

# Obstetric Outcome in Twin Gestation in a Nigerian Tertiary Hospital: A 5-year Review

Osakwe CR<sup>1</sup>, Osakwe OJ<sup>2</sup>

## ABSTRACT

**BACKGROUND:** *Twin pregnancies are high risk pregnancies. Foetal and maternal complications are common in twin pregnancies. Therefore, periodic review is necessary to improve on the twin pregnancy outcome.*

**OBJECTIVE:** *To determine the incidence and outcome of twin pregnancies in the hospital.*

**MATERIALS AND METHODS:** *This was a retrospective study and the case records of all twin pregnancies managed at the hospital, between 1<sup>st</sup> August 2003 and 31<sup>st</sup> July 2008 were retrieved from the medical records department and studied.*

**RESULTS:** *During the period under review, there was a total of 3187 deliveries, 56 of which were twin pregnancies. This gave an incidence of 1.8%. Only 42 of the patients' folders were available for analysis. The mean age and parity of mothers were 29.5 ± 5.3 years and 3.1 ± 1.7, respectively. Male infants constituted 54.8% of the twins with male to female ratio of 1.2:1.0. Of the twin deliveries, presentation of cephalic cephalic for the first and second twins was the most common, 38.1%. Male- male twin pair occurred in 31.0%, male- female twins in 28.6%, female- female in 21.4%, which female- male twins occurred in 19.0%. Males were first twin in 59.6% and second twin in 50.0%, while females were first twin in 40.4% and second twin in 50.0% of the cases. This was for dizygotic twins. Caesarean section rate was 28.6% in the overall twin pregnancies. Perinatal mortality was 119 per 1000 deliveries.*

**CONCLUSION:** *The incidence of twin pregnancy from the study was 1.8%. There is decreasing perinatal mortality in the region due to improved obstetric practice.*

## Key Words:

## INTRODUCTION

Twin pregnancies are considered high risk pregnancies<sup>1</sup>. Foetal and maternal complications are common in twin pregnancies.

Monozygotic twins (identical twins) result from the division of a single fertilized ovum<sup>2</sup>. Monozygotic twinning occurs in approximately 2.3-4 of 1000 pregnancies in all races<sup>2</sup>. The rate is remarkably constant and is not influenced by heredity, mother's age or other factors.

Dizygotic twins (fraternal twins) are produced from separately fertilized ova. Many factors influence dizygotic twinning. Race is a factor, with multiple pregnancy most common in blacks, least common in Asians and of intermediate occurrence in whites<sup>2</sup>. The incidence of spontaneous dizygotic twinning varies from 1.3 in 1000 in Japan to 49 in 1000 in Western Nigeria<sup>2</sup>. The rate in the United States of America is approximately 12 in 1000 pregnancies<sup>2</sup>. Slightly more than 30% of twins are monozygotic; nearly 70% are dizygotic<sup>2</sup>.

Foetal complications include prematurity, low birth weight and perinatal mortality. The perinatal mortality rate associated with twin pregnancy is four-times that with singleton pregnancy and is related to the higher incidences of foetal growth restriction, preterm delivery, antepartum hemorrhage, maternal preeclampsia and foetal anomaly<sup>2,3</sup>. Cerebral palsy is nearly three times more common in twins than in singletons<sup>4</sup>. At birth, 25% of twins are small for gestational age<sup>4</sup>. In most cases, intrauterine growth restriction will be discordant affecting one twin only<sup>4</sup>.

Maternal obstetric complications include preterm labour, anaemia, pregnancy induced hypertension, eclampsia, increased operative delivery, placenta praevia, abruptio placentae and post partum hemorrhage<sup>2,3</sup>.

The incidence of twin gestations has increased significantly over the past 15 years primarily because of the availability and increased use of ovulation inducing drugs and assisted reproductive technology (ART)<sup>2,4</sup>. The financial costs are staggering, with combined costs of ART plus pregnancy care and delivery averaging \$39,249<sup>2</sup>. The commonest presentation in twin pregnancy is cephalic cephalic presentation and occurs in up to 39%<sup>1</sup>. The less common causes of perinatal death are foetal distress, discordance among the twins and retained second twin<sup>3</sup>.

The aims of this study are to determine the incidence, foetal and maternal outcome of twin pregnancies in Nnamdi Azikiwe University Teaching hospital Nnewi,

<sup>1</sup>Department of Obstetrics and Gynaecology, Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi, Anambra State, Nigeria;

<sup>2</sup>Department of Family Medicine, Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi, Anambra State, Nigeria

E-mail:

Nigeria. It is hoped that the findings will guide our obstetricians in the management of twin pregnancies.

## MATERIALS AND METHODS

The case records of all patients with twin pregnancies that delivered at the Nnamdi Azikiwe University Teaching Hospital, Nnewi, between 1<sup>st</sup> August 2003 and 31<sup>st</sup> July 2008 were retrieved from the medical records department and studied.

Only 42 out of the 56 case records were available for study. The labour ward admission register was also assessed to determine the total number of deliveries within the study period.

The patients' records were analyzed for variables such as age, parity, gestational age at delivery, twin presentations, gender distribution, birth weights, perinatal and maternal outcome.

The data was analyzed using the Epi info 2002 software. The test of statistical significance was done using chi square test at 95 percent confidence interval.

## RESULTS

There was a total of 3187 deliveries during the period under review, and 56 of them were twin deliveries. Only 42 of the patients' folders were available for analysis. The incidence of twin deliveries in this study was 1.8%, that is, 1 in 56.9 deliveries. The age of the patients ranged from 19-40 years while the parity of the mothers ranged from 0 to 9. The predominant age group was 25-29 years which had 23 (54.8%) patients. Majority, 21(50.0%), of the patients were para 2-4. The mean age and parity of the mothers of twin pregnancies were  $29.5 \pm 5.3$  years and  $3.1 \pm 1.7$  respectively (table 1).

Antenatal diagnosis of the twin pregnancy was made in 36 (85.7%) of the patients. Six(14.3%) were undiagnosed before labour and delivery, out of which 5 were unbooked patients. Twenty-seven (64.3%) patients booked in the antenatal clinic of the hospital,

10(23.8%) booked elsewhere but were referred to the hospital for delivery, and 5 (11.9%) had no form of antenatal care.

The gestational age at delivery ranged from 24 to 41 weeks with a mean of 35.7 weeks. A total of 15 (35.7%) of the deliveries occurred preterm, and none was post term (table 2).

Estimated blood loss ranged from 150-2000 ml with an average of 448 ml. The estimated blood loss for patients with spontaneous vaginal delivery ranged from 150-2000ml with a mean of 313.4ml, and those who had caesarean section ranged from 400 to 1400ml with a mean of 625.8ml. The blood loss in those who had caesarean delivery was higher than those who had vaginal delivery and this was statistically significant ( $P < 0.01$ ). Eight (19.1%) of the patients had post partum haemorrhage. The caesarean section rate in all the twin pregnancies was 28.6%. The indications for caesarean section include retained second twin 3(25.0%), fetal distress 2(16.7%), placenta praevia 4(33.3%), abruptio placentae 1(8.3%), two previous caesarean section 1(8.3%), leading twin breech in a primigravida 1(8.3%).

Male babies were more than females in this study giving a sex ratio of 1.2 males to 1.0 females. The fetal presentation at birth in both twins showed that both twins as cephalic was the commonest, and occurred in 16(38.1%) of cases. Cephalic breech presentation was seen in 11(26.2%), breech cephalic in 9(21.4 %) and breech-breech in 6(14.3%) (table 3).

In the distribution of sex pair/combination of twins at birth, the male- male pair was the commonest and accounted for 13(31.0%) of all the pairs. Low birth weight was recorded in up to 31(36.9%) of the infants at birth (table 4). The other complications of twin pregnancy in this study include anaemia 17(40.5%), preterm labour 13(31.0%), retained second twin 3(7.1%), premature rupture of membranes 4(9.5%), placenta praevia 4 (9.5%), abruptio placenta

**TABLE 3: CHARACTERISTICS OF THE TWINS AT BIRTH**

<b>GENDER</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Males	46	54.8
Females	38	45.2
TOTAL	84	100.0
<b>Presentation</b>		
Cephalic Cephalic	16	38.1
Cephalic breech	11	26.2
Breech breech	6	14.3
Breech Cephalic	9	21.4
TOTAL	42	100.0
<b>Gender Combination</b>		
Male Male	13	31.0
Male Female	12	28.6
Female Female	9	21.4
Female Male	8	19.0
TOTAL	42	100.0

**TABLE 4: WEIGHT DISTRIBUTION OF THE TWINS AT BIRTH**

<b>WEIGHT (Grams)</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
< 1500	11	13.1
1500-2499	31	36.9
2500-3999	42	50.0
TOTAL	84	100.0

**TABLE 5: MODE OF DELIVERIES OF THE TWINS**

<b>MODE OF DELIVERY</b>	<b>FREQUENCY</b>		<b>PERCENTAGE</b>	
	<b>TW 1</b>	<b>TW 2</b>	<b>TW 1</b>	<b>TW 2</b>
Vaginal delivery	33	30	78.6	71.4
Caesarean Section	9	12	21.4	28.6
TOTAL	42	42	100.0	100.0

**TABLE 6: INDICATIONS FOR CAESAREAN SECTION**

<b>INDICATIONS</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Retained second twin	3	25.0
Fetal distress	2	16.7
Placenta Praevia	4	33.4
Abruptio Placentae	1	8.3
Two previous caesarean section	1	8.3
Leading twin breech in a primigravida	1	8.3
TOTAL	12	100.0

**TABLE 7: COMPLICATIONS OF TWIN PREGNANCY. N=42**

<b>COMPLICATIONS</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Retained second twin	3	7.1
Preterm labour	13	31.0
Premature rupture of membrane	4	9.5
Placenta Praevia	4	9.5
Abruptio Placentae	1	2.4
Anaemia	17	40.5
Fetal distress	2	4.8

**TABLE 1: AGE AND PARITY DISTRIBUTION OF MOTHERS OF TWIN DELIVERIES**

AGE GROUP	FREQUENCY	PERCENTAGE
≤ 19	1	2.4
20 -24	1	2.4
25 -29	23	54.8
30 -34	6	14.2
35 -39	9	21.4
40 -44	2	4.8
TOTAL	42	100.0
MEAN AGE = 29.5 Standard deviation=5.3		
Parity		
0	7	16.7
1	8	19.0
2-4	21	50.0
≥ 5	6	14.3
TOTAL	42	100.0
MEAN PARITY = 3.1 Standard deviation=1.7		

**TABLE 2: DISTRIBUTION OF GESTATIONAL AGE OF TWIN PREGNANCIES**

GESTATIONAL AGE IN WEEKS	FREQUENCY	PERCENTAGE
≤ 36	15	35.7
37 - 42	27	64.3
>42	0	0
TOTAL	42	100.0

## DISCUSSION

The incidence of twin pregnancy in this study was 1.8%, or 1 in 56.9 deliveries. This, being a hospital based study may not represent the true incidence of twin pregnancy because many women with twin pregnancies may have delivered in other facilities. This incidence is lower than the reported rates of 1 in 19 in Ibadan, Western Nigeria<sup>3</sup>, 1 in 47 in Lagos<sup>3</sup>, and 1 in 36.2 in Nigerian Igbo women<sup>5</sup>. It is higher than the reported incidence of 1.4% in Marduguri, Northern Nigeria<sup>6</sup>. It is also higher than the incidence of 1.2% in the United States of America<sup>2</sup>. This is in keeping with the already established fact that twinning can be influenced by race and ethnic group.

Antenatal diagnosis of the twin pregnancy was made in 36 (85.7%) of the patients. Six(14.3%) were undiagnosed before labour and delivery, out of which 5 were unbooked patients. In a large randomized trial, it was demonstrated that routine mid-gestation ultrasonographic examinations detected virtually all

multifetal gestations(99%) before 26 weeks, whereas when performed only for specific indications, just 62% were detected before this gestational age<sup>8</sup>. All diagnosed twin gestations were confirmed with ultrasound scan during the antenatal period.

Fetal growth restriction is substantially increased in multiple pregnancies after 30 weeks of gestation compared with singleton pregnancies<sup>7</sup>. This is believed to be caused by competition for the available maternally derived nutrients, reduced placental surface area for each of the two fetuses or twin to twin transfusion syndrome<sup>7</sup>. This could manifest as complications in the form of intrauterine growth restriction, low birth weight, discordant birth weight and/or increased perinatal mortality. In this study, the low birth weight was 31(36.9%) of the infants while the very low birth weight was 11 (13.1%) of the infants.

Controversy currently surrounds the generally accepted mode of delivery for some twin pregnancies. Routine

caesarean section, however, is not acceptable in all twin pregnancies by most clinicians. The caesarean section rate in this study was 28.6%. The indications for caesarean section were mostly as for singletons except for retained second twin due to malpresentation which was 25% of the cases.

There was no history of ovulation induction in any of the patients in the study. History of previous twin pregnancy in the patients were positive in 11(26.2%) of the patients.

Human sex ratio at birth differs from one population to the other. This variation has been attributed to cultural practices, seasonal variation, small-family size policy and sex selective technology<sup>9</sup>. It has been hypothesized that there may be a hormonal control of the sex ratio<sup>10</sup>. The sex ratio among the twins was 1.20 males to 1.00 females in this study. This was higher than the reported sex ratio of 1.03 males to 1.00 females in a multi-centre study in south-western Nigeria<sup>9</sup>.

Spontaneous preterm labour occurs in as many as 30.8% of twin pregnancies<sup>11</sup>. This was observed in 29.5% of the cases in this study.

The preterm birth in this study was 35.7% of all twin deliveries. This was lower than that in the United states of America, which was 57% in 2001<sup>8</sup>. This might be explained by the smaller number of the study population, however, the booked patients received increased antenatal supervision, adequate dietary advice and increased rest during pregnancy.

The perinatal morality in this study was 11.9%. This is lower than the reported rate of 14.3% in Lagos in 1984<sup>3</sup>. The reason may be that this study was done a decade later when obstetric practice has improved with the wide spread availability of ultrasound scanning machines and therefore earlier diagnosis. The increase in the perinatal mortality, particularly in monozygotic twins is associated with monochorionic twins, where in at least, 85% of cases has abnormal vascular connection in the placenta<sup>12</sup>.

In conclusion, the relatively high twinning rate occurring among the blacks of Africa calls for a sound knowledge of the problems associated with multiple pregnancies and delivery as well as the management skills available for these problems. Antenatal diagnosis of multiple pregnancy and prompt referral to a specialist obstetrics centre for both antenatal care and delivery is most desirable if the outcome of such births is to be improved.

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