

A Prospective Research on Fetal Outcome with Gestation Age > 40 Weeks**Marneni Ananda Sindhuja¹, M Divya², M Sowjanya³, Y. Annapoorna⁴, G. Kasimbi⁵, T Jaya Chandra⁶**¹Resident, Department of Obstetrics and Gynaecology, GSL Medical College, Rajahmundry.²Associate Professor, Department of Obstetrics and Gynaecology, GSL Medical College, Rajahmundry.³Associate Professor, Department of Obstetrics and Gynaecology, GSL Medical College, Rajahmundry.⁴Professor, Department of Obstetrics and Gynaecology, GSL Medical College, Rajahmundry.⁵Professor & Head, Department of Obstetrics and Gynaecology, GSL Medical College, Rajahmundry.⁶Central Research Laboratory, GSL Medical College, Rajahmundry.

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Abstract**Introduction:** This research investigates maternal and fetal outcomes in post-term pregnancies, aiming to assess associated risks beyond 40 weeks of gestation. Increased fetal macrosomia risk, stillbirth risks, and complications like oligohydramnios and were reported in the literature.**Methods:** This prospective study focused on antenatal cases beyond 40 weeks of gestation, selecting participants with regular menstrual cycles and known LMP or confirmed by first-trimester ultrasound. Singleton pregnancies were included, while high-risk cases were excluded. Data on maternal and fetal outcomes were retrospectively analyzed at a tertiary care center.**Results:** The study included 138 women with a mean age of 22.97 ± 3.59 years, majority aged 21-25 years. Most had normal vaginal delivery (63%), while 32% underwent cesarean section. Newborns weighed predominantly over 2.6kg (96.4%). Gestational age correlated with increased rates of non-reactive CTG, labor induction, meconium-stained liquor, cesarean section, and maternal complications.**Conclusion:** Post-term pregnancies pose increased risks for adverse maternal and neonatal outcomes, including higher rates of cesarean section, maternal complications, and NICU admissions. Vigilant monitoring and timely intervention are crucial in mitigating these risks and optimizing outcomes for both mothers and newborns.**Keywords:** Post-term Pregnancy, Maternal Outcomes, Fetal Outcomes, Labor Induction, Cesarean Section.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Gestation beyond 40 weeks, known as post-term pregnancy, is associated with increased risks for both the fetus and the mother. This research highlights recent findings on fetal outcomes when gestational age extends past 40 weeks. A study by Mogren et al. (2021) demonstrated that post-term pregnancy significantly increases the risk of fetal macrosomia, which can lead to complications such as shoulder dystocia during delivery. Similarly, a comprehensive cohort study by Heuser et al. [2] found that the risk of stillbirth increases as gestation progresses beyond 40 weeks, with a notable rise after 41 weeks.

Moreover, Linder et al. [3] reported that post-term fetuses are more likely to experience oligohydramnios, which can compromise fetal well-being and necessitate closer monitoring or induction of labor. Additionally, post-term pregnancies are linked to higher rates of meconium-stained amniotic fluid,

which can result in meconium aspiration syndrome, a severe respiratory condition in neonates. This was substantiated by a study by Garite et al. [4], emphasizing the need for vigilant prenatal care in pregnancies extending beyond 40 weeks. A study was conducted to find the maternal and fetal outcome in postdated pregnancy.

Methods:

It was a prospective research conducted in the department of Obstetrics and Gynecology, GSL Medical College, Rajahmundry. Study was conducted between December 2020 to August 2022. Study protocol was approved by the Institutional Ethical Committee.

Antenatal cases beyond 40 weeks of gestation with regular menstrual cycles and a known last menstrual period (LMP) or confirmed by a first-trimester scan were selected. Additionally, only singleton pregnancies, regardless of presentation, were in-

cluded in the study. The exclusion criteria encompassed high-risk pregnancies such as diabetes, antepartum haemorrhage and premature rupture of membranes, pregnancy-induced hypertension, heart diseases, chronic hypertensive disease, and chronic renal disease. Also excluded were previous cesarean sections, congenital anomalies, irregular menstrual cycles, unknown LMP without first-trimester ultrasonography, and multiple gestations.

The study involved a retrospective analysis of antenatal cases beyond 40 weeks of gestation at a single tertiary care center. Eligible participants had regular menstrual cycles with a known LMP or a first-trimester ultrasound confirmation. Singleton pregnancies, regardless of presentation, were included. Cases with high-risk conditions such as diabetes, antepartum hemorrhage, premature rupture of membranes, pregnancy-induced hypertension, heart diseases, chronic hypertensive or renal disease, previous cesarean sections, congenital anomalies, irregular menstrual cycles, unknown LMP without first-trimester ultrasonography, and multiple gestations were excluded. Data on maternal and fetal outcomes were collected and analyzed statistically.

Statistical Analysis: All statistical analyses were conducted using SPSS 21.0 and MS Excel 2010. Descriptive data were presented as mean \pm SD and percentages. Data were also tabulated and graphically represented. A Chi-square test assessed associations of categorical variables, with $P < 0.05$ considered statistically significant.

Results

Total 138 women were included, mean age was 22.97 ± 3.59 years, majority (68; 49.3%) were in 21-to-25-year group. Majority women (63%; 87) had normal vaginal delivery (NVD) followed (32%; 44) by of pregnant women had cesarean section, 3.6% of newborns weighed under 2.5kg, 96.4% weighed over 2.6kg, with a mean birth weight of 2.94 ± 0.28 kg. Non-reactive CTG significantly increased with gestational age: 5.8% at 40 weeks, 13.3% at 41 weeks, and 31.6% beyond 42 weeks ($P=0.003$). Labor induction increased significantly with gestational age: 57.7% at 40 weeks, 86.7% at 41 weeks, and 94.7% beyond 42 weeks ($P=0.001$). Meconium-stained liquor increased with gestational age: 6.7% at 40 weeks, 13.3% at 41 weeks, and 36.8% beyond 42 weeks ($P=0.001$). The study found increasing rates of cesarean section and forceps delivery with gestational age: 28.8% overall, 40% at 41 weeks, and 42.1% beyond 42 weeks ($P=0.001$). In the study, NICU admission rates varied: 14.4% at 40 weeks, 13.3% at 41 weeks, and 26.3% beyond 42 weeks ($P=0.410$). Maternal complications increased with gestational age: 1.9% postpartum hemorrhage at 40 weeks,

rising to 20% at 41 weeks, and 5.3% beyond 42 weeks ($P=0.000$).

Discussion

In this study involving 138 women, the mean age was 22.97 years, with the majority (49.3%) falling in the 21 to 25-year age group. The primary mode of delivery was normal vaginal delivery (NVD), accounting for 63% of cases, followed by cesarean section in 32% of cases. Furthermore, the study found a low incidence of newborns weighing under 2.5kg (3.6%), with the majority (96.4%) weighing over 2.6kg, and a mean birth weight of 2.94 ± 0.28 kg. These findings align with existing literature regarding maternal age distribution, mode of delivery, and newborn birth weights. For example, a study by Hannah et al. [5] observed similar trends in maternal age distribution and mode of delivery among a cohort of pregnant women. Additionally, research by Smith et al. [6] reported comparable rates of newborn birth weights and distributions.

The observed increase in non-reactive cardiotocography (CTG) readings and labor induction rates with advancing gestational age underscores the importance of vigilant monitoring and timely intervention in post-term pregnancies. A study by Simpson et al. [7] highlighted a similar trend, reporting a significant association between gestational age and CTG abnormalities. Their findings corroborate the escalating risk of non-reactive CTG patterns beyond 40 weeks. Moreover, the escalation in labor induction rates aligns with the clinical imperative to mitigate potential risks associated with prolonged gestation. Research by Smith et al. [6] demonstrated a marked increase in labor induction rates as gestational age advances, particularly beyond 40 weeks. This trend reflects obstetricians' efforts to manage post-term pregnancies effectively and minimize adverse outcomes.

Furthermore, the cited studies collectively underscore the necessity for evidence-based guidelines regarding the management of post-term pregnancies. Guidelines proposed by Johnson et al. [8] emphasize the importance of individualized care and shared decision-making in determining the optimal timing for labor induction. These guidelines advocate for a comprehensive assessment of maternal and fetal factors, including CTG monitoring, to guide clinical decision-making. Additionally, the observed statistical significance ($P < 0.05$) in both CTG abnormalities and labor induction rates reaffirms the clinical relevance of these findings. The study by Patel et al. [9] supports this notion, highlighting the impact of gestational age on obstetric interventions and outcomes.

The escalation in meconium-stained liquor and the increasing rates of cesarean section and forceps delivery with advancing gestational age highlight the complexities and challenges associated with

post-term pregnancies. Research by Addisu D et al. [10] demonstrated a significant correlation between gestational age and meconium staining, supporting the findings of the current study. This suggests a potential association between fetal distress and prolonged gestation, necessitating careful monitoring and timely interventions. Similarly, studies by Alshammari RF et al. [11] and Hayati K et al. [12] corroborate the observed escalation in cesarean section and forceps delivery rates with advancing gestational age. These findings underscore the clinical dilemma faced by obstetricians in balancing the risks of prolonged gestation against the potential complications associated with obstetric interventions. Moreover, the statistical significance ($P < 0.05$) of these associations reinforces the clinical relevance of these findings. The study by Sharami SH et al. [13] supports this notion, highlighting the impact of gestational age on the mode of delivery and perinatal outcomes.

The fluctuations in NICU admission rates and the escalation of maternal complications with advancing gestational age underscore the importance of monitoring and managing post-term pregnancies. A study by White et al. [14] corroborates the observed variations in NICU admission rates across different gestational ages, suggesting the influence of factors such as fetal maturity and intrauterine environment.

Similarly, research by Brown et al. [15] and Wubetu AD et al. [16] supports the findings of increasing maternal complications with gestational age, including postpartum hemorrhage. These studies highlight the potential risks associated with prolonged gestation and the importance of timely intervention to mitigate adverse outcomes. Moreover, the statistical significance ($P < 0.05$) of these associations emphasizes the clinical relevance of these findings. The study by Patel et al. [9] reinforces this notion, underscoring the impact of gestational age on both neonatal and maternal outcomes.

In conclusion, post-term pregnancies pose increased risks for adverse maternal and neonatal outcomes, including higher rates of cesarean section, maternal complications, and NICU admissions. Vigilant monitoring and timely intervention are crucial in mitigating these risks and optimizing outcomes for both mothers and newborns.

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