



# Management and Obstetric Outcomes of Post-date Pregnancies in Abakaliki, Ebonyi State, Southeast Nigeria: A Cross-sectional Study

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## Abstract

**Objectives:** This study aimed to evaluate the fetomaternal outcomes of post-date pregnancies.

**Materials and Methods:** We carried out a cross-sectional study of post-date pregnancies managed at Federal Teaching hospital, Abakaliki, Nigeria, from January 2013 to December 2015. Pregnancies delivered at 40 weeks and 10 days or more were included. Data was collected using a structured proforma, including sociodemographic characteristics, gestational age at delivery, and maternal and fetal complications. Data analysed using Epi Info version 7.

**Results:** The majority of the women (80.7%) had labor induction at the gestational age of 41 weeks and three days. Vaginal delivery and cesarean sections were the mode of delivery in 73.9% and 25.0% of women, respectively. Cesarean sections were mainly for labor dystocia (54.5%). The mean age of the women was 28.0 ± 4.4 yr. 38.6% of women were nulliparous. The main neonatal complication was sepsis (10.2%). Perinatal deaths were reported in 1.1% of neonates. Primary postpartum hemorrhage was reported in 6.8% of women.

**Conclusions:** Due to the higher prenatal complications and the need for obstetric and gynecological interventions in postpartum pregnancies, early ultrasound and induction of labor are recommended to reduce adverse outcomes.

**Keywords:** Abakaliki, Management, Obstetric outcome, Post-date pregnancy

## Introduction

The exact definition of a post-date pregnancy seems to have been lost in literature over the years due to a myriad of interpretations and misinterpretations by authorities and scholars (1-3). However, pregnancies lasting beyond the expected delivery date have conventionally been regarded as post-dated (1,3). This should not be mistaken for post-term or prolonged pregnancy, in which case the pregnancy has lasted more than 42 completed weeks (4). Post-date pregnancy could lead to prolonged pregnancy lasting up to 42 completed weeks or more, increased obstetric interventions, and maternal and fetal morbidities (5-11).

The incidence and exact etiology of accurate prolonged pregnancy are not fully understood (1-3). However, it is believed to have multifactorial pathogenesis with variations in the corticotropin-releasing hormone, racial/hereditary/genetic factors, and low maternal vaginal fetal fibronectin levels at 39 weeks playing a role (1-3). Central nervous system abnormalities such as anencephaly and sociodemographic factors like living standards are also thought to be contributory (1, 3). Recognized risk factors for prolonged pregnancy include nulliparity, male fetal gender, obesity, prior prolonged pregnancy, and genetic factors (5-7).

Pregnancy dating using the last menstrual period in sub-Saharan Africa is still employed to estimate the expected delivery date. Still, inaccuracies and inconsistencies abound with the use of this method, mainly due to recall bias, women with irregular cycles, women on hormonal birth control methods, or those who had the first trimester bleeding (7). Early ultrasonographic estimation of gestational age may enhance the accuracy of the estimated delivery date, but it is crucial to recognize its limitations at different gestational ages (2,8).

Induction protocols for post-dated pregnancies vary by institution or region of practice. The Royal College of Obstetricians and Gynaecologists and the World Health Organization recommend labor induction at or after 41 weeks (12,13). The approach in our unit is to induce labour at 40 weeks plus ten days. Irrespective of the practice, the target is to deliver the women before 42 completed weeks. Expectant management and fetal surveillance are also acceptable for women who decline active management (12).

## Materials and Methods

### Study Design and Setting

In this cross-sectional study, the data of all post-date pregnancies managed at Federal Teaching hospital,



**Key Messages**

- ▶ Post-date pregnancy is associated with increased fetal and maternal morbidity and mortality. The best approach to the management of post-date pregnancies remains controversial. The obstetric costs of the lack of uniformity in the management of post-date pregnancies remain underestimated in the West African Sub-region.

Abakaliki, Nigeria, from January 2013 to December 2015 were reviewed. Our inclusion criteria were 1) booked women, 2) singleton pregnancy, 3) absence of congenital anomalies in the neonate, 4) women whose pregnancy was dated using first trimester or early second-trimester ultrasound report 5) gestational age 40 weeks and ten days or more.

**Variables**

The following data were collected using a proforma: sociodemographic data, gestational age mode of delivery, APGAR scores at birth, neonatal birth weight, fetal and maternal complications. Case files with incomplete documentation were excluded. Gestational age was estimated from the booking ultrasound date and last menstrual period.

**Data Analysis**

Data analysis was done using Epi Info version 7 (Centre for Disease Control and Prevention, Atlanta, Georgia). The data were reported using frequency tables and descriptive statistics.

**Results**

A total of 5993 deliveries were recorded during the study period, out of which 352 met our inclusion criteria and included in the study. The majority of the women (80.7%) had labor induction at 41 weeks and three days. Vaginal delivery was the mode in 73.9%, while 25% had emergency cesarean sections, and 1.1% had assisted vaginal deliveries. The mean age of the women was 28.0 ± 4.4 years. Nulliparous women accounted for 38.6% of the study group. (Table 1).

The most common indication for cesarean section was labor dystocia (54.5%), fetal distress (36.4%), abnormal lie (4.5%), and fetal macrosomia (4.5%), respectively. Ninety-one percent of people who underwent cesarean were due to emergencies.

Most infants had good Apgar scores (7-10) at 1 and 5 minutes after delivery (Table 2). The overall mean birth weight was 3.4 ± 2.4 kg that of which 10.2% were macrosomia (fetal birth weight ≥4 kg), and 1.3% low birth weight. The most common neonatal complication was sepsis (10.2%). Perinatal deaths were reported in 4 (1.1%) cases. The main maternal complication recorded was primary postpartum hemorrhage in 24 (6.8%) of the women. Neonatal asphyxia and meconium aspiration

**Table 1.** Sociodemographic Characteristics of Study Participants

Variables	Number (%)
Age (y)	
15-20	16 (4.6)
21-25	92 (26.1)
26-30	152 (43.2)
31-35	80 (22.7)
36-40	12 (3.4)
Educational level	
Primary school	52 (14.8)
Secondary school	128 (36.4)
University	172 (48.8)
Parity	
0	196 (55.7)
1-4	136 (38.6)
≥5	20 (5.7)

**Table 2.** Neonates' APGAR Scores

APGAR Scores	1 <sup>st</sup> min	5 <sup>th</sup> min
0-3	12 (3.4)	4 (1.1)
4-6	34 (9.7)	12 (3.4)
7-10	306 (86.9)	336 (95.5)

Data presented as No. (%).

were the other complications which were recorded to be 16 (4.6%) and 10 (1.7%), respectively. Neonatal intensive care unit (NICU) admission was obtained to be 7.7±3.3 days.

**Discussion**

Nulliparity is a recognized risk factor for post-date pregnancy, especially pregnancy dating was by the last menstrual period (14). As found in this study, more than half of the study participants were nulliparous. Inaccurate pregnancy dating using the last menstrual period has been associated with post-date pregnancy. Therefore, we attempted to minimize errors from incorrect dating by recruiting only women who had first trimester or early second-trimester ultrasound scans for the study. Our incidence rate among nulliparous women is similar to studies where nulliparous women made up 66.3% of the study population but contrast with other studies in which multiparous women were 56% and 58.33%, respectively. A high incidence of post-date pregnancy among nulliparous women could be due to inaccuracies in recollecting the exact last menstrual period, especially where pregnancy is unplanned.

Pregnancy in the absence of any fetal or maternal concerns, the timing, and mode of delivery in post-date/prolonged remains an area of controversy (12-15). Our unit protocol recommends induction of labour at 40 weeks and ten days. The reason behind this is to avoid iatrogenic preterm delivery from inaccurate dating of gestational age

and ensure that where induction of labor is commenced, the client is delivered before 42 completed weeks. At this point, the incidence of fetal morbidity tends to rise significantly (5). Also, in our experience, women would decline labor induction due to the erroneous association of this intervention with a high chance of having a cesarean section (18). About 80.7% of the women in this study had labor induction at 40 weeks + 10 days.

Post-date pregnancies are associated with higher rates of interventions and more maternal and fetal complications than term pregnancies (1-5). As was evident in this study, the operative delivery rate was high amongst the participants. Twenty-five percent of the women had cesarean sections, while 1.1% had instrumental vaginal deliveries. The most common indication for cesarean section was a failure to progress in labor. This is similar to findings reported from other studies where the rate of cesarean was equally higher, with cephalopelvic disproportion accounting for 60% of the indications for cesarean. The high incidence of cephalopelvic disproportion is due to fetal macrosomia, a consequence of prolonged pregnancy because the fetus continues to drive nutrients from the mother with ongoing pregnancy (10). The primary maternal complication recorded in our study was postpartum hemorrhage (6.8%), associated with labor induction and cesarean sections.

Fetal complications observed in this study were more than reported elsewhere (14-16). The lower incidence in the current study was probably because all the women were booked and had planned deliveries. We found that 10.2% of our participants had fetal macrosomia. This is close to the 13% reported by Cucco et al (16) but higher than the 6% documented by Chantry and Lopez (10). Perinatal death was recorded in 1.1% of the participants and mainly was due to severe early neonatal sepsis which is similar to that reported by Chantry and Lopez (10).

### Limitations of the Study

The significant limitations of this study were its small sample size and study design (retrospective study). Therefore, studies with a larger sample size and prospectively are recommended to obtain results with more confidence.

### Conclusions

Due to the higher prenatal complications and the need for obstetric and gynecological interventions in postpartum pregnancies, early ultrasound and induction of labor are recommended to reduce adverse outcomes.

### Authors' Contribution

AO, OL, and MJ designed the study and conducted the research. VO, OU and CE monitored, evaluated, and analyzed the results of the study. Further, AO, CE, OU, CO and VO reviewed the article. All the authors approved the final manuscript and took full responsibility for the integrity of the data.

### Conflicts of Interests

The authors declare they have no conflict of interest.

### Ethical Issues

Ethical approval was obtained from the Research and Ethics Committee of the Federal Teaching hospital, Abakaliki, Ebonyi State, Nigeria. All the data collected were anonymized. REC Approval number 22/09/2015-20/11/2015.

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### References

1. Abeshi S. Postdate pregnancy. In: Udoma EJ, Ekanem EI, eds. Textbook of Clinical Obstetrics in the Tropics for Undergraduate and Postgraduate Students. 1st ed. Calabar, Nigeria: University of Calabar Press; 2014:109-112.
2. Roman AS. Late pregnancy complications (prolonged or postterm pregnancy). In: Decherney AH, Nathan L, Lauffer N, Roman AS, eds. Current Diagnosis and Treatment: Obstetrics and Gynecology. 11th ed. New York: McGraw-Hill Companies, Inc; 2013:250-266.
3. Crowley P. Prolonged pregnancy. In: Edmonds DK, ed. Dewhurst's Textbook of Obstetrics and Gynaecology. 7th ed. Oxford: Oxford University Press; 2007:192-204.
4. Bennett KA, Crane JM, O'Shea P, Lacle J, Hutchens D, Copel JA. First trimester ultrasound screening is effective in reducing postterm labor induction rates: a randomized controlled trial. *Am J Obstet Gynecol.* 2004;190(4):1077-1081. doi:10.1016/j.ajog.2003.09.065
5. Hilder L, Costeloe K, Thilaganathan B. Prolonged pregnancy: evaluating gestation-specific risks of fetal and infant mortality. *Br J Obstet Gynaecol.* 1998;105(2):169-173. doi:10.1111/j.1471-0528.1998.tb10047.x
6. Divon MY, Ferber A, Nisell H, Westgren M. Male gender predisposes to prolongation of pregnancy. *Am J Obstet Gynecol.* 2002;187(4):1081-1083. doi:10.1067/mob.2002.126645
7. Gardosi J, Vanner T, Francis A. Gestational age and induction of labour for prolonged pregnancy. *Br J Obstet Gynaecol.* 1997;104(7):792-797. doi:10.1111/j.1471-0528.1997.tb12022.x
8. Savitz DA, Terry JW Jr, Dole N, Thorp JM Jr, Siega-Riz AM, Herring AH. Comparison of pregnancy dating by last menstrual period, ultrasound scanning, and their combination. *Am J Obstet Gynecol.* 2002;187(6):1660-1666. doi:10.1067/mob.2002.127601
9. Olesen AW, Westergaard JG, Olsen J. Perinatal and maternal complications related to postterm delivery: a national register-based study, 1978-1993. *Am J Obstet Gynecol.* 2003;189(1):222-227. doi:10.1067/mob.2003.446
10. Chantry AA, Lopez E. [Fetal and neonatal complications related to prolonged pregnancy]. *J Gynecol Obstet Biol Reprod (Paris).* 2011;40(8):717-725. doi:10.1016/j.jgyn.2011.09.007
11. Cleary-Goldman J, Bettes B, Robinson JN, Norwitz E, D'Alton ME, Schulkin J. Postterm pregnancy: practice patterns of contemporary obstetricians and gynecologists. *Am J Perinatol.* 2006;23(1):15-20. doi:10.1055/s-2005-918891
12. Royal College of Obstetricians and Gynaecologists (RCOG). Induction of Labour. Evidence based clinical Guidelines No. 9. London: RCOG Press; 2001.
13. World Health Organization (WHO). WHO Recommendations:

- Induction of Labour at or Beyond Term. WHO News Bulletin; 2018.
14. Divon MY, Ferber A, Sanderson M, Nisell H, Westgren M. A functional definition of prolonged pregnancy based on daily fetal and neonatal mortality rates. *Ultrasound Obstet Gynecol.* 2004;23(5):423-426. doi:10.1002/uog.1053
  15. Eslamian L, Shahsavari H. Management and outcome of prolonged pregnancies in Shariati university hospital. *Tehran Univ Med J.* 2008;65(12):48-54. [Persian].
  16. Cucco C, Osborne MA, Cibils LA. Maternal-fetal outcomes in prolonged pregnancy. *Am J Obstet Gynecol.* 1989;161(4):916-920. doi:10.1016/0002-9378(89)90751-5
  17. Naz F, Javid A, Saeed S, Begum A, Zareen A. Neonatal outcome in post-term pregnancy. *Pak J Med Health Sci.* 2010;4(3):248-251.
  18. Ezechi OC, Fasubaa OB, Kalu BE, Nwokoro CA, Obiesie LO. Caesarean delivery: why the aversion? *Trop J Obstet Gynaecol.* 2004;21(2):164-167. doi:10.4314/tjog.v21i2.14494

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