group, parity and gestational age at time enrollment, (n=200).

Variables	N	Percentage (%)
Patient's age (in years)		
18-20	47	23.5
21-30	128	64
31-35	23	11.5
>35	02	1
Gravidity		
Primigravida	86	43
Multigravida	114	57
Gestational age (in weeks)		
40 to 40+6 day	157	78.5
41 to 41+6 day	37	18.5
≥42	06	03

Among study group of 200 antenatal patients more patients fell between 21-30 years age group that was 64 % and only 1% of them fell in more than >35year age and multigravida [114 (57%)] patients had more postdated pregnancy than primigravida [86(43%)] and major patients fell in 40 to 40+6 weeks gestation age that was 157 (78.5%) patients and only 3% of patients had pregnancy ≥42 weeks.

Table 2: Presentation at the time of labour and amount of liquor at time of enrollment, (n=200).

Variables	N	Percentage (%)
Presentation at time labour		
Spontaneous labour	152	75
Induced labour	48	24
Amount of liquor		
Adequate	68	34
Oligohydramnios (AFI=<5 cm)	132	66

In present study 152 (75%) patients presented with spontaneous labour and 48 (24%) admitted for induction of labour, out of 152 (75%) patients in spontaneous labour, 19 patients later on augmented and study show as gestational age advance amount of liquor decreased.

Table 3: Number of induction or augmentation for labour.

No. of time induction/ augmentation done	Induced group, (n=48)	Augmented group, (n=19)
1 time	07	12
2 time	26	07
3 time	15	00

In present study 48 patients were admitted for induction, out of which 26 patients induced 2 time, 15 patients induced 3 time, 7 patients induced only 1 time. Among who admitted as spontaneous labour (152) later on 12 patients augmented 1 time and 7 augmented 2 times.

Table 4: Distribution according induction to normal vaginal delivery time interval.

Time interval of delivery after induction	Number of patients delivered, (n=48)
≤ 6 hours	02
Between 6 to 12 hours	18
Between 12 to 24 hours	23
≥ 24 hours	05

In present study patients who delivered by induction, most of the patients delivered between 12-24 h and 02 patients delivered <6 hour and only 5 patients delivered > 24 hour.

Table 5: Distribution according mode of delivery.

Mode of delivery	In recent study
Normal vaginal delivery	134 (67%)
Instrumental vaginal delivery	00 (00%)
LSCS	68 (34%)

Among study group of 200 antenatal postdated patients 134 (67%) patients delivered as normal vaginal delivery and 68 (34%) patients delivered by LSCS among them 33 (50%) patients LSCS occurred after induction who not delivered as normal vaginal delivery for various reason.

Table 6: Distribution of mode of delivery in spontaneous labour group and induced labour group.

Mode of delivery	Spontaneous labour group, (n=152)	Induced labour group, (n=48)
Normal vaginal delivery	111 (73%)	21 (43.7%)
LSCS	41 (26.9%)	27 (56.2%)

In present study group who admitted with spontaneous labour (152) among them 111 (73%) patients were delivered by normal vaginal delivery and 41 (26.9%) patients were delivered by LSCS and who were admitted for induction of labour among them 27 (56.2%) patients were delivered by LSCS and 21 (43.7%) patients were delivered by normal vaginal delivery.

Table 7: Indication for caesarean, (n=68).

Indication	N	Percentage (%)
MSL	29	42.6
Fetal distress	17	25
2nd stage CPD	07	10.2
Non progress of labour	05	7.3
Failure of induction	05	7.3
Cord prolaps	02	2.9
Maternal request	01	1.4
Compound presentation	01	1.4
Face presentation	01	1.4

In present study most common indication of LSCS was MSL [29(42.6%) patients] followed by fetal distress [17 (25%) patients] followed by 2nd stage CPD [07 (10.2%)] followed by non -progress of labour and failure of induction [each 05 (7.3%) patients] followed by cord prolapse [02 (2.9%) patients] and least common was compound presentation and face presentation [each 01(1.4%)].

Table 8: Distribution according to foeto-maternal complication.

Variables	No. of patients
Maternal morbidity	
Perineal tear (I ⁰ / II ⁰ degree)	36
Atonic PPH	03
Traumatic PPH	03
Vulval hematoma	01
Neonatal complication	
Perinatal asphyxia	11
RDS	03
Meconium aspiration syndrome	03
END	01
Transient tachypnea of newborn	01
Fetal outcome	
Live birth	199
SB birth	00
END	01

In present study most common complication was perineal tear (I⁰ / II⁰ degree) (36 patients) followed by 3 patients had atonic PPH and 2 patients had traumatic PPH in them 02 had cervical tear and 1 had intra-operative angle extension during LSCS. Only one patients had vulval hematoma. All patients were well managed and recovered well and the

most common neonate's complication was perinatal asphyxia followed by meconium aspiration syndrome and RDS and only one neonate was END due to RDS.

Table 9: Distribution by apgar score, (n=200).

APGAR	Total no. of babies	Percentage (%)
Normal	182	91
Abnormal (<7)	18	9

In present study only 18 neonates had abnormal APGAR score.

DISCUSSION

In the present study on the fetomaternal outcomes among patients with postdated pregnancy, a total of 200 patients who strictly met inclusion and exclusion criteria were included study. In this study more patients fell between 21-30 years age group that was 64% and only 1% of them fell in more than >35-year age and multigravida [114 (57%)] patients had more postdated pregnancy than primigravida [86 (43%)] and major patients fell in 40 to 40+6 weeks gestation age that was 157 (78.5%) patients and only 3% of patients had pregnancy \geq 42 weeks. In Shamsheer et al study majority patients fell between 20-35 years age group that was 72.30% and 10% fell in more than >35-year age and 57.69% patients were multigravida and major patients fell in 40 to 40+6 weeks gestation age that was 50.51% and 5.38% of patients had pregnancy \geq 42 weeks.¹⁶

In present study 152 (75%) patients presented with spontaneous labour out of them 19 patients were later on augmented and 48 (24%) patients were admitted for induction of labour. The study shows as gestational age advance amount of liquor decreased. In present study 48 patients were admitted for induction, out of which 26 patients delivered by 2 time induction, 15 patients by 3 time induction, 7 patients by 1 time induction and patients who delivered by induction, most of the patients delivered between 12 to 24 hour and 02 patients delivered in <6 hour and only 5 patients delivered by >24 hour.

In present study 134 (67%) patients delivered as normal vaginal delivery and 68 (34%) patients delivered by LSCS among them 33 (50%) patients LSCS occurred after induction who not delivered as normal vaginal delivery for various reason. In Thobbi et al and Nazish et al study out of 200 patients 53 (26.5%) patients had LSCS and rest of the delivered as normal vaginal delivery as compare to present study.^{16,17} In present study more percentage of LSCS occurred in patients who were admitted for induction of labour that was 56.2% as compared to who admitted with spontaneous labour that was 26.9%.

In present study most common indication of LSCS was MSL [29 (42.6%) patients] followed by fetal distress [17 (25%) patients] followed by 2nd stage CPD [07 (10.2%)] and least common was compound presentation and face

presentation [each 01 (1.4%)]. In Banotra et al study MSL with fetal distress was indication for cesarean section for 29% of patients, followed by failure of induction as indication for 25.8% patients, 19.4% had severe oligohydramnios as indication and 12.9% had non progress of labour and cephalopelvic disproportion indication for CS.¹⁸

In present study most common complication was perineal tear (I⁰ / II⁰ degree) followed by atonic PPH and 2 patients had traumatic PPH in them 02 had cervical tear and 1 had intra-operative angle extension during LSCS and only one patient had vulval hematoma. All patients were well managed and recovered well and the most common neonate's complication was perinatal asphyxia followed by meconium aspiration syndrome and RDS and only one neonate was END due to RDS and only 18 neonates had abnormal APGAR score. In Golait et al study of 2019 out of 100 neonates most common complication was meconium aspiration syndrome (10%) and in my study most common neonate's complication was perinatal asphyxia (5%) follow by meconium aspiration syndrome (1.5%).¹⁹

Limitation

Limitation of the study was sample size of article is small.

CONCLUSION

The diagnosis of postdated pregnancy is still debatable and questionable but still there are various ways to reduce the over estimation or under estimation of gestational age. This can be solved by increasing the regularity of first trimester scanning practice in our population. Assessment of the patient by the obstetrician should be done by careful review of EDD and correlate it with the early trimester ultrasound and proper evaluation of associated risk factors if present. An obstetric ultrasound for assessment of amniotic fluid and doppler if necessary are to be performed, if abnormal then management should be done accordingly. Vaginal examination to assess state of cervix should be done according to know BISHOP score and management options to be individualized according to each patient, so optimize maternal and foetal outcome. In current scenario it is wise to induce labour at 41 completed weeks, so otherwise uncomplicated pregnancies will not be associated with increased risk of perinatal morbidity and less effect on the risk of caesarean section.

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