



REVIEW OF TWIN DELIVERIES IN MAKURDI, NORTH-CENTRAL NIGERIA

Gynaecology

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ABSTRACT

Background : Twin pregnancy is a high risk pregnancy associated with complications with resultant increased maternal and perinatal morbidity and mortality. Recent increases in the incidence of twin births are attributed to delayed childbearing among women and the increased use of assisted reproductive techniques.

Objective : To review twin deliveries at the Benue State University Teaching Hospital (BSUTH), Makurdi

Materials and Methods: This was a retrospective study of twin deliveries at the BSUTH from September 1, 2012 to August 31, 2017. Data were retrieved from the mothers' medical records and analyzed using SPSS (version 20.0) and the level of significance was set at a P-value of <0.05.

Results : The twinning rate was 18 per 1000 deliveries. The mean maternal age was 32.2(6.0 SD) and the mean parity was 2.3. Twenty-eight (80.0%) were booked whereas 7(20.0%) were unbooked. Six (17.1%) had primary education, 14 (40.0%) had secondary education and 15 (42.9%) had tertiary education. The mean gestational age at delivery was 36.5 (1.88 SD) weeks. Hypertensive disorders of pregnancy were the commonest maternal complications. The main fetal complication was preterm delivery, occurring in 48.6% of deliveries. Presentations were vertex-vertex in 57.1%, vertex-nonvertex in 20.0% and non-vertex leading twin in 22.9% of deliveries. Male-to-female sex ratio was 2.04: 1. The overall mean birth weight was 2.5(0.41 SD) kg. The caesarean section rate was 25.7%. The perinatal mortality rate (PNMR) was 114 per 1000 total deliveries.

Conclusion : The twinning rate was 18 per 1000 and the PNMR was 114 per 1000. There is a need for advocacy in favour of consultant-led maternity care for multiple pregnancies in our setting.

KEYWORDS

twinning rate; retrospective study; PNMR; maternal complications; preterm delivery; Makurdi, North-Central Nigeria

Introduction

The incidence of multiple pregnancies has been on the increase over the last decades owing to women embarking on childbearing at an older age and the increased use of assisted reproductive techniques¹. The incidence of twin deliveries shows considerable ethnic and geographic variations. The incidence among the Yorubas of Nigeria is more than four times that of the Caucasians. In Nigeria the reported rates of twin deliveries varied from 28 per 1000 deliveries in the North² to 49 per 1000 deliveries in the West³. Intermediate rates of 14 per 1000 at Mekele Referral Hospital⁴ and 24 per 1000 at St. Paul's Hospital⁵ were reported in Ethiopia.

Compared to singleton pregnancies, multiple pregnancies are associated with higher maternal and perinatal morbidity and mortality. Perinatal mortality rate (PNMR) in multiple pregnancies is reported to be five to six times higher when compared to singleton pregnancies. Complications responsible for such a high maternal and perinatal adverse pregnancy outcomes include anaemia, hypertensive disorders of pregnancy, antepartum haemorrhage, primary postpartum haemorrhage, preterm delivery, low birth weight, intrauterine growth restriction and congenital malformation⁶⁻⁸.

Early antenatal diagnosis and consultant obstetrician-led comprehensive maternity care are essential in minimizing complications and adverse pregnancy outcome.

The main objective of this study was to review all the twin deliveries over the last five years at the Benue State University Teaching Hospital Makurdi, north-central Nigeria.

Materials and Methods

This was a retrospective study of all twin deliveries at the Obstetrics

and Gynaecology Department of the Benue State University Teaching Hospital, Makurdi, north-central Nigeria from September 1, 2012 to August 31, 2017. The case notes of all women who were delivered of twin during the study period were retrieved from the Records Department of the hospital. The following information was extracted and transferred to a predesigned proforma : maternal age, parity, booking status, educational status, maternal and fetal complications, mode of delivery, presentation of the twins, gestational age at delivery, birth weight, gender of the twins, placentation and Neonatal Intensive Care Unit admission(NICU).

The data were analyzed using Statistical Package for the Social Sciences (SPSS) software (version 20.0). Frequency tables were generated and the level of significance was set at a P-value of <0.05. The required sample size was calculated using the formula: $n = z^2 pq/d^2$, where

n = the desired sample size

z = 1.96

p = the incidence of twinning in a study in Jos, Nigeria = 2.3%⁹ = 0.023

q = 1-p = 1-0.023 = 0.977

d = the degree of accuracy desired, usually set at 0.05, at a Confidence Interval of 95%.

Therefore,

$$n = \frac{(1.96)^2(0.023)(0.977)}{(0.05)^2} = 34.5$$

The sample size of 35 twin deliveries was adequate for this study. The study was conducted according to the revised Helsinki Declaration guidelines of 2008 in South Korea.

Results

There were 1941 deliveries, 35 of which were twin births, during the study period. The twin birth rate was, therefore, 18 per 1000 deliveries. The mean maternal age was 32.2(6.0 SD) years, with a range of 22 to 50 years. The mean parity was 2.3(1.2 SD), with a range of 0 to 9.

Twenty-eight (80.0%) of the mothers were booked whereas 7(20.0%) were unbooked. The caesarean section rate was 25.7% and the spontaneous vaginal delivery (SVD) rate was 74.3%.

Six (17.1%) of the mothers had primary level of education, 14(40.0%) had secondary level of education and 15(42.9%) had tertiary level of education.

The mean gestational age at delivery was 36.5(1.88 SD) weeks, with a range 32 to 39 weeks. The placentation was dichorionic diamniotic in 29(82.9%) and monochorionic diamniotic in 6(17.1%).

Hypertensive disorders of pregnancy (preeclampsia, gestational hypertension and eclampsia) were diagnosed in 7(20.0%) of the mothers, primary postpartum haemorrhage in 2(5.7%), placenta previa in 1(2.9%) and preterm prelabour rupture of membranes in 1(2.9%). Twenty-four (68.6%) had no complication. There was no maternal death.

The mean birth weight of the leading twin was 2.4(0.34 SD) kg, with a range of 1.55 to 3.00 kg; the mean birth weight of the second twin was 2.7(0.43 SD) kg, with a range of 1.70 to 3.50 kg; the overall mean weight of both the leading and the second twin was 2.5 (0.41 SD) kg, with a range of 1.55 to 3.50 kg.

The presentation was vertex-vertex in 20(57.1%), vertex- nonvertex in 7 (20.0%) and non-vertex leading twin in 8 (22.9%).

The leading twin was male in 27 (77.1%) deliveries and female in 8 (22.9%). The second twin was male in 20 (57.1%) deliveries and female in 15 (42.9%). The male-to-female sex ratio was 2.04: 1.

The main fetal complication was preterm delivery. It occurred in 17(48.6%) deliveries, and 18 (51.4%) were term deliveries. Neonatal Intensive Care Unit admission occurred in 6 (17.1%) twins for complications of prematurity. There were two stillbirths and two early neonatal deaths from respiratory distress syndrome. The perinatal mortality rate (PNMR) was 114 per 1000 total deliveries.

The age group, 26 -35 years, had the highest frequency of twin deliveries compared to other age groups ($X^2 = 16.949$; $P = 0.009$).

The unbooked mothers had proportionately more complications than their booked counterparts ($X^2 = 5.714$; $P = 0.017$). The unbooked mothers had more caesarean sections than the booked cases ($X^2 = 7.467$; $P = 0.006$).

Table 1: Socio-demographic and Obstetric Characteristics of Women with Twin Deliveries

Variable	Frequency n = 35	Percent
Age group		
≤20	0	0.0
21–25	4	11.4
26–30	10	26.6
31–35	12	34.3
36–40	6	17.1
41–45	2	5.7
46–50	1	2.9
Parity		
0	9	25.7
1–2	15	42.9
3–4	4	11.4
≥5	7	20.0
Booking status		
Booked	28	80.0
Unbooked	7	20.0
Educational Status		
Primary	6	17.1
Secondary	14	40.0
Tertiary	15	42.9

Table 2: Maternal Complication According to Booking Status

Variable	Frequency n = 35	Percent
Preeclampsia		
Booked	1	2.9
Unbooked	2	5.7
Gestation Hypertension		
Booked	1	2.9
Unbooked	1	2.9
Eclampsia		
Booked	1	2.9
Unbooked	1	2.9
Placenta Previa		
Booked	0	0.0
Unbooked	1	2.9
Preterm prelabour rupture of membrane (PPROM)		
Booked	0	0.0
Unbooked	1	2.9
Primary Postpartum Haemorrhage		
Booked	1	2.9
Unbooked	1	2.9
No complication	24	68.6

Table 3: Mode of Delivery According to Booking Status

Variable	Frequency n = 35	Percent
Booked		
SVD	25	71.4
C/S	3	8.6
Unbooked		
SVD	1	2.9
C/S	6	17.1

Table 4: Twin Characteristics

Variable	Frequency n = 35	Percent
Gestational age at delivery		
Preterm delivery	17	48.6
Term delivery	18	51.4
Presentations of twins		
Vertex – vertex	20	57.1
Vertex – non-vertex	7	20.0
Non-vertex leading twin	8	22.9
Gender of Leading Twins		
Male	27	77.1
Female	8	22.9
Gender of second twins		
Male	20	57.1
Female	15	42.9
NICU Admission		
Yes	6	17.1
No	29	82.9

Male –to– female ratio = 47:23 = 2.04:1

Discussion

The twinning rate of 18 per 1000 in this study was similar to the rate of 18.5 per 1000 reported by Singh L et al⁶. It was higher than the rate of 16 per 1000 reported in Port Harcourt, south-south Nigeria¹⁰. Higher rates of 23 per 1000, 26 per 1000, 40.2 per 1000 and 37.7 per 1000 were reported in Kano, north-west Nigeria³, Uyo south-south Nigeria¹¹, South-west Nigeria¹² and Jimma, south-west Ethiopia¹³ respectively. The highest, global incidence of twinning in South-west Nigeria, among other factors, is attributed to the consumption of white yam (*Dioscorea rotundata*) which contains an ovulation induction agent¹⁴.

The mean maternal age of 32.2 years was greater than 28.96 years reported in Jos⁹ and 27.7 years reported in Kano¹⁵. It was similar to 30.0 years reported in Enugu¹¹.

The age group, 26 to 35 years, had the highest number of twin deliveries compared to other age groups. This was in agreement with studies that reported the number of twin pregnancies increases substantially with maternal age until age 38 and then decreases again^{17, 18}.

Hypertensive disorders of pregnancies were the commonest maternal complications. Hypertensive disorders of pregnancy were also reported as the commonest maternal complication among mothers with twin deliveries in a similar study in Kano, north-west Nigeria³. No complications were recorded in 24 (68.6%) mothers in this study. Twin pregnancies, like other causes of hyperplacentalosis, are often complicated by gestational hypertension and placenta previa.

Preterm delivery accounted for 48.6% of the deliveries. This was less than the preterm delivery rates of 54% and 64% reported by Gardner¹⁹ et al and Sultana²⁰ et al respectively. The high preterm delivery rate and the attendant complications of prematurity accounted for the high perinatal mortality rate (PNMR) of 114 per 1000 total births. This was higher than PNMRs of 55.85 per 1000 and 102 per 1000 reported in Port Harcourt¹⁰ and Abuja²¹ respectively.

Complications occurred significantly more in unbooked mothers than their booked counterparts ($X^2 = 5.714$; $P = 0.017$). Unbooked mothers were more likely to have caesarean delivery ($X^2 = 7.467$; $P = 0.006$). The presentations of the twins were vertex-vertex in 20 (57.1%) of the deliveries, vertex-nonvertex in 7 (20.0%) and non-vertex leading twin in 8 (22.9%). These were higher than the values of vertex-vertex presentation of 48%, vertex-nonvertex presentation of 16% and less than the non-vertex leading twin presentation of 36% reported by Sultana²⁰ et al. The male-to-female sex ratio was 2.04: 1. This was higher than the male-to-female ratios of 1.206: 1 reported in Jos⁹, 1: 1.1 in Abuja²¹ and 0.98: 1 in Benin²². The variations in sex ratio may be due to hormonal influences.

The overall mean birth weight of 2.5 kg in this study was greater than values of 2.39 kg and 2.395 kg reported in Jos⁹ and Abuja²¹ respectively. A much lower mean birth weight of 2.03 kg was reported in India⁶. These differences in birth weight may be due to the predominant gestational age at delivery.

This was a hospital-based retrospective study and cannot be generalized to the entire population. This calls for further multicentre studies on this subject matter.

In conclusion, the twinning rate of 18 per 1000 was low compared to rates from most regions of Nigeria but higher than rates from the western world. The perinatal mortality rate was unacceptably high. There is a need for advocacy in favour of facilitating access to consultant obstetrician-led comprehensive maternity care by mothers with multiple pregnancies.

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References

- Russel RB, Petrini JR, Damus K, Mattison DR, Schwartz RH. The changing epidemiology of multiple births in the United States. *Obstet Gynecol.* 2003; 101(1): 129–35.
- Aisien AO, Olarewaju RS, Imade GE. Twins in Jos, Nigeria: a seven-year retrospective study. *Med Sci Monit.* 2000; 6: 946–50.
- Attah RA, Mohammed Z, Gobir M. A review of twin deliveries in Aminu Kano Teaching Hospital, North-West Nigeria. *Niger J Basic Sci.* 2014; 11: 3–7.
- Gessesew A. Twin deliveries in Mekele Zonal Hospital: ten years retrospective study. *Ethiop Med J.* 2007; 45: 55–9.
- Korsak VS. Incidence and some perinatal problems of multiple pregnancies in a central referral hospital, Addis Ababa. *Ethiop Med J.* 1989; 27: 217–21.
- Singh L, Trivedi K. Study of maternal and fetal outcome in twin pregnancy. *Int J Reprod Contracept Obstet Gynecol.* 2017; 6(6): 2272–78.
- Ibrahim I, Oyeyemi A, Obilahi A. *Int J Women's Health.* 2012; 4: 245–9.
- Minakami H, Sato I. Re-estimating date of delivery in multifetal pregnancies. *JAMA.* 1996; 275(18): 1432–4.
- Mutthir JT, Pam VC. Obstetric outcome of twin pregnancies in Jos, Nigeria. *Nig J Clin Pract.* 2007; 10(1): 15–18.
- Bassey G, Inimgba NM. Fetomaternal outcome of twin gestation in Port Harcourt, south-south Nigeria. *Niger J Med.* 2014; 23(4): 282–7.
- Abasiattai AM, Umoiyoho AJ, Utuk NM, Shittu DG. Incidence and mode of delivery of twin pregnancies in Uyo, Nigeria. *Niger Med J.* 2010; 51(4): 170–2.
- Akinboro A, Azeez MA, Bakare AA. Frequency of twinning in South-South Nigeria. *Indian J Hum Genet.* 2008; 14(2): 14–47.
- Tilahun T, Araya F, Tura G. incidence and risk factors of twin pregnancy at Jimma University Specialized Hospital, south-west Ethiopia. *Epidemiology (Sunnyvale)* 5:188.doi:10.4172/2161-1165.1000186. Accessed on October 25 at 2.30 a.m.
- Odunsi K, Obinmwana FC, Jekel J, Otoiye VO, Wyshak G, Okonofua FE. White yam (*Dioscorea rotundata*) and socioeconomic status as risk factors for twin births in south-west Nigeria. Presented at the fifth International Congress of the Society of Gynaecology and Obstetrics of Nigeria, Benin City, Edo State, Nigeria. November 23–28, 1998.
- Yakasai IA, Rabi A. Twin birth in Kano, northern Nigeria. *IOSR J Pharm.* 2013; 3(1): 4–8.
- Nwankwo TO, Aniebue UU, Ezenkwele E, Nwafor MI. Pregnancy outcome and factors affecting vaginal delivery of twins at University of Nigeria Teaching Hospital, Enugu. *Niger J Clin Pract.* 2013; 16(4): 490–5.
- Hoekstra C, Zhao ZZ, Lambalk CB, Willemsen G, Martin NG, et al. Dizygotic twinning. *Human Reprod Update.* 2008; 14: 37–47.
- Bortolus R, Parazzini F, Chatenoud L, Benzi G, Bianchi MM, et al. The epidemiology of multiple births. 1999; 5: 179–87.
- Gardner MO, Goldenberg RL, Cliver SP, Tucker JM, Nelson KG, Copper RL. The origin and outcome of preterm twin pregnancies. *Obstet Gynecol.* 1995; 85(4): 553–7.
- Sultana M, Khatun S, Ara R, Saha AK, Shah ABS. Maternal and perinatal outcome of twin pregnancy in a tertiary hospital. *Ibrahim Card Med J.* 2011; 1(2): 35–9.
- Akaba GO, Agida TE, Onafowokan O, Offiong RA, Adewole ND. Review of twin pregnancies in a tertiary hospital in Abuja, Nigeria. 2013; 31(2): 272–77.
- Onyiriuka AN. Twin delivery: incidence and perinatal outcome in a Nigerian mission hospital. *Bangladesh J Med Sci.* 2011; 10(1): 45–51.