

MATERNAL AND NEONATAL OUTCOMES AFTER INDUCTION OF
LABOR IN POST-DATED PREGNANCY

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Abstract

Objective: To determine the frequency of materno-fetal outcomes of induction of labor in post-dated pregnancies.

Methods: A total of 190 females having gestational age ≥ 41 weeks were included from June 2024 to January 2025. Labor induction was performed using amniotomy, with oxytocin or prostaglandins administered following local protocols. Materno-fetal outcomes were determined for each patient.

Results: Regarding maternal outcomes, CS was needed in 30.5% of patients, PPH occurred in 2.1% of patients, and perineal lacerations occurred in 38.4% of patients. Regarding neonatal outcomes, APGAR score < 7 was diagnosed in 4.2% of patients, neonatal RDA in 4.7% of patients, jaundice in 2.6% of patients, and NICU admission was needed in 7.4% of patients.

Conclusion: Post-term pregnancy carries a higher risk of complications for both mother and baby. Therefore, early detection through an ultrasound scan and effective management of pregnancy and labor can improve outcomes for both.

INTRODUCTION

Post-dated pregnancy is classified as a gestational period that lasts for 42 weeks (or 294 days) or longer, which exceeds the estimated date of delivery (EDD) by two weeks.¹ Approximately 3-14.0% of pregnancies are classified as post-dated.^{1,2} The prevalence of post-dated pregnancies can differ significantly based on the characteristics of the population and the management practices in place. Factors influencing prevalence include first pregnancy, rates of obesity, histories of previous post-term pregnancies, and genetic susceptibility.³ Additionally, the overall presence of pregnancy-related complications and the rates of

spontaneous preterm labor also play a crucial role in determining the incidence of postterm pregnancies.⁴ Pregnancies that extend beyond the anticipated delivery date have been linked to a heightened risk of complications for both the fetus and the mother. Specifically, such pregnancies increase the chances of fetal and neonatal mortality, as well as maternal morbidity. When a pregnancy surpasses the due date, there is a greater risk of conditions such as oligohydramnios (low amniotic fluid), meconium-stained amniotic fluid, macrosomia (larger than average newborn size), fetal post maturity syndrome,

and the necessity for more invasive medical interventions. One significant concern is antepartum stillbirth, which refers to a loss of the fetus before labor, particularly prevalent at and beyond the term of pregnancy, posing a critical public health issue.⁵ Research by Galal et al. indicates that the incidence of stillbirth starts to rise after the 39th week of gestation, with a notably sharp increase observed after reaching 40 weeks.⁶ Therefore, prolonged gestation is consistently identified as a high-risk condition due to the escalating rates of perinatal morbidity and mortality associated with it.

The British Guidelines recommend offering induction of labor (IOL) to women with uncomplicated pregnancies typically between 41 weeks and 42 weeks of gestation. This is to mitigate the potential risks associated with prolonged pregnancies.⁷ In our hospital, however, we initiate labor induction at 40 weeks and 10 days. Regardless of differing practices, our main objective is to ensure that deliveries occur before reaching 42 weeks of gestation. For those women who prefer not to pursue active management, expectant management coupled with fetal monitoring remains a viable option. The aim of the proposed study is to determine the frequency of feto-maternal outcomes of medical induction of labor in post-dated pregnancies.

METHODOLOGY:

This study presents a comprehensive observational analysis of feto-maternal outcomes in pregnancies that have exceeded the standard gestational period, specifically focusing on women whose pregnancies extend beyond 41 weeks. Conducted within the Department of Gynecology and Obstetrics at Bolan Medical Complex Hospital in Quetta, the research aimed to thoroughly explore the implications of post-dated pregnancies on both maternal and fetal health. This study included 190 pregnant females.

Participants were carefully selected and recruited over a period from June 2024 to January 2025. The study primarily included women aged between 18 and 40 years, who were experiencing singleton pregnancies, women have a parity of between 0 and 4, a confirmed gestational age of 41 weeks or more based on the last menstrual period (LMP), and a fetal presentation in a cephalic position, also validated by ultrasound findings. To ensure the integrity and focus of the

study, several conditions were set as exclusion criteria. Patients exhibiting complications such as polyhydramnios (excessive amniotic fluid), eclampsia (a severe condition characterized by high blood pressure and potential organ failure during pregnancy), antepartum hemorrhage (bleeding occurring before labor), and those presenting congenital anomalies detectable via ultrasound were not enrolled in the research. This rigorous selection process aims to provide a clearer understanding of the outcomes associated with post-dated pregnancies without the confounding effects of these significant medical conditions.

Labor induction was performed using amniotomy, with oxytocin or prostaglandins administered following local protocols. Fetal outcomes were assessed based on APGAR scores less than 7 at 5 minutes, Neonatal respiratory distress syndrome, neonatal jaundice and the necessity for NICU admission. Maternal outcomes were evaluated by examining CS, perineal lacerations and instances of postpartum hemorrhage.

RESULTS:

The baseline characteristics of the study participants include an average age of 28.28 years, with a standard deviation of 4.84 years. The body mass index (BMI) was recorded at 25.46 kg/m², with a standard deviation of 4.83 kg/m². In terms of residence, 56.3% of participants lived in rural areas, while 43.7% resided in urban settings. Socioeconomic status was categorized, revealing that 40.0% of participants belonged to the lower class, 33.6% to the middle class, and 26.4% to the upper class. Regarding parity, 36.3% of participants were primigravida, and 63.9% were multipara (Table 1).

For maternal outcomes, the frequency of cesarean sections was noted at 30.5%, with 58 cases recorded. Additionally, post-partum hemorrhage occurred in 2.1% of cases, amounting to four instances. There were also 73 cases of perineal laceration, reflecting a prevalence of 38.4%. Turning to fetal outcomes, the study indicated that 4.2% of infants had an APGAR score of less than 7, equating to eight cases. Furthermore, neonatal respiratory distress syndrome was observed in 4.7% of the newborns, translating to nine cases, while neonatal jaundice was present in 5 infants, corresponding to 2.6%. Lastly, 14 infants

required admission to the NICU, which represented 7.4% of the total cases (Table 2).

Table 1. Baseline Characteristics.

Age (Years)	28.28±4.84
BMI (Kg/m ²)	25.46±4.83
Residence (%)	
Rural	107 (56.3%)
Urban	83 (43.7%)
Socioeconomic Status (%)	
Lower Class	76 (40.0%)
Middle Class	64 (33.6%)
Upper Class	50 (26.4%)
Parity (%)	
Primigravida	69 (36.3%)
Multipara	121 (63.9%)

Table 2. Frequency of Feto-Maternal Outcomes.

Maternal Outcomes (%)	
Cesarean Section	58 (30.5%)
Post-partum Hemorrhage	04 (2.1%)
Perineal laceration	73 (38.4%)
Fetal Outcomes (%)	
APGAR Score <7	08 (4.2%)
Neonatal Respiratory Distress Syndrome	09 (4.7%)
Neonatal Jaundice	05 (2.6%)
NICU Admission	14 (7.4%)

DISCUSSION:

Post-term pregnancies are classified as high-risk situations that require careful monitoring and, often, the induction of labor. The primary concern arises from a limited number of growth-restricted fetuses, which may not be easily identified but are at risk for unfavorable outcomes after birth.⁸ Recent assessments of gestational age using advanced techniques in first-trimester ultrasounds have brought about a significant change in our understanding of post-term pregnancies. Historically, the incidence of post-term pregnancies was considerably higher. However, with the incorporation of accurate ultrasound evaluations, current estimates suggest that the occurrence of post-term pregnancies has now decreased to a range between 3% and 5%, or even lower in some cases.⁹ This shift highlights the importance of precise ultrasound measurements in prenatal care, ultimately leading to better maternal and fetal outcomes.¹⁰

Research indicates that, while certain findings may not be entirely clear, the likelihood of experiencing negative perinatal outcomes tends to rise gradually, particularly starting at 42 weeks of gestation. A review conducted by Cochrane has shown that implementing a policy for labor induction at 41 completed weeks or later can lead to a notable reduction in perinatal mortality rates. This is significant even when considering that the overall risk of perinatal death remains relatively low in absolute terms, as evidenced by data from 22 trials involving 9,383 participants, which report a relative risk of 0.31 (95% confidence interval: 0.12-0.88).¹¹

In our study, regarding maternal outcomes, CS was needed in 30.5% of patients, PPH occurred in 2.1% of patients, and perineal lacerations occurred in 38.4% of patients.

A comprehensive study conducted by Suliman et al. revealed significant findings related to obstetric

outcomes. The research reported that postoperative hemorrhage (PPH) occurred in 7.2% of the patients studied. Additionally, the incidence of perineal tears was noted to be 0.7%, while the cesarean section (CS) rate was observed at 14.5%. The study comprised a total of 2,751 patients, among whom 138 cases were identified as post-dated pregnancies. This subset represented 5.0% of the overall population involved in the study.⁵

In a comprehensive study conducted by Salam et al., the incidence of postpartum hemorrhage (PPH) was found to be 5.45% among the participants assessed. Furthermore, the study noted that 4.84% of the patients experienced perineal tears, while cervical tears were recorded in 3.03% of the cases. Additionally, the rate of cesarean sections (CS) within the studied population was reported to be 32.72%.¹² In a comprehensive study conducted by Patel N and colleagues, it was observed that the highest rates of morbidity among patients were attributed to perineal tears and cervical tears, accounting for approximately 34.44% of cases. Additionally, another 34.44% of patients experienced complications related to prolonged labor and shoulder dystocia. Following these, postpartum hemorrhage was identified as a significant concern, affecting about 20.47% of the patients studied.¹³

Regarding neonatal outcomes, APGAR score <7 was diagnosed in 4.2% of patients, neonatal RDA in 4.7% of patients, jaundice in 2.6% of patients, and NICU admission was needed in 7.4% of patients.

The study by Bukhari et al. reported APGAR score <7 in 3.7% patients and NICU admission in 7.87% patients.¹⁴

Due to the elevated risk of complications for both the mother and the infant associated with pregnancies that extend beyond the due date, it is essential to ensure that expectant mothers do not exceed their calculated due dates. Patients should receive thorough counseling about the potential implications of a prolonged pregnancy. To mitigate the chances of adverse outcomes for newborns, it is advisable to initiate labor induction for these mothers before they reach 42 weeks of gestation. This proactive approach not only safeguards the health of the child but also promotes the overall well-being of both the mother and baby. Medical professionals must monitor

pregnancies closely and make informed decisions to promote a healthy delivery process.

CONCLUSION:

Post-term pregnancy carries a higher risk of complications for both mother and baby. Therefore, early detection through an ultrasound scan and effective management of pregnancy and labor can improve outcomes for both.

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