(RESEARCH ARTICLE)

Maternal and fetal outcome of postdated pregnancy; A cross sectional study

Swapnil Madhavrao Mane [1], Prakash Anna Aghav [2], Swati Dashrath Karad [2] and Anup Lahanubhau Kharde [3, *]

[1] Dr. Mane Medical Foundation & Research Center and SAIDHAM Cancer Hospital Rahuri Dist. Ahmednagar Maharashtra 413705.
[2] Research Fellow Saidham Hospital Rahuri Dist. Ahmednagar Maharashtra 413705.
[3] Professor Dr BVP Rural Medical College PIMS-DU Loni Dist. Ahmednagar Maharashtra 413705.

Abstract

Background: Postdated pregnancy refers to a pregnancy that extends beyond the expected date of delivery, which is 280 days. When a pregnancy surpasses 42 weeks (more than 294 days), it is termed as post-term pregnancy. Postdated pregnancy is one of the most common obstetric problems associated with increased maternal and foetal morbidity, and mortality. Gestational age is among the most important determinants of perinatal outcomes, but studies have focused more on preterm births (<37 completed gestational weeks) and less on the understanding and prevention of post term births.

Objectives: To assess the maternal and fetal outcome of postdated pregnancy.

Material and Methods: Present observational descriptive cross sectional study was conducted for the period of 1 year from 1st April 2023 to 31st March 2024. Total 150 postdated pregnant women included in present study as per predefined after satisfying the inclusion and exclusion criteria.

Results: During study period out of total deliveries 110 were postdated deliveries. Out of them 46.36% and 28.18% were of 21-25 years and 26-30 years of age respectively. The mean age of all participants was 25.51 ± 4.58 years. A statistically significant association was found between the gestational age of postdated women and their mode of delivery. Out of 110 postdated women, 68.18% and 31.81% had vaginal and caesarean deliveries, respectively.

Conclusion: Adverse maternal and fetal outcomes of post-dated pregnancy should be anticipated and counseling of women at risk of post-term pregnancy and timely management for its prevention is recommended

Keywords: Postdated; Pregnancy; Maternal; Fetal; Outcome

1. Introduction

Gestational age is among the most important determinants of perinatal outcomes, but studies have focused more on preterm births (<37 completed gestational weeks) and less on the understanding and prevention of post term births [1-4]. Postdated pregnancy is one that is past the anticipated delivery date (more than 280 days). Post-term pregnancy is defined as a pregnancy lasting more than 42 weeks, or more than 294 days. The incidence is about 3-14% of all pregnancies[5,6] .

The associated complications with postdate deliveries for mothers, newborns, and fetuses have always been underestimated. Pregnancies that are post-dated or post-term are always high risk because placental insufficiency can

lead to increasing hypoxia in the womb, which can cause fetal distress and even death.[7] There is increased risk of meconium aspiration syndrome, oligohydramnios, macrosomia, fetal birth injuries, septicemia, non-reassuring FHR, fetal distress in labour and maternal complications include a higher incidence of cesarean sections, cervical tears, dystocia, postpartum hemorrhage (PPH), and severe perineal lacerations[5].

There is a paucity of data to outcome of postdate pregnancy. With this background present study conducted to assess the maternal and fetal outcome of postdated pregnancy

2. Material and Methods

Present observational descriptive cross sectional study was conducted for the period of 1 year from 1st April 2023 to 31st March 2024 at Saidham tertiary care maternity hospital affiliated to Dr. Mane Medical Foundation and Research Center (DMMFARC). Total 150 postdated pregnant women studied in present study. Institutional Ethical Approval was obtained before commencing the study. Informed consent was obtained from the participants before enrolling them in study. Menstrual history, clinical symptoms, and USG correlation are the criteria used to diagnose postdate pregnancy. Patients with history of regular menstrual cycle and sure of their last menstrual period, who have completed 40 weeks of gestational age and whose USG scan report available were taken in the study. All high-risk pregnancies, multiple gestation and non-vertex presentation were excluded from the study. Purposive sampling method was used for selection of participants. Detail obstetrics history recorded and clinical examination was done of each selected patients. History was taken to assess patients' age, parity, BMI, socioeconomic status, LMP and EDD. Examination was done to assess general conditions of patients, onset of labor and to note PV findings. The progress of labour was monitored and mode of delivery noted. The birth weight of the newborn as well as the need for NICU admission were taken into account

A pilot study was done for validation, practicality and applicability of questionnaire. It was carried out using predesigned questionnaire. According to answers obtained and difficulties faced during pilot study, rectification was done and questionnaire modified accordingly. Predesigned and pretested questionnaire was used for data collection. Study questionnaire consists of three parts Part 1: Includes socio-demographic variables Part 2: Obstetrics and Gynaecology History Part 3 (A): Delivery Part 3 (B) Fetomaternal outcome. Data coding and entry was done in Microsoft Excel after checking the completeness of the collected questionnaires. Data analyzed using PSPP open source statistical software. Descriptive and inferential analysis like proportion, mean, standard deviation, and Chi-square test, were used for the analysis. Value of P less than 0.05 was considered significant for statistic interpretation.

3. Results

During study period out of total deliveries 110 were postdated deliveries. Out of them 46.36% and 28.18% were of 21-25 years and 26-30 years of age respectively. The mean age of all participants was 25.51 ± 4.58 years. Table 01

Table 1 Age wise distribution of patients (n-110)

Sr. No	Age groups (Yrs.)	Frequency (%)
01	≤ 20	13 (11.81%)
02	21-25	51 (46.36%)
03	26-30	31 (28.18%)
04	31-35	11 (10.0%)
05	≥ 36	04 (03.63%)
	Total	110 (100%)

Out of 110 postdated deliveries, 60.90% (67) were rural, while 30.09% (43) were residing in urban areas. The majority of the participants were literate; 62.72% (69) and 20.90% (23) were secondary and primary educated, respectively. According to the modified BG Prasad classification, the majority (54.54%) of participants belonged to socioeconomic class II. Out of all postdated pregnancies, 88.18% and 11.81% were booked and un-booked cases, respectively. (Table 02)

Table 2 Socio demographic distribution of patients (n-110)

Sr. No	Variable	Frequency (%)
1	Residence	
	Rural	67 (60.90%)
	Urban	43 (30.09%)
2	Education	
	Illiterate	07 (06.36%)
	Primary School	23 (20.90%)
	Secondary School	69 (62.72%)
	Graduates	11 (10%)
3	Booking status	
	Booked	97 (88.18%)
	Un-booked	13 (11.81%)
4	Socio-economic Class	
	I	11 (10%)
	II	60 (54.54%)
	III	33 (30%)
	IV	04 (3.63%)
	V	02 (1.81%)

Among all 110 post-dated mothers, 51.81% had normal BMI category, 35.45% were underweight and 4.54% and 8.18% were in pre-obese and obese I categories respectively. (Table 03)

Table 3 Distribution of Body Mass Index (n-110)

Sr. No	BMI	Grading	Frequency (%)
	≤ 18.50	Underweight	39 (35.45%)
	18.50 to 24.99	Normal	57 (51.81%)
	25.00 to 29.99	Pre-obese	05 (04.54%)
	30.00 to 34.99	Obese I	09 (08.18%)
		Total	110 (100%)

Table 4 shows distributions as per the postdated mother's obstetric history and examination findings. According to the parity-wise distribution, 67.27% and 32.72% of mothers were primi-gravida and multipara, respectively. Most of the mothers were between 40-41 weeks of gestation, while 20.90% and 10% were between 41-42 weeks and ≥ 42 weeks of gestation. Women with a previous history of postdate pregnancy were 25%, 75% did not have a previous history of prolonged pregnancy, and 16.66% of mothers had a history abortion or new-born death in a previous pregnancy.

Table 4 Distribution as per obstetrics history & examination (n-110)

Sr. No	Variables	Frequency (%)
1	Parity	
	Primi-gravida	74 (67.27%)
	Mulit-para	36 (32.72%)
2	Gestational Age (weeks)	
	40-41	76 (69.09%)
	41-42	23 (20.90%)
	≥ 42	11 (10.0%)
3	Previous Prolonged Pregnancy	
	Yes	09 (25%)
	No	27 (75%)
4	History of Abortion/Newborn death	
	Yes	06 (16.66%)
	No	30 (83.33%)

Table 05 shows association between gestational age and parity. Of the 74 primigravida post-dated women, 51 were between 40-41 weeks of gestational age while 14 and 09 were between 41-42 weeks and ≥ 42 weeks of gestation. On the other hand of 36 multiparous women 25 were between 40-41 weeks of gestation while 09 and 02 were between 41-42 weeks and ≥ 42 weeks of gestation. No statistical relationship was found between gestational age of postdated women and their parity.

Table 5 Distribution Gestational age and parity (n-110)

Sr. No.	Gestational Age (weeks)	Parity		Frequency (%)
		Primi-gravida	Mulit-para	
1	40-41	51	25	76 (69.09%)
2	41-42	14	09	23 (20.90%)
3	≥ 42	09	02	11 (10.0%)
	Total	74 (67.27%)	36 (32.72%)	110 (100%)
Chi-Square test ($\chi 2$) 1.48 df:02 P:0.47 Non-Significant				

Table 06 shows association between gestational age and mode of delivery. Out of 110 postdated women, 68.18% and 31.81% had vaginal and caesarean deliveries, respectively. Out of those who had vaginal delivery, 59 were between 40 and 41 weeks of gestation, while 12 and 04 were between 41 and 42 weeks and ≥ 42 weeks of gestation. On the other hand, 35 women who delivered through caesarean section 17 were between 40 and 41 weeks of gestation, while 11 and 07 were between 41 and 42 weeks and ≥ 42 weeks of gestation. A statistically significant association was found between the gestational age of postdated women and their mode of delivery.

Table 6 Distribution as per mode of delivery (n-110)

Sr. No.	Gestational Age (weeks)	Mode of delivery		Frequency (%)
		Vaginal	Caesarean	
1	40-41	59	17	76 (69.09%)
2	41-42	12	11	23 (20.90%)
3	≥ 42	04	07	11 (10.0%)
	Total	75 (68.18%)	35 (31.81%)	110 (100%)
Chi-Square test (χ2) 10.97 df:02 P:0.004 Significant				

Fetal distress/meconium aspiration (40%), severe Oligohydramnios (25.17%) and induction failure (14.28%) were the most common indications for caesarean section (Table 07). The most common gender of newborns was male (1.5:1). The majority of infants 60.90% (67) had a birth weight of 2.6–3.0 kg, while 23.63% (26) of infants had low birth weight (≤ 2.5 kg), while the remaining 15.47% (17) of infants had a birth weight ≥ 3.1 kg.

Table 7 Indication of caesarean section (n-35)

Sr. No	Indication	Frequency (%)
01	Fetal distress/MSL	14 (40%)
02	Severe Oligohydramnios	09 (25.17%)
03	Failure of induction	05 (14.28%)
04	Cephalic pelvic disproportion	4 (11.42%)
05	Other	03 (08.57%)
	Total	35 (100%)

* Meconium stained liquor

Table 08 shows the maternal and fetal outcomes of postdated deliveries. No maternal mortality was observed, but maternal complications were observed in 18.84% of postdate women, of which 10% had prolonged labor, 06.36% had PPH, and perineal tears and cervical tears occurred in 01 case each. On the other hand, 1 early neonatal death was observed: 10% of newborns had respiratory distress syndrome, 3.63% had shoulder dystocia, and 2.72% had meconium aspiration syndrome. All these newborns were admitted to the neonatal intensive care unit.

Table 8 Distribution of maternal and fetal outcome

Sr. No	Maternal	Frequency (%)	Fetal	Frequency (%)
01	No Complication	90 (81.81%)	No complication	91 (82.72%)
02	Prolonged labor	11 (10%)	RDS*	11 (10%)
03	PPH	07 (06.36%)	Shoulder dystocia	04 (03.63%)
04	Perineal tear	01 (0.90%)	MAS#	03 (02.72%)
05	Cervical tear	01(0.90%)	Neonatal deaths	01 (0.90%)

*RDS: Respiratory distress syndrome, #MAS: Meconium aspiration syndrome

4. Discussion

Women's health is at risk during pregnancy and post pregnancy continues to be a challenging and difficult issue for modern obstetrics which is associated with numerous consequences for both mother and fetus. The present cross sectional study was conducted ascertain maternal and fetal outcome of postdated pregnancy. In this study 110 postdated pregnant mothers were studied. Out of them 46.36% and 28.18% were of 21-25 years and 26-30 years of age

respectively. The mean age of all participants was 25.51 ± 4.58 years. In Chanu NS et al[5] study majority (33.3%) of the patients were below 25 years of age and mean age of the participants was 29.21 ± 4.45 years. Saurabh S et al[8] study about 48% of patients were in age groups 20-25 years, 31% were in age groups 26-30 years 197% were ≥ 31 years old.

In present study out of 110 postdated mothers, 60.90% (67) were rural, while 30.09% (43) were residing in urban areas. The majority of the participants were literate; 62.72% (69) and 20.90% (23) were secondary and primary educated, respectively. According to the modified BG Prasad classification, the majority (54.54%) of participants belonged to socioeconomic class II. Out of all postdated pregnancies, 88.18% and 11.81% were booked and un-booked cases, respectively. Among all 110 post-dated mothers, 51.81% had normal BMI category, 35.45% were underweight and 4.54% and 8.18% were in pre-obese and obese I categories respectively. In Chanu NS et al[5] study more than half of the respondents belonged to rural areas (54.7%) and unbooked (84.7%). Most of the patients were Middle Socio-Economic Status group (93.4%). In this study 21% of patients had BMI less than 18.5, 41% of patients had their BMI 18.5 to 25.9, 25.7% of patients had their BMI between 25-29.9 while 11.4% had their BMI greater than 30.Suliman AA et al[9] reported that in their study 75.4% postdate women secondary educated, and 24.6% were booked and unbooked cases respectively.

In present study according to the parity-wise distribution, 67.27% and 32.72% of mothers were primi-gravida and multipara, respectively. Most of the mothers were between 40-41 weeks of gestation, while 20.90% and 10% were between 41-42 weeks and ≥ 42 weeks of gestation. Women with a previous history of postdate pregnancy were 25%, 75% did not have a previous history of prolonged pregnancy, and 16.66% of mothers had a history abortion or new-born death in a previous pregnancy. In Chanu NS et al[5] study 42.0% were primigravida, about 76% mother were between >40-41 weeks of gestation and remaining 24% were above 41 weeks of gestation. In Saurabh S et al[8] study majority of (33.33%) postdated women were between 41-42 weeks of gestation and in this study 65.2% postdated pregnant women were primigravida and 34.1% had history of prolonged pregnancy.

In our study out of 110 postdated women, 68.18% and 31.81% had vaginal and caesarean deliveries, respectively. In Chanu NS et al[5] study Majority of postdated women were delivered by NVD (54.0%), followed by LSCS (29.3%) and Ventouse / Instrumental (16.7%).In present study fetal distress/meconium aspiration (40%), severe Oligohydramnios (25.17%) and induction failure (14.28%) were the most common indications for caesarean section. Failure to progress was the most common indication for caesarean section reported by R. A. Al-Genedy et al[10] in their study. In Suliman AA et al[9] study indications of cesarean section were cervical dystocia (14.4%), cephalopelvic disproportion (9.5%), meconium-stained liquor with fetal distress (33.3%) etc. In our study a statistically significant association was found between the gestational age of postdated women and their mode of delivery. Similar observation reported by Suliman AA et al9 in his study. In present study the most common gender of newborns was male (1.5:1). And the majority of infants 60.90% (67) had a birth weight of 2.6–3.0 kg, while 23.63% (26) of infants had low birth weight (≤ 2.5 kg), while the remaining 15.47% (17) of infants had a birth weight ≥ 3.1 kg. In Chanu NS et al[5] study 82% of the baby were of average birth weight. In Saurabh S et al[8] study approximately 28% were less than 2.5 kg, 45% newborns were between 2.6 to 3 kg, 20% newborns were between 3.1 to 3.5 kg and 5.7% between 3.6 to 4 kg.

In present study no maternal mortality was observed, but maternal complications were observed in 18.84% of postdate women, of which 10% had prolonged labor, 06.36% had PPH, and 0.90% each perineal tears and cervical tears. On the other hand, 1 early neonatal death was observed: 10% of newborns had respiratory distress syndrome, 3.63% had shoulder dystocia, and 2.72% had meconium aspiration syndrome. All these newborns were admitted to the neonatal intensive care unit. Prolonged labour, PIH and PPH were the commonest maternal complications reported by Chanu NS et al[5] study while respiratory distress syndrome and meconium aspiration syndrome were the commonest fetal complication observed in their study. Suliman AA et al[9]in study maternal complications were present in 11% of women, PPH was found in 7.2%, perineal tear was present in 7%, and cervical tear was found in 1.4%. While fetal complications were found in 14.5% of cases, shoulder Dystocia (2.9%), asphyxia (6.5%), and meconium aspiration (5.1%) were common complication.

5. Conclusion

Adverse maternal and fetal outcomes of post-dated pregnancy should be anticipated and counseling of women at risk of post-term pregnancy and timely management for its prevention is recommended.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

Institutional Ethical Approval was obtained before commencing the study

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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