

Outcome of twin deliveries at the University of Maiduguri Teaching Hospital: A 5-year review

AA Kullima, BM Audu, AD Geidam

Department of Obstetrics and Gynaecology, University of Maiduguri Teaching Hospital, Maiduguri, Borno State, Nigeria

Abstract

Objectives: The objectives of the study were to determine the outcome of twin births at the University of Maiduguri Teaching Hospital (UMTH), Maiduguri, in terms of morbidity and mortality and to recommend possible measures to curtail or reduce some of the preventable complications.

Materials and Methods: This is a 5-year retrospective study, from January 2000 to December 2004, of twin births at the UMTH.

Results: There were 196 twin deliveries in 8431 total deliveries, with a twin incidence of 2.3%. Dizygotic twins accounted for 63.4%. The increasing maternal age and positive family history of multiple pregnancies were associated with the increasing twinning rate. The main complications encountered were preterm labor, pregnancy-induced hypertension, and cord prolapse. The perinatal mortality rate of 107.5/1000 births was higher than that observed for singleton pregnancies in the same institution. Similarly, there was a higher Cesarean section rate of 24.7% compared to singletons within the same period. There were significantly higher perinatal mortality rates among the preterm ($P = 0.000002$) and low-birth-weight ($P = 0.000004$) fetuses.

Conclusion: Considering that fetal prematurity and low birth weight, sequelae to preterm labor, are the commonest causes of perinatal death in this study, efforts should be geared during the antenatal period toward the prevention of a premature birth.

Key words: Outcome, twin deliveries Maiduguri

Date of Acceptance: 14-Feb-2011

Introduction

Variations do exist in the reported incidence of twin deliveries, which is thought to be influenced by both environmental and racial factors.^[1] It is the highest among the Negroes especially the Yoruba tribe, lowest in the Asian mongoloids, and intermediate in the Caucasians. Even among the Caucasians, Afro-Americans have a higher incidence than their fellow Caucasians. This indicates the superiority of genetic over environmental factors.^[2]

The incidence of twins in Nigeria varies from 14.4 to 53.8 per 1000 births^[1,3-9] compared to the lower rate of 12.3/1000

births in England and Wales^[10] and 11.3–15/1000 births in USA.^[11] The highest incidence of twin births was recorded among the Yorubas in Western Nigeria with a twinning rate of 53.8/1000 births^[5] which was attributed to the high consumption of yam as their staple food in the area, which was thought to contain high gonadotrophin-like substances.^[8] Other predisposing factors identified with the increase twinning rate include maternal age, increasing parity, positive family history of twin deliveries, and the use of ovulation induction agents.^[1,10]

Twin pregnancy is considered a high-risk pregnancy because

Address for correspondence:

Dr. A. A. Kullima,
Department of Obstetrics and Gynaecology,
University of Maiduguri Teaching Hospital, PMB 1414, Maiduguri,
Borno State, Nigeria.
E-mail: drkullima@yahoo.com

Access this article online

Quick Response Code:



Website: www.njcponline.com

DOI: 10.4103/1119-3077.86781

PMID: 22037082

of the increased incidence of complications which include preterm labor, pregnancy-induced hypertension, antepartum and postpartum hemorrhage, fetal malformations, and perinatal death.^[6,10] Prematurity which is the commonest antenatal complication^[12,13] is the most frequent cause of perinatal death.^[14,15]

This study was undertaken to determine the incidence of twin births and to review the associated pregnancy and fetal complications as seen at the University of Maiduguri Teaching Hospital (UMTH), Maiduguri.

Materials and Methods

From January 2000 to December 2004, there were a total of 196 twin births at the UMTH; out of these, 186 case records were retrieved for study giving a retrieval rate of 95%. The case notes were retrieved from the Central Medical Records Library. The following information was obtained: age, parity, booking status, family history of multiple gestations, type of twins, pregnancy complications (antepartum and postpartum), fetal presentations, and mode of deliveries. Others were perinatal outcome, sex distribution, mean birth weight, and gestational age at delivery. A positive family history in this study means that the mother or sister had twin births. Zygosity was determined by the Weinberg rule.^[16] This rule states that the number of monozygotic twins in a given twin population is the result of the total number of like sex twins minus unlike sex twins. The rule is based on the assumption that the total number of like sex dizygotic twins in a given large population of at least 100,000 people in a community equals that of unlike sex dizygotic twins. Therefore, the excess of the total like sex twins over total unlike sex twins will be due to monozygotic twins. A chi-square test was used for the test of significance while the results were analyzed by the SPSS system, version 11.

Results

A total of 8431 deliveries occurred during the 5-year study period and there were 196 twin deliveries giving a twin birth incidence of 23.25/1000 births. One hundred and twenty-seven were like sex twins, while unlike sex twins were 59. Dizygotic twinning accounted for 68.3% of the cases, i.e., 15.06/1000 births, while monozygotic twins occurred in 31.7%, i.e., 6.99/1000 births. Out of the twin deliveries, 130 were booked patients (70.4%) while 55 patients (29.6%) were unbooked.

The peak age incidence as shown in Table 1 was the 25- to 29-year group, which accounted for 67 (36.0%) cases, while the modal parity was Para 0, with the lowest in the Para 6 group. Ninety-five patients (51.1%) had a positive family

history of multiple gestations. None of the patients had ovulation induction.

Table 2 shows the maternal complications. The most frequent antenatal complication was preterm labor which occurred in 29.6% of cases. Other common complications encountered were pregnancy-induced hypertension and antepartum hemorrhage. There was one maternal death as a result of ruptured uterus and consequent disseminated intravascular coagulopathy.

Table 3 illustrates the fetal characteristics in terms of sex distribution, presentation, and mode of delivery. No statistical significant difference between the three groups of twin birth (male-male, female-male and male – female), male–male 65 (35.6%), female–female 62 (33.3%), and male–female 59 (31.7%) with male-to-female ratio of almost 1:1. The presentation of twins in order of their frequency was vertex–vertex, 48.4%, vertex–breech, 36.0%, breech–breech, 9.7%, vertex–transverse, 4.3%, and transverse–transverse, 1.6%.

Table 1: Age and parity distribution

Factors	Frequency	Percentage
Age		
<20	11	5.9
20–24	40	21.5
25–29	67	36.0
30–34	35	18.8
35–39	26	14.0
40–44	7	3.8
Total	186	100
Parity		
0	43	23.1
1	33	17.7
2	30	16.1
3	26	14.0
4	15	8.1
5	13	7.0
6	9	5.0
≥7	17	9.0
Total	186	100

Table 2: Maternal complications

Factors	Frequency	Percentage
Preterm labor	55	29.6
Pregnancy-induced hypertension	10	5.4
Perineal tear	10	5.4
Postpartum hemorrhage	7	3.8
Antepartum hemorrhage	6	3.2
Cord prolapse	6	3.2
Preterm rupture of membranes	5	2.7
Postdate pregnancy	1	0.5
Ruptured uterus	1	0.5
Maternal death	1	0.5

Spontaneous vertex delivery occurred in 99 (53.2%) of first twins and 75 (40.3%) of second twins. Assisted breech delivery occurred in 30 (16.1%) and 50 (26.9%) of first and second twins, respectively. Cesarean section was done for 24.7%, almost double the 11.3% among singletons. Ventouse was used for 11 (5.9%) and 15 (8.1%) of the first and second twins, respectively. The main indications for cesarean section were malpresentation, 15 (32.6%), and pregnancy-induced hypertension, 14 (30.4 %).

The commonest fetal complication as shown in Table 4 was low birth weight accounting for 51.7% births and perinatal death, which occurred in 40 (10.75) of neonates, with a perinatal mortality rate of 107.5/1000 births. There were 23 stillbirths and 17 early neonatal deaths. The main cause of perinatal death was prematurity which occurred in 26 (65%) of the 40 cases.

Table 5 relates the gestational age at delivery and birth weight to the perinatal deaths. The highest perinatal mortality rate of 266.7/1000 births occurred in the preterm group, 28–32 weeks, while term babies (>37 weeks) had a perinatal mortality rate of 26.7/1000 births, a difference that was statistically significant ($P = 0.000002$). Similarly, the low-birth-weight group (<2.5 kg) accounted for 34 (85%) of the total perinatal deaths. Those weighing <1.5 kg at birth contributed the highest perinatal mortality rate of 288.5/1000 births compared to 44.1/1000 births among those delivered at term ($P = 0.000004$).

Discussion

The incidence of twin births in this study is 23.3/1000 births which is lower than that reported in early studies in Nigeria^[1,4-9] by other authors, but higher than that found in an earlier study done in the same institution (14.4/1000 births)^[3] and those of United Kingdom (12.1/1000 births)^[17] and USA (11.3/1000 births).^[4] Though the incidence of twinning in this study is higher than that stated in an earlier report in the same center, this might not be unconnected with the low incidence of twinning among the Kanuris (7.4/1000 births),^[18] the major ethnic group in the study area. The distribution of dizygotic twins, 68.4%, and monozygotic twins, 31.7%, is however lower than that in previous reports of dizygotic twins which accounted for 73.7–86.5% cases and monozygotic twins which accounted for 19.5–26.3% of the cases.^[1,3,6,7]

The collaboration of increased maternal age and twinning rate as observed in the under 20- to 29-year age group (57.5%), which though lower correlates with an earlier report of 65.5% in the age group of 15–30 years.^[3] The age bracket however differs with some workers' view of an

Table 3: Fetal characteristics

Characteristics	No. of babies	Percentage
Sex combination		
Male–male	65	35
Female–female	62	33.3
Male–female	59	31.7
Presentation		
Vertex–vertex	90	48.4
Vertex–breech	67	36.0
Breech–breech	18	9.7
Vertex–transverse	8	4.3
Transverse–transverse	3	1.6
Mode of delivery	1 st twin (%)	2 nd twin (%)
Spontaneous vaginal	99 (53.2)	75 (40.3)
Cesarean section	46 (24.7)	46 (24.7)
Assisted breech	30 (16.2)	50 (26.9)
Vacuum	11 (5.9)	15 (8.1)
Total	186 (100%)	186 (100%)

Like sex twins: 65 + 62 = 127 (68.4%). Unlike sex twins: 59. Monozygotic: 127 – 59 = 68 (31.7%). The male-to-female ratio was ~1:1.

Table 4: Fetal complications and causes of death

Factors	Frequency	Percentage
Low birth weight	45	51.7
Perinatal death	40	46
Prematurity	26	29
Respiratory distress syndrome	6	15
Congenital malformation	2	2.3
Unexplained death	8	20

Table 5: Perinatal death in relation to the gestational age at delivery and birth weight

Factors	No. of babies	PND	PNMR
Gestational age (years)			
28–32	90	24	266.7
33–36	132	12	90.9
≥37	150	4	26.7
Total	372	40	
$\chi^2 = 25.95; P = 0.000002$			
Birth weight (kg)			
<1.5	52	15	288.5
1.5–2.4	114	19	166.7
2.5–2.9	136	6	44.1
≥3	70	0	
Total	372	40	

$\chi^2 = 27.86, P = 0.000004$

increased twinning rate at a higher age especially above 30 years.^[17]

The generally agreed view of a direct relationship between parity and twinning rate has not been found in this study. Instead we discovered that most of the twin births occurred in lower parity (Para 0–3), which accounted for 132 (70.9%)

cases. This finding is similar to earlier reports of 62.0% from the same centre^[3] A positive family history of twinning of 51.1% is in keeping with the role of hereditary factors in increasing the twinning rate,^[8] which also correlates with an earlier report.^[3]

Antepartum complications noted in this study were preterm labor, 29.6%, pregnancy-induced hypertension, 5.4%, and antepartum hemorrhage, 3.8%. The prematurity rate was observed to align with reports of USA (21.5%)^[15] and Finland (29.2%),^[14] but lower than the previous institution rate of 39%.^[3] The lower incidence of postpartum hemorrhage may be related to the use of active management of labor. This is because most of the patients were booked (70.4%) and all deliveries were conducted in our center where the active management of the third stage of labor is routinely practiced.

The cesarian section rate of 24.7% observed in this study is higher than the reported 2.3% in Ibadan^[19] and 11.3% in Maiduguri.^[3] The commonest indications for cesarian section in this study were malpresentation and pregnancy-induced hypertension, but the earlier observed hypertension was cord prolapse.^[3]

The perinatal mortality rate of 107/1000 births is significantly higher than 23.3/1000 deliveries generally observed earlier in the same institution.^[20] Vertex-vertex presentation accounting for 48.4%^[3] is however lower than that (60.0%) observed in Katsina.^[7]

Conclusions

Considering that fetal prematurity and low birth weight, sequelae to preterm labor, are the commonest causes of perinatal death in this study, efforts should be geared during the antenatal period toward the prevention of premature birth. And also, improving on existing neonatal services to cater for the neonates at the critical period of their life will significantly reduce the associated morbidities and mortalities.

References

1. Orumabo CT. Multiple births in Port Harcourt: Analysis of associated biological variables and problems in classification of the growth retarded twin. *Trop J Obstet Gynaecol* 1990;9:9-12.
2. Stronkov HH, Ederler EW. Monozygotic and dizygotic birth frequencies in the 'Total' the 'white' and the 'coloured'. *Population. USA Genetics* 1946;31:438-46.
3. Nwobodo El, Bobzon DN, Obe J. Twin births at the university of Maiduguri Teaching Hospital: Incidence, pregnancy complications and out come. *Niger J Med* 2002;11: 67-9.
4. Oladapo, OO, Adetunji RA, Christopher OA. Determinants of perinatal mortality in Twins at Ibadan. *Trop J obstet Gynaecol* 2002;19:36-8.
5. Knox G, Morley O. Twinning in Yoruba women. *J Obstet Gynaecol Br Emp* 1960;67:981-4.
6. Azuibike JC. Multiple births in Igbo women. *East Afr Med J* 1980;57:787-90.
7. Rehman N, Tafida Os. Multiple births in Hausa women. *Br J obstet Gynaecol* 1980;87:997-1004.
8. Nylander PP. The phenomena of twinning. In: Baron SI, Thomson MA editors. *Obstetric Epidemiology*. London: Academic press; 1983. p. 143-65.
9. Harrison KA, Rossiter CE. Multiple pregnancy. *Br J obstet Gynaecol* 1985; 5:48-60.
10. Neilson JP. Multiple pregnancy. In: Whitfield CR, editor. In Dewhurst's textbook of obstetrics and gynaecology for Postgraduates 5th ed. United States: Blackwell Scientific Publication; 1994. p. 439-53.
11. Bullmer MG. The numbers of human multiple births. *Ann Human Genetics* 1958; 22: 158-64.
12. Nylander PP. Perinatal mortality in Ibadan. *Afr J Med Sci* 1972;2:173-8.
13. Herruzo AJ, Martinez I, Biel E, Rosales MA, Miranda JA. Perinatal morbidity and mortality in twin pregnancies. *Int J Gynaecol Obstet* 1991;36:17-22.
14. Kauppila A, Joupila P, Koivisto M, Miolanini, Ylikorkala O. Twin Pregnancy. A clinical study of 335 cases *Acta Obstet Gynaecol Scand*. 1975;44:5-12.
15. Medearis AI, Lonas HS, Stockbauer JW, Comke AR. Perinatal death in twin pregnancy. *Br J Obstet Gynaeco* 1984;91:240-5.
16. Daw E. Triple pregnancy In: Studd J, editor. London Churchill living stone publisher; 1988. p. 119-32.
17. Waterhouse JA. Twinning in pedigree. *Brit J Soc Med* 1950;4:197-215.
18. Obed J, Chama C, Audu B, Madakan SP. Multiple pregnancy in Kanuri women. *Ann Borno* 1998-99: 15/16; 294-302.
19. Adewumni OA, Adeleye JA. Cesarean section for twin pregnancy in Ibadan, Nigeria. *Int Surg* 1977;62:91-3.
20. Bobzon DN, Chama CM. Perinatal Mortality at the University of Maiduguri Teaching Hospital, Maiduguri Nigeria. *Ann Borno* 17/18 (2000-2001), 298-302.

How to cite this article: Kullima AA, Audu BM, Geidam AD. Outcome of twin deliveries at the University of Maiduguri Teaching Hospital: A 5-year review. *Niger J Clin Pract* 2011;14:345-8.

Source of Support: Nil, **Conflict of Interest:** None declared.