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A CLINICAL STUDY ON POST-DATED PREGNANCY AND ITS OUTCOMES: WHEN A PREGNANCY EXTENDS PAST THE DUE DATE

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ABSTRACT:

Introduction: Prolonged pregnancy, also known as post-dated pregnancy, is a pregnancy that has lasted longer than the 40 completed weeks of gestation or 280 days from the beginning day of the last menstrual period (LMP). Foetal, neonatal, and maternal complications have been linked to post-term pregnancy.

Aim: To find out the mode of delivery, maternal complications, and neonatal outcome in a pregnancy lasting beyond 40 weeks of gestation.

Materials and Methods: This is a prospective observational study conducted in a tertiary care centre with a sample size of 146 cases, with pregnancies lasting beyond 40 completed weeks of gestation.

Results: In this study 50% of the patients were aged between 18-25 years. Majority, 57%, of patients were primigravida. 87% of study population was between 40-41 weeks of gestation, while 13% were above 41 weeks. Lower segment caesarean section (LSCS) was the mode of delivery in 60% of the patients, with foetal distress being the most common indication for LSCS and was noted in 25% of patients. In this study 25% of patients encountered obstetrical complications and 45% of the neonates born were admitted to the neonatal intensive care unit.

Conclusion: The percentage of pregnancies deemed "post-term" can be significantly decreased by a dating policy that ignores menstrual dates and establishes the expected date of delivery solely based on ultrasound dates. Early intervention in post-dated pregnancy should be implemented to prevent maternal and perinatal problems.

Keywords: Cesarean section; Fetal distress; Meconium; Patient Outcome Assessment; Postdatism; Pregnancy

1. INTRODUCTION

Post-dated and prolonged pregnancy are terminology used by the World Health Organization (WHO) and the International Federation of Gynaecology and Obstetrics to indicate pregnancy after the due date of delivery. Post term pregnancy as defined by WHO is a pregnancy that lasts more than 280 days (40 weeks) of gestation^[1].

Accurate estimation of gestational age is crucial for diagnosing and managing post-dated pregnancy. The primary method is dating by the last menstrual period (LMP), utilizing Naegle's rule, which indicates a 14% incidence of labour at or after 40 weeks^[2]. "Early ultrasound examinations" have reduced the incidence of post-term pregnancy by 50%^[3].

Post-dated pregnancies are associated with several maternal and neonatal complications that include meconium aspiration syndrome, foetal septicaemia, oligohydramnios, meconium-stained liquor (MSL), macrosomia, foetal birth injury, foetal distress in labour, non-reassuring foetal heart rate, while maternal complications include, an increased rate of caesarean delivery, cephalopelvic disproportion (CPD), perineal lacerations, post-partum haemorrhage^[1].

Etiological factors for post-dated pregnancies include, most commonly, errors in LMP, primigravida, maternal obesity, previous history of prolonged pregnancy, placental sulfatase deficiency, an X-linked recessive disorder, leading to decreased placental oestrogen production. This results in decreased expression of oxytocin and prostaglandin receptors in the myometrium^[4].

The current study seeks to examine the outcomes of pregnancies exceeding 40 weeks of gestation.

AIM

To determine the method of delivery, maternal issues, and neonatal results in pregnancies extending past 40 weeks of gestation.

2. MATERIALS & METHODS

This is a prospective observational study conducted at a tertiary care facility, involving a sample size of 146 cases from May 2022 to April 2023. Patients with pregnancies exceeding 40 weeks of gestation were included, while those with gestational ages below 40 weeks were excluded from the study. The gestational age was calculated using Naegle's formula. Maternal variables, such as age, gravidity, and gestational age, were considered. Outcomes were assessed in terms of delivery mode, indications for caesarean section, obstetrical complications, and neonatal outcomes.

Decisions regarding mode of delivery and other aspects were not influenced by this study, since the study is purely observational, and were taken independently in view of optimum patient care and outcome.

Data Entry was done using Microsoft excel, and continuous descriptive variables are expressed in percentages and mean and represented using tables.

3. RESULTS AND STATISTICS

In our study, 50% of the patients were aged between 18 and 25 years, 38% were aged between 25 and 30 years, while the remaining 12% were over 30 years old. Additionally, 57% of patients were primigravida, and 43% were multigravida, as illustrated in Table 1. Gestational age served as the primary inclusion criterion, with 87% of the study population falling between 40 to 41 weeks, and the remaining 13% surpassing 41 weeks, as depicted in Table 2.

Further analysis of delivery modes, one of the outcomes of post-dated pregnancy, revealed that 60% of patients underwent lower segment cesarean section (LSCS), while the remaining 40% had full term normal-vaginal deliveries (FTNVD), as shown in Table 3. Since our previous results suggest that majority of the study population had to undergo LSCS, we were interested in analysing the indications for LSCS. The most common indication for LSCS was foetal distress, which was 25%, followed by MSL at 22%, non-progress of labour (13%), CPD (12%), previous LSCS (10%), Pre-eclampsia (10%), oligohydramnios (8%), as represented in Table 4.

Our study found that 25% of patients encountered obstetric complications, among these, majorly, pre-eclampsia affected approximately 40%, oligohydramnios 32%, and postpartum hemorrhage 22% of the cases. Scar dehiscence and shoulder dystocia were also noted among the complications at 3% and 3% respectively, as shown in Table 5.

Regardless of delivery mode, 45% of neonates required admission to the Neonatal Intensive Care Unit (NICU), while the remaining 55% were deemed healthy and shifted to mother's side. The duration of NICU stays varied, with approximately 9% of neonates requiring over 5 days of treatment, 31% staying for 3 to 5 days, and the majority, 60%, needing less than 3 days of care. Of the neonates admitted to the NICU, approximately 11% required ventilator support, while the remaining 89% did not. Fortunately, there were no neonatal mortalities in our study.

4. DISCUSSION

When pregnancies extend beyond their expected due dates, a wide array of complications may arise. The current study aimed to elucidate the frequency of maternal and perinatal complications in post-dated pregnancies. Our findings revealed that 60% of patients underwent LSCS, while 40% had normal vaginal deliveries. Comparative studies by Narayan et al. (2020), Karmakar et al. (2020), and Bansal (2021) underscore the trend of increased LSCS rates in post-dated pregnancies^[5-10].

Notably, our study identified MSL and foetal distress as primary indications for labour induction, suggesting the potential need for early caesarean sections in such cases, although larger data sets are warranted for confirmation. Close foetal monitoring with use of non-stress test to monitor the foetal heart sound tracings, and cardiotocographs in patients in labour.

The most prevalent indication for LSCS in our study was foetal distress (25%), followed by MSL (21.6%), non-progress of labour (13.3%), CPD (11.6%), previous LSCS (10%), pre-eclampsia (10%), and oligohydramnios (8.3%). These findings align with studies by Bhriegu et al. (2017), in which they showed that the overall rate of caesarean section was 34%, with majority of cases (23.53%) having MSL with foetal distress as an indication, and Sarmah et al. (2022), showing similar results, emphasizing the significance of foetal distress and MSL as leading indicators for caesarean deliveries^[4, 11].

Obstetric complications were encountered by 25% of our study participants, in line with findings reported by Singh et al. (2020)^[8]. Additionally, our study observed a heightened rate of NICU admissions in post-dated pregnancies, in line with Linder et al.'s (2015) conclusion regarding post-term pregnancy as an independent risk factor for foetal morbidity^[9].

While our study provides valuable insights, certain limitations must be acknowledged. The relatively small sample size of 100 participants may limit the generalizability of our findings to broader populations of pregnant individuals. Moreover, the majority of our patients hailed from a low socioeconomic status, due to the study being conducted in a teaching hospital with

a charitable setup for such patients, albeit a tertiary care centre, potentially affecting result applicability. Despite efforts to control confounding variables, such as maternal comorbidities, lifestyle factors, or socioeconomic status, residual confounding may persist.

Addressing these limitations, that were at times beyond the scope of this study, transparently in the scientific paper demonstrates rigor and integrity in the research process and helps contextualize the significance and implications of the study findings.

Our study, alongside previous reports, underscores the importance of expectant parents' awareness regarding potential issues associated with post-dated pregnancies. Collaborative efforts with healthcare providers are essential to ensure optimal care for both mother and baby.

5. CONCLUSION

Timely commencement of labour and delivery plays a crucial role in determining perinatal outcomes. Interestingly, when ultrasound dates are utilized to assess the need for induction, the majority of pregnancies are not post-term. Therefore, implementing a dating policy that relies solely on ultrasound dates, rather than the date of the last menstrual period, can significantly reduce the percentage of pregnancies classified as “post-term”. This is essential, especially considering that prolonged pregnancy can pose risks requiring intervention. The primary contributors to perinatal morbidity and mortality include inadequate procedures for identifying high-risk fetuses, determining optimal testing, and monitoring techniques, and deciding the best time and method for delivery.

In light of these factors, it is imperative to establish a clear policy and guidelines for early intervention in cases of post-dated pregnancies to mitigate maternal and perinatal complications.

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TABLES:

Gravidity	Frequency	Percentage
Primigravida	83	57
Multigravida	60	43

Table 1: Gravidity in the study population

Gest. Age	Frequency	Percentage
40-41 weeks	127	87
>41 weeks	19	13

Table 2: Distribution of gestational age

Mode of delivery	Frequency	Percentage
FTND	58	40
LSCS	87	60

Table 3: Distribution based on mode of delivery

Indication	Frequency	Percentage
Foetal distress	36	25
Meconium-Stained liquor	32	22
CPD	17	12
Oligohydramnios	12	8
Non-Progress of labour	19	13
Previous LSCS	15	10
Pre-eclampsia	15	10

Table 4: Distribution based on indication for LSCS

Obstetric Complication	Frequency	Percentage
Shoulder Dystocia	1	3
Postpartum Hemorrhage	8	22
Oligohydramnios	12	32
Scar Dehiscence	1	3
Pre-eclampsia	15	40

Table 5: Obstetric Complications observed in study population