

Fetal Outcome of Twin Gestations in a Nigerian Teaching Hospital

AKABA GO¹, ONAFOWOKAN O¹, AGIDA TE¹, OFFIONG RA¹, ACHONWA CJ²

¹Department of Obstetrics and Gynaecology, University of Abuja Teaching Hospital, Gwagwalada, Abuja, Nigeria

²Department of Paediatrics, University of Abuja Teaching Hospital, Gwagwalada, Abuja, Nigeria

ABSTRACT

BACKGROUND: Although twin gestation is associated with increased perinatal morbidity and mortality, optimal management of this high risk pregnancy is associated with improved outcome for the mother and her baby. Globally, Nigeria has the highest incidence of twinning. This makes studies on twin gestation important, especially on the outcome of the babies which is reflection of the type of care received during the antenatal and intrapartum period.

STUDY OBJECTIVE: This study was designed to determine the fetal outcomes of twin deliveries in a tertiary hospital in Nigeria's Federal Capital Territory.

METHOD: This was a retrospective study of babies following twin pregnancies delivered in the hospital from 1st January 1998 to 31st December 2007.

RESULTS: Out of the 600 babies reviewed, 10.2% were still births giving a still birth rate of 102 per 1000 births. Majority of the stillbirths (73.8%) occurred amongst the unbooked mothers and was higher amongst the second twins. More of the booked mothers had their babies delivered at term compared to the unbooked ones, 115(38.3%) Vs 66(22.0%). There was a statistically significant association between gestational age at delivery and booking status of the parturients. ($X^2=16.257, P=0.001$).

The mean fetal weight was 2.395 kg±0.63. There was no statistically significant difference when the weights of the first and second twin were compared. ($t=0.343, P=0.732$). Out of the 539 babies born alive, 85.0% had good Apgar score of = 7 in 5 minutes, 13.0% of the first twins had moderate birth asphyxia compared to 16.0% of the second twins. The female to male ratio was 1:1.1.

CONCLUSION: Twin gestation is associated with low birth weights and high still birth rate in this centre. Fetal outcome is better in the first twin compared to the second twin. Outcome for babies whose mothers were booked were better compared to the unbooked. Quality antenatal care and intrapartum management will help improve fetal outcome.

KEY WORDS: Twin pregnancy, fetal outcome, Abuja, Nigeria

therefore indirectly contributes to global perinatal morbidity and mortality from preterm delivery and low birth weight babies which are recognized complications of twin gestations. Optimal management of twin gestation is associated with improved outcome and the positive impact of antenatal care on perinatal outcome in twin gestations is well documented.⁶ Antenatal care for twin gestations should be provided by experienced and dedicated staff that can anticipate and manage the various and complex problems presented by twin gestation. Specialized care for twin gestation provides opportunity to maximize fetal growth, identify congenital anomalies, prevent extremely preterm or very low birth weight deliveries and identify fetal or maternal complications that may necessitate more intensive fetal surveillance or even delivery to reduce adverse perinatal outcome.⁷ In Nigeria, utilization of health services by pregnant women is poor as only 58% of pregnant women attend antenatal care, only 35% of pregnant women deliver in a health care facility while 62% of these women deliver at home.⁸ This trend is worse in the Northern part of the country.

Although several studies on twin gestation have been carried out in Northern Nigeria,^{5,9,10} there is paucity of information on fetal outcome of twin deliveries in Abuja, Nigeria's Federal Capital Territory. The need to ascertain the fetal outcome of this group of pregnant women that patronize the hospital facility as well as the relationship of the fetal outcome to their booking status formed the basis of the study. Findings from this study will help improve the quality of care given to this high risk group, thereby reducing perinatal morbidity and mortality as well as increasing the utilization of health care services by pregnant women in the University of Abuja Teaching Hospital.

MATERIALS AND METHODS

Study Design

The study was a retrospective review of 600 twin babies delivered at the University of Abuja Teaching Hospital over a period of ten years between 1st January 1998 and 31st December 2007.

Study Location

The study was conducted in the department of Obstetrics and Gynaecology of the University of Abuja Teaching Hospital, Gwagwalada. The hospital is a 350 bed Federal government owned tertiary institution situated in Gwagwalada, a high population density area in Abuja, Nigeria's Federal capital territory. It provides health care

Date Accepted for Publication: 7th January, 2013

NigerJMed 2013; 48-51

Copyright © 2013. Nigerian Journal of Medicine

INTRODUCTION

Twin pregnancy represents a high risk pregnancy that is associated with poor fetal outcome.^{1, 2, 3, 4} Globally, Nigeria has the highest incidence of twinning⁵ and

services to the inhabitants of Abuja and neighbouring states including Niger, Kaduna, Kogi and Nassarawa States. The hospital has an annual delivery rate of about 2,400 babies.

Method of Data Collection

Data were retrieved from the case notes of their mothers using a pro forma designed for the study and supplemented by information from the registers in labour ward, postnatal ward, theatre and health information department. The data collected were entered into a computer and statistical analysis was done using SPSS for windows version 15.0. Means were compared using the student t-test and Chi-square was used to test for association between variables. Statistical significance was set at P value < 0.05 .

Mothers who had delivered the first twin or both before arrival at the hospital were excluded from the study.

RESULTS

Fifty five percent of the mothers of the twin pairs booked and attended antenatal clinics while 45% were not booked. The mean gestational age at delivery was 36.44 weeks (SD ± 2.97). Majority of the patients, 174 (58.0%) had their babies delivered at 37-40 weeks gestational age, while 119 (39.7%) were preterm and the remaining 7 (2.3%) had delivery between 41-42 weeks. More of the booked mothers had their babies delivered at term compared to the unbooked ones, 115 (38.3%) Vs 66 (22.0%). There was a statistically significant association between gestational age at delivery and booking status of the patients. ($X^2=16.257$, $P=0.001$). The birth weights of the twins ranged from 0.50kg to 4.20kg. The mean birth weight of the first twin was 2.40kg (SD ± 0.62) while the mean birth weight of the second twin was 2.39kg (SD ± 0.64). Overall the mean fetal weight was 2.395 kg ± 0.63 . There was no statistically significant difference when the weights of the first and second twin were compared. ($t=0.343$, $P=0.732$). Out of the 600 babies studied, 302 (50.3%) had normal birth weights, 250 (41.7%) were of low birth weights, while 30 (5.0%) and 17 (2.8%) were very low birth weights and extreme low birth weight babies respectively. Only 1 (0.2%) was macrosomic. This is shown in Table I.

Table I: Birth weights of the twins

Birth weight(kg)	Twin 1		Twin 2	
	Number	%	Number	%
< 1.00	7	2.33	10	3.33
1.00-1.49	15	5.00	15	5.00
1.50-2.49	126	42.00	124	41.33
2.50-3.99	151	50.33	151	50.33
≥ 4.00	1	0.33	0	0.00
Total	300	100.0	300	100.0

There were 24 (8.0%) and 37 (12.3%) still births among the first and second twins respectively. Overall, 61 (10.2%) of the babies were still births, giving a still birth rate of 102 per 1000 births. Majority of the stillbirths (73.8%) occurred amongst the unbooked mothers. There were statistically significant associations between booking status of the mothers and Apgar score of the twins in one minute ($x^2=29.073$, $P=0.000$ for twin 1 and $x^2=23.416$, $P=0.000$ for twin 2). Table II shows the Apgar scores at 1 minute for the twins.

Out of the 539 babies born alive, majority (85.0%) had good Apgar score of = 7 in 5 minutes, 13.0% of the first twins had moderate birth asphyxia compared to 16.0% of the second twins. The Apgar scores at 5 minutes for the twins are shown in Table III.

The female to male ratio was 1:1.12. The sexes of the twins are as shown in table IV. The mean inter twin delivery interval was 21.37 minutes. Thirty six (12.0%) of the second twins were delivered later than 30 minutes of delivery of the first twin.

Table II: APGAR scores in 1 minute

APGAR scores	Twin 1		Twin 2	
	Number	%	Number	%
0	24	8.00	37	12.33
1-3	13	4.33	16	5.33
4-6	86	28.67	99	33.00
≥ 7	177	59.00	148	49.33
Total	300	100.0	300	100.0

Table III: APGAR scores in 5 minutes

APGAR scores	Twin 1		Twin 2	
	Number	%	Number	%
0	1	0.4	1	0.4
1-3	0	0.0	1	0.4
4-6	36	13.0	42	16.0
≥ 7	239	86.6	219	83.2
Total	276	100.0	263	100.0

Table IV: Sex of the twin pairs

Sex	Twin 1		Twin 2	
	Number	%	Number	%
Male	166	55.3	151	50.3
Female	134	44.7	149	49.7
Total	300	100.0	300	100.0

Table V: Association between gestational age at delivery and booking status

Gestational Age at delivery	Status of booking			P	X ²	df
	Yes	No	Total			
28-32	14(34.1)	27(65.9)	41(100.0)	0.001	16.257	3
33-36	36(46.2)	42(53.8)	78(100.0)			
37-40	112(64.4)	62(35.6)	174(100.0)			
41-42	3(42.9)	4(57.1)	7(100.0)			
Total	165(55.0)	135(45.0)	300(100.0)			

Table VI: Association between Apgar score at 1 minute and booking status

Apgar score at 1 minutes	Status of booking					
	T1			T2		
	Yes	No	Total	Yes	No	Total
0	2(8.2)	22(91.7)	24(100.0)	14(37.8)	23(62.2)	37(100.0)
1-3	4(30.8)	9(69.2)	13(100.0)	6(37.5)	10(62.5)	16(100.0)
4-6	45(52.3)	41(47.7)	86(100.0)	52(52.5)	47(47.5)	99(100.0)
≥7	114(64.4)	63(35.6)	177(100.0)	93(62.8)	55(37.2)	148(100.0)
Total	165(55.0)	135(45.0)	300(100.0)	165(55.0)	135(45.0)	300(100.0)
P	0.000			0.016		
X ²	30.778			10.301		
df	3			3		

DISCUSSION

Twin pregnancy represents a high risk pregnancy and also a major contributor to perinatal mortality.^{1,3,4}

This study revealed that almost half of the mothers did not receive antenatal care. This finding is a reflection of the poor utilization of health services for antenatal care by pregnant women in the region as collaborated by reports from the National Demographic Health Survey.⁸ The percentage of booked patients in this study is however lower than what was noted by other researchers in Maiduguri. Lack of utilization of antenatal care has been associated with poor foetal outcome in twin gestation,^{6,11} and is supported by findings from this study. Antenatal care affords opportunity for assessment of risks as well as planning for the delivery. It is associated with improved outcomes and reduction in perinatal morbidity and mortality.¹²

The mean gestational age at delivery found in this study is similar to 35.3 and 35.5 weeks reported by Martin et al¹³ and Nassar et al respectively.¹⁴ It is however lower than 37.9 weeks reported amongst Hausa women in Northern Nigeria.¹⁵

The mean birth weights of the first and second twins were slightly higher than 2.18kg and 2.04kg for the first and second twin as reported in another study in Southwest, Nigeria.¹⁶ However, they mean fetal are comparable to low mean birth weight found in another study.¹⁷ The incidence of babies weighing less than 2.5kg found in this study is comparable to earlier reports.^{18, 19} Preterm delivery and its consequence of low birth weight babies obviously still remains a major issue in the management of twin gestation in our facility.

Thus more research into measures aimed at preventing preterm deliveries and low birth weight babies are crucial towards improving the foetal outcome of twin pregnancies in developing countries.

The number of still births was higher in the second twin compared to the first twin. The increased morbidity and mortality associated with the second twin is well documented.^{16,17}

The still birth rate of 102 per 1000 births in this study is unacceptably high. It is outrageously higher than the still birth rates found in developed countries like the United Kingdom and United States of America and also two and half times higher than the National stillbirth rate of 42 per 1000 births in Nigeria.²⁰ The high still birth rate may have been contributed to by the unbooked status of majority of the women whose fetus(es) may have been in poor conditions or dead due to inadequate care before presentation in our unit. The need to continue to encourage pregnant women to attend antenatal care services and ensure early presentation in labour cannot be overemphasized. There is also an urgent need for the institution to put in place human and material resources aimed at ensuring survival of these high risk babies.

Birth asphyxia occurred amongst 19% of the babies born alive. This is also high and is associated with disabilities and impairments for children who survive the insults.²¹ The female to male ratio found in this study is comparable to the finding in Jos, Nigeria.⁹

The number of retained second twin noted in this study is lower than 16.3% reported in Enugu.²²

It is however higher than 7.9% in Ife.²³ The high incidence noted may be attributable to the large number of unbooked patients in this study.

In conclusion, twin gestation is associated with low birth weights and high still birth rate in this institution.

Fetal outcome is better when the pregnancy is booked and in the first twins compared to the second twins. Quality antenatal care and intrapartum management with the aim of forestalling complications associated with this high risk pregnancy will help improve fetal outcome.

REFERENCE

1. Onyiriuka A.N. Twin delivery: Comparison of incidence and foetal outcome in two health institutions in Benin City, Nigeria. *Nig Q Hosp Med.*2009; 19(1):1-5.
2. Adinma J.I, Agbai A.O. Multiple births in Nigerian Igbo women: incidence and outcomes. *J Obstet Gynaecol.*1997; 17(1):42-4
3. American College of Obstetricians and Gynecologists. Multiple Gestation: Complicated Twin, Triplet and Higher order pregnancy. *ACOG Practice Bulletin.* No 56, Oct, 2004.

4. Obiechina N.J, Okolie V.E.M ,Eleje G.U, Okechukwu Z.C, Anemeje O.A. Twin versus singleton pregnancies: the incidence, pregnancy complication and obstetric outcomes in a Nigerian tertiary hospital. *Int J Women's Health*.2011; 3:227-30.
5. Kullima A.A, Audu B.M, Geidam A.D.Outcome of twin deliveries at the University of Maiduguri Teaching Hospital: A 5 year review. *Niger J Clin Pract*. 2011; 14; 345-348.
6. Gardner M.O, Amaya M.A, Sakakini J. Effects of prenatal care on twin gestations. *J Reprod Med* 1990; 319:519-21.
7. Newman R.B, Ellings J.M .Ante partum management of multiple gestations: the case for specialized care. *Semin Perinatol*.1995 Oct; 19(5):387-403.
8. National Population Commission (NPC) Nigeria and ICF macro 2009. *Nigeria Demographic and Health survey 2008*. Abuja, Nigeria: National Population Commission and ICF macro Nov. 2009, Pg. 125-141.
9. Mutahir J.T, Pam V.C. Obstetric outcome of twin pregnancies in Jos, Nigeria. *Nig J Clin Pract*. 2007; 10(1): 15- 8.
10. Isiaka-Lawal S, Adesina K.T, Saidu R, Ijaiya M.A, Jimoh A.A.G, Aderibigbe S.A. A review of twin gestation in a tertiary health institution in North central Nigeria. *Research Journal of medical sciences*.2009;3(6):198-201.
11. Naqvi M.M.Outcome of twin pregnancy in booked versus unbooked cases. *J Coll Physicians Surg Pak*.2003;13(9):498-500.
12. Luke B, Brown M.B, Misiunas R, Anderson E, Nugent C, van de Ven C, et al. Specialized prenatal care and maternal and infant outcomes in twin pregnancy. *Am J Obstet Gynaecol*. 2003;189:934-8.
13. Martin J.A, Hamilton B.E, Sutton P.D, Ventura S.J, Menacker F. Munson M.L. Births: Final Data for 2002 *Natl Vit Stat Rep* 2003; 52(10): 1- 102.
14. Nassir N, Sullivan E., Lancaster P. et al. *Australian Mothers and Babies 1998* (perinatal statistics series No. 10) Sydney. AIHW National Perinatal Statistics Unit, 2000.
15. Rehan N. Tafida D.S. Multiple births in Hausa Women. *Br J Obstet Gynaecol*. 1980 Nov; 87(11): 997 - 1004.
16. Olayemi O.O. Adeniji R.A, Aimakhu C.O. Determinants of perinatal mortality in Twins at Ibadan. *Trop J Obstet Gynaecol*. 2002;19(1): 36 8.
17. Fakeye O. Perinatal factors in twin mortality in Nigeria. *Int J Gynaecol Obstet*. 1986 Aug; 24(4):309 - 14.
18. Onyiriuka A.N. Incidence of delivery of low birth weight infants in twin gestation. *Niger J Clin Pract*.2010;13:365-70.
19. Adeoye S.I, Twomey E.D, Egwuatu V.E. A 20 year review of twin births at Mater Misericordiae Hospital, Afikpo, South eastern Nigeria. *Nig J Clin Pract*.2008;11(3):231-34.
20. World Health Organization: *Global Health Indicators*. *World Health Statistics*.2011, pg 45-55. [Http://www.who.int/whosis/whostat/2011/en/index.html](http://www.who.int/whosis/whostat/2011/en/index.html) accessed 02/02/2012.
21. Hofmeyr G.J, Haws R.A, Bergstrom S, Lee A.C.C, Okong P, Darmstadt G.L, et al. Obstetric care in low resource settings: What, who, and how to overcome challenges to scale up? *Int J Gynaecol Obstet*.2009; 107:S21-45.
22. Aniebue U.U, Ezegwui H.U, Ozumba B.C. Retained Second Twins. *Int J Gynaecol Obstet*. 2003 Jun 81(3): 281 - 5.
23. Ezechi O.C, Fasubaa O.B, Kalu B.E. Retained Second Twin: Experience from Ile- Ife, Nigeria . *East Afr Med J*. 2003 Feb; 80(2): 110- 3.