

Review of Twin Deliveries and Fetomaternal Outcomes in a Tertiary Hospital in Lagos, Southwest Nigeria

Kehinde Sharafadeen Okunade^{1,2}, Ebonoluwa Daramola², Muis Adenekan², Adebayo Sekumade², Adegbenga Ajepe², Gbemisola Eniola Osanyin^{1,2}

¹Department of Obstetrics and Gynaecology, College of Medicine, University of Lagos, ²Department of Obstetrics and Gynaecology, Lagos University Teaching Hospital, Lagos, Nigeria

Abstract

Background: Twin pregnancies make up the greater majority of multiple pregnancies and are associated with significantly high maternal and perinatal morbidity and mortality. **Objectives:** The objective of the study was to determine the rate and fetomaternal outcome of twin deliveries at the Lagos University Teaching Hospital (LUTH). **Methodology:** This was a 5-year review of twin deliveries conducted at LUTH between January 1, 2010, and December 31, 2014. The case notes of all women who had twin deliveries during the study period were retrieved from the Medical Records Department and the relevant information extracted. The data were analyzed and then presented in simple descriptive statistics using tables and charts. **Results:** The rate of twin pregnancies was 1 in 28.4 deliveries. The mean age of the studied women was 35.4 ± 9.7 years, with majority (80.9%) being either primi- or multipara and 50% belonging to the Yoruba ethnic group. The most common mode of delivery was cesarean section with a mean gestational age at delivery of 34.7 ± 0.6 weeks and mean birth weight of 2.05 ± 0.4 kg. The stillbirth rate was 24 per 1000 total births, while the maternal mortality ratio was 1114 per 100,000 live births. **Conclusion:** The rate of twin pregnancies and its attendant adverse fetomaternal outcomes still remain high in our environment. Multiparity and belonging to the Yoruba ethnic group are the two most important risk factors.

Keywords: Maternal, morbidity, mortality, perinatal, preterm, stillbirth, twin pregnancies

INTRODUCTION

In general terms, multiple pregnancies consist of two or more fetuses. Twins make up the greater majority (97%–98%) of multiple pregnancies^[1] and are associated with an increase in maternal and perinatal morbidity and mortality.^[2] The considerable geographical and temporal variations in twinning incidence reflect factors influencing dizygotic or nonidentical twinning, which results from multiple ovulation.^[1] Twinning rate ranges from 4/1000 births in Japan to 54/1000 in Nigeria and is common in older mothers, presumably due to their rising follicle-stimulating hormone (FSH) levels.^[3] In contrast, monozygotic or identical twinning, which results from early cleavage division of a single blastocyst, occurs with a constant incidence of 3.9/1000.^[3] Differences in twinning rates between various ethnic groups and geographical areas are due mainly to difference in dizygotic twinning rates with the highest rates in the world being among the Yoruba ethnic group in Southwest Nigeria.^[4] Since the mid-1980s, the incidence of multiple

pregnancies has been increasing, especially in the developed world and this is mainly attributed to the increased uptake of artificial reproductive technology.^[5]

Maternal morbidity and mortality rates are much higher in multiple pregnancies than in singleton pregnancies because of the increased occurrence of preterm labor, obstetric hemorrhage and pregnancy-induced hypertension.^[2] The perinatal mortality rate of twins is also 3–4 times higher than in singleton pregnancies as a result of the increased rates of congenital anomalies, prematurity, hypoxia, and trauma.^[6] Multiple gestations account for 17% of all preterm births (before 37 weeks of gestation), 23% of early preterm births [before 32 weeks of gestation], 24% of low-birth-weight

Address for correspondence: Dr. Kehinde Sharafadeen Okunade, Department of Obstetrics and Gynaecology, College of Medicine, University of Lagos, PMB 12003, Lagos, Nigeria.
E-mail: kehindeokunade@gmail.com

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Okunade KS, Daramola E, Adenekan M, Sekumade A, Ajepe A, Osanyin GE. Review of twin deliveries and fetomaternal outcomes in a Tertiary Hospital in Lagos, Southwest Nigeria. *Niger J Gen Pract* 2018;16:6-9.

Access this article online

Quick Response Code:



Website:
www.njgp.org

DOI:
10.4103/NJGP.NJGP_19_17

infants (<2500 g), and 26% of very-low-birth-weight infants (<1500 g).^[7]

Due the paucity of up-to-date information on the incidence of twin deliveries in the state, especially since the advent and wide geographical coverage of assisted conception in Nigeria, this hospital-based study will attempt to determine the incidence and fetomaternal outcome of all twin pregnancies seen at LUTH, Lagos, Southwest Nigeria during the study period.

METHODOLOGY

This was a descriptive retrospective review of all twin deliveries conducted over a 5-year period (from January 1, 2010 to December 31, 2014) at the Lagos University Teaching Hospital (LUTH). LUTH is an over 1000-bedded teaching hospital located in the Central Lagos metropolis in Southwest Nigeria. It provides services to patients from the neighboring Southwestern states. The hospital is the largest in the state and offers mainly clinical services among which include prenatal, intrapartum, and postnatal care.^[8]

The case notes of all women with twin pregnancies who delivered in the hospital during the period of review were retrieved from the Medical Records Department. Information on the sociodemographic characteristics, booking status, gestational age at delivery, mode of delivery, indications for cesarean section, and birth outcome were extracted. Descriptive statistics were computed for all quantitative data and statistical analysis was done using Epi Info version 7.2 statistical packages for windows manufactured by the US Centers for Diseases Control and Prevention (GA, USA). Ethical approval was obtained from the Hospital's Health Research and Ethics Committee before the commencement of the study.

RESULTS

A total of 6526 deliveries were carried out during the study period, of which 230 were twin deliveries giving an incidence of 1 in 28.4 deliveries. Figure 1 shows the yearly trend of twin deliveries over the 5-year study period with the highest

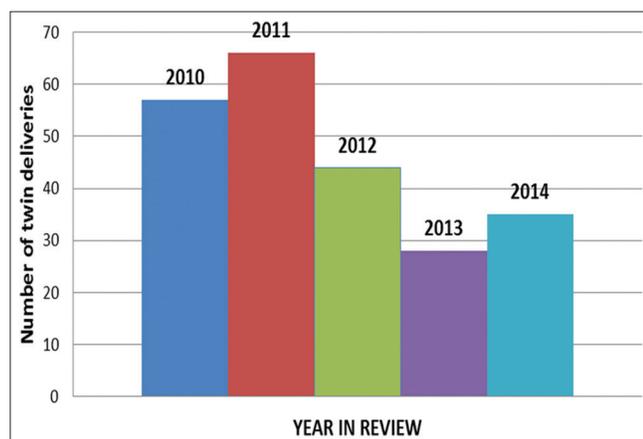


Figure 1: Yearly trend of twin deliveries (2010 to 2014)

number of deliveries reported in 2011 and the lowest in 2013 and 2014. As shown in Table 1, the age range of the women was 21–49 years, and the mean age was 35.4 ± 9.7 years. The peak age of the women in the study was 30–39 years and the majority (80.9%) were either primi- or multipara (parity ≥ 1) with a median parity of 3 (interquartile range: 1, 4). Half of the women were of the Yoruba ethnic group with a significantly large proportion (50.4%) having up to tertiary level of education. Up to 93% of them were married and 74.3% were registered antenatal clients of the hospital.

In Table 2, 30% of the women with twin gestations were shown to have delivered through the vaginal route while the remaining 70% delivered by cesarean section with over half (56.5%) being on emergency basis. A major proportion (53.5%) of the women delivered before 37 weeks gestation while none carried their pregnancies beyond term (≥ 42 weeks). The mean gestational age at delivery for the studied population was 34.7 ± 0.6 weeks.

Majority (97.6%) of the twins were live births [Table 3], with an overall mean birth weight of 2.05 ± 0.4 kg. There were

Table 1: Sociodemographic characteristics of study women (n=230)

Characteristics	Frequency n (%)
Age (years)	
≤20	0 (0.0)
20-29	101 (43.9)
30-39	121 (52.6)
≥40	8 (3.5)
Mean±SD (age range)	32.4±9.7 (21-49)
Parity	
0	44 (19.1)
1	82 (35.7)
2-4	102 (44.3)
≥5	2 (0.9)
Median (IQR)	3 (1-4)
Tribe	
Yoruba	115 (50.0)
Ibo	90 (39.1)
Hausa	3 (1.3)
Others	22 (9.6)
Educational status	
Uneducated	23 (10.0)
Primary	27 (11.7)
Secondary	64 (27.8)
Tertiary	101 (43.9)
Postgraduate	15 (6.5)
Marital status	
Single	16 (7.0)
Married	213 (92.6)
Widowed	1 (0.4)
Booking status	
Booked	171 (74.3)
Unbooked	59 (25.7)

SD: Standard deviation, IQR: Interquartile range

Table 2: Maternal outcome of twin deliveries (n=230)

Maternal outcome	Frequency n (%)
Mode of delivery	
Vaginal deliveries	69 (30.0)
Elective caesarean deliveries	70 (30.4)
Emergency caesarean deliveries	91 (39.6)
GA at delivery (weeks)	
<37	123 (53.5)
37-40	101 (43.9)
>40	6 (2.6)
Mean gestational age at delivery	34.7±0.6

GA: Gestational age

Table 3: Perinatal outcome (n=460)

Delivery outcome	Frequency n (%)
Birth outcome	
Live births	449 (97.6)
Stillbirths	11 (2.4)
Birth weight (kg)	
≤1.5	88 (19.1)
1.5-2.49	183 (39.8)
2.5-3.49	180 (39.1)
≥3.5	9 (2.0)
Mean birth weight at delivery	2.05±0.4

11 recorded stillbirths during the reviewed period giving a stillbirth rate of 24 per 1000 total births. There were also five maternal deaths giving a maternal mortality ratio of 1114 per 100,000 live births.

DISCUSSION

This study reported a twin incidence rate of 1 in 28.4 deliveries conducted at the labor ward complex of the LUTH over the 5-year review period. This figure was higher than the reported rates of 1 in 34.6 and 1 in 38.5 deliveries in previous studies carried out in Lagos^[9] and Uyo,^[2] respectively, but almost similar to the incidence of 1 in 30.8 deliveries obtained in a study done in Abuja, North-central Nigeria.^[10] The incidence obtained from our study is, however, considerably higher than that obtained from studies carried out in the United States and United Kingdom (1 in 45.5 deliveries).^[1,5] This further indicated that the incidence of twin pregnancies may still be highest in this part of the world. The low number of twin deliveries reported in the year 2013 and 2014 in the study was probably as a result of the incessant strike actions which were prevalent in most government hospitals during the period in question.

The mean age of 35.4 ± 1.7 years reported in this study may be in support of the theory that the rate of natural twinning peaks at around age 37 years, when maximal FSH stimulation increases the rate of multiple follicles developing.^[11] The fall in incidence from age 40 years and above as we have reported may, therefore, reflect the physiological follicular depletion

that is known to be associated with aging.^[11] Increasing parity has been shown to increase the incidence of twinning in all populations studied,^[5] and this was corroborated by the findings from our study where the proportion of twin pregnancies increases progressively with increasing parity and then decreases after four children. The study also showed that half of the women reviewed belonged to the Yoruba ethnic group and this may be attributable to the fact that the study just like a previous regional study^[12] was done in Lagos which is located in the Southwestern part of Nigeria that comprises predominantly of the Yoruba ethnic group. The relatively high level of education seen among the women in this study (50.4% with at least tertiary level of education) probably confirmed that education plays an important role in the health-seeking behavior of the public^[12,13] or it may just be a pointer to the urban nature of the research setting. A major proportion (74.3%) of the women in this study was booked. This can be attributed to the study location where expectedly most of the women are educated and better enlightened and are more likely to embrace institutional care and deliveries.^[14]

Cesarean delivery rate for twin pregnancies has been generally documented to be 2–3 times higher than that for singleton pregnancy.^[15] This was reflected in our study where cesarean section was the mode of delivery in 70% of the cases reviewed. However, comparatively the rate we reported was higher than that obtained from Uyo and Abuja where the rates were 51.9%^[2] and 27.3%,^[10] respectively, thus probably showing that our thresholds for cesarean deliveries for twin pregnancies may be lower in LUTH than that of the other tertiary institutions where these studies were carried out in the country.

Spontaneous preterm delivery is an ever-present risk in any twin pregnancy with about half of all twins delivered preterm.^[1,16] Over half (53.5%) of the cases reported in our review delivered before term and this is considerably higher than the 35.4% and 39.7% rates reported in Uyo^[2] and Abuja,^[10] respectively. The mean gestational age of delivery (34.7 ± 0.6 weeks) reported in our study is, however, lower than the average gestational age of 37.4 weeks reported in another study in our center.^[9] About 59% infants delivered during the period under review were of low birth weight (<2.5 kg) with a mean birth weight of 2.05 ± 0.4 kg, and this was lower than the expected average birth weight of 2.5–3.5 kg. This finding may be as a result of the high number of women (53.5%) who delivered their pregnancies preterm in the study.

The stillbirth rate is higher for multiple births compared to singletons.^[17] The stillbirth rate in our study was 24 per 1000 total births, and this was almost similar to the national figure reported in the 2013 Nigeria Demographic and Health Survey (NDHS),^[18] but double the rate of 12 per 1000 total births reported in the United Kingdom.^[16] This disparity is likely due to the more sophisticated and easily accessible facilities in the more advanced societies such the United Kingdom compared to our society where health-care delivery is still largely unavailable and unaffordable. We also

recorded a maternal mortality ratio of 1114 per 100,000 live births in this study which is almost a 2-folds increase from the national figure of 576 per 100,000 live births quoted in the most recent NDHS,^[18] and this finding was likely due to the predominantly high-risk nature of twin pregnancies and deliveries. This study was, however, hospital based, thus limiting the generalizability of the reported findings to the entire population.

CONCLUSION

The rate of twin deliveries and its attendant high perinatal and maternal mortality still remain relatively high in our environment. Cesarean section is the mode of delivery for most twin pregnancies. We, therefore, advocate for a widespread public enlightenment on the increased risks associated with twin pregnancies and deliveries and the need for women to register early and receive care in specialized obstetric units with well-equipped neonatal intensive care facilities.

Acknowledgment

The authors appreciate the assistance given by all the medical record staff of the LUTH and the Resident doctors of the Department of Obstetrics and Gynaecology.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Baker PN, editor. Twins and higher multiple gestations. In: *Obstetrics by Ten Teachers*. 18th ed. London: Hodder-Arnold; 2006. p. 146-55.
- Abasiattai AM, Umoiyo AJ, Utuk NM, Shittu DG. Incidence and mode of delivery of twin pregnancies in Uyo, Nigeria. *Niger Med J* 2010;51:170-2.
- Fisk NM. Multiple pregnancy. In: Edmonds DK, editor. *Dewhurst's Textbook of Obstetrics & Gynaecology*. 7th ed. Oxford: Blackwell; 2007. p. 166-76.
- Nkyekyer K. Multiple pregnancy. In: Kwawukume ET, Emuveyan EE, editor. *Comprehensive Obstetrics in the Tropics*. Accra: Asante and Hittscher Printing Press Ltd.; 2002. p. 162-72.
- Cunningham F, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY (ed.). Multifetal gestation. In: *Williams Obstetrics*. 23rd ed., Ch. 39. New York: McGraw-Hill; 2010. p. 859-89.
- Bush MC, Pernoll ML. Multiple pregnancy. In: Decherney AH, Nathan L, Goodwin TM, Laufer N, editors. *Current Diagnosis and Treatment Obstetrics & Gynaecology*. 10th ed. New York: McGraw-Hill; 2007. p. 301-10.
- Smith RP, editor. Multiple gestation. In: *Netter's Obstetrics and Gynaecology*. 2nd ed. Philadelphia: Saunders-Elsevier; 2008. p. 535-7.
- Adegbesan-Omilabu MA, Okunade KS, Gbadegehin A, Olowoselu OF, Oluwole AA, Omilabu SA, *et al.* Seroprevalence of hepatitis B virus infection among pregnant women at the antenatal booking clinic of a Tertiary Hospital in Lagos Nigeria. *Niger J Clin Pract* 2015;18:819-23.
- Abudu OO, Anorlu RI. Multiple pregnancy. In: Agboola A, editor. *Textbook of Obstetrics and Gynaecology for Medical Students*. 2nd ed., Sec. B. Ibadan: University Services Educational Publishers; 2006. p. 373-80.
- Akaba GO, Agida TE, Onafowokan O, Offiong RA, Adewole ND. Review of twin pregnancies in a tertiary hospital in Abuja, Nigeria. *J Health Popul Nutr* 2013;31:272-7.
- Wong LE, Huang WT, Pope JE, Haraoui B, Boire G, Thorne JC, *et al.* Effect of age at menopause on disease presentation in early rheumatoid arthritis: Results from the Canadian Early Arthritis Cohort. *Arthritis Care Res (Hoboken)* 2015;67:616-23.
- Okunade KS, Daramola E, Ajepe A, Sekumade A. A 3-year review of the pattern of contraceptive use among women attending the family planning clinic of a University Teaching Hospital in Lagos, Nigeria. *Afr J Med Health Sci* 2016;15:69-73.
- Okunade KS, Adegbesan-Omilabu MA. Anaemia among pregnant women at the booking clinic of a teaching hospital in South-Western Nigeria. *Int J Med Biomed Res* 2014;3:114-20.
- Okunade KS, Okunola H, Oyenyin L, Habeeb-Adeyemi FN. Cross-sectional study on the obstetric performance of primigravidae in a teaching hospital in Lagos, Nigeria. *Niger Med J* 2016;57:303-6.
- Owen P. MRCOG. Twin pregnancy. *Br J Hosp Med* 1997;58:437-9.
- Multiple Pregnancy: The Management of Twin and Triplet Pregnancies in the Antenatal Period. National Collaborating Centre for Women's and Children's Health. London: RCOG Press; 2011. p. 27.
- Saving Babies' Lives Report 2009. Sands Stillbirth and Neonatal Death Charity. Thomson Colour Printers. Portland Place, London, W1B 1LY; 2009. p. 1-29.
- Nigeria Demographic and Health Survey 2013. National Population Commission (NPC). Abuja, Nigeria, Rockville, Maryland, USA: ICF International; 2014.