



Outcome of Labor in Twin Gestation at a Tertiary Institution in a Developing Nation: A 15-Year Review

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Abstract

Objective: To describe our experience with twin gestation in a developing nation tertiary institution.

Method: All cases of twin gestation at the Lagos University Teaching Hospital over a 15-year period were retrospectively reviewed.

Results: There were 642 twin births out of a total of 28,472 deliveries, a ratio of 1:44. Peak age at occurrence was 28 with only 6% (39) being grand multipara. 66.4% (426) delivered preterm at about 36 weeks and 74.5% (478) had the leading twin in cephalic presentation while the mean birth weight for twin A was 2.43kg and twin B 2.3kg with 14.8%(95) having discordant weight. Only 58.1%(373) were able to achieve a vaginal delivery while the inter-delivery interval was less than 30minutes in 94.6% (353) for those that achieved a vaginal delivery. Hypertensive disease of pregnancy and failure to progress in labor accounted for most of the 33%(212) cesarean section rate with 0.6% (4) having an estimated blood loss greater than 1000mls and a 6.6% (85) perinatal loss.

Conclusion: Early diagnosis, appropriate prenatal, intrapartum and neonatal care with referral to well equipped facilities manned by skilled attendants will assist in reducing its associated increased incidence of morbidity and mortality.

growth restriction, locked twins, retained 2nd twin, congenital anomalies, cord prolapse with twin-twin transfusion and twin reversed arterial perfusion syndromes seen with monochorionic placentation while maternal complications include hyperemesis gravidarum, anemia, pregnancy induced hypertension, pre-eclampsia, eclampsia, polyhydramnios, preterm delivery, placental Previa, postpartum hemorrhage, increased prenatal admission and operative deliveries [8].

Despite the improvement in maternity and neonatal services, the high risk of perinatal morbidity and mortality associated makes it imperative for efforts to be intensified to ensure optimal care.

This study describes our experience with twin pregnancy in a tertiary center in a developing nation with a high incidence rate of twins with a view to proffering the need for a more comprehensive approach to the management.

Materials and Method

All cases of twin gestation at the Lagos University Teaching hospital Idi-Araba, Lagos, Nigeria over a 15-year period between 1st January 1988 and 31st December 2003 were reviewed retrospectively.

Details of the patients who delivered twins during the period were obtained from the labor and delivery (L&D) register, the neonatal unit register and from their case files retrieved from the medical records.

Data related to the booking status, age, parity, gestational age at delivery, fetal presentation, type of delivery, blood loss, placental weight, sex, birth weight and perinatal deaths were extracted, collated and analyzed.

Patients usually present at the labor ward either booked or un-booked. The booked patients were those who had registered at the antenatal clinic and had been attended to at least once at the clinic while the un-booked patients, present in the labor ward on their first visit.

Table 1: Booking Status.

Booking Status	Frequency	Percentage
Booked	446	69.5%
Unbooked	196	30.5%

Introduction

Twin gestations are on the rise due to the use of fertility treatments and older maternal age at childbirth [1] and aside from macrosomia and post term pregnancy; it is associated with a higher rate of almost every potential pregnancy complication [2]. A reported high incidence of 52/1000 in Ibadan and 21.1/1000 in Lagos has been noted in the Yoruba speaking area of southwestern Nigeria [3].

Variations in frequency are due almost entirely to different dizygotic twinning rate as the incidence of monozygotic twins is relatively stable worldwide at 3 to 5 per 1000 births [4].

Predisposing factors to twin pregnancy include race/tribe, maternal age, parity, previous history of twins, maternal weight and height, positive family history of twin gestation particularly on the maternal side and assisted reproductive methods [5-7].

Fetal complications arising from twin gestation include an increased risk of miscarriage, low birth weight, disappearing twin syndrome, intrauterine fetal death, malpresentation, intrauterine

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The data was analyzed using simple percentages for categorical variables via the statistical package SPSS for MS Windows.

Result

During the period under review, there were a total of 28,472 deliveries, of which 642 were twin deliveries and 9 triplet deliveries. Twin deliveries accounted for about 1:44 of the total number of deliveries in our L&D during the study period. 446 (69.5%) of the patients were booked while the remaining 196 (30.5%) were unbooked as shown in [Table 1](#).

The age distribution of the patients ranged from 16 to 50 years ([Table 2](#)) with a mean of 29.2 years. The commonest age group was between 25 and 34 years; 449 (69.9%) while the peak occurrence was at 28 years; 71 (11.1%). Most of the patients were of low parity (0-2) accounting for 494 (77%) cases ([Table 3](#)). Delivery occurred mostly between 36 and 40 weeks-426 (67.2%) with the mean gestational age at delivery being 36.2 weeks.

[Table 4](#) shows the presentation distribution with majority; 308 (47.9%) having both fetuses in cephalic presentation, 170 (26.5%) had the leading twin in cephalic presentation with twin II in breech presentation while 91(14.2%) presented with leading twin breech and the second twin cephalic. 71(11.1%) had both fetuses in breech presentation with remaining 2 (0.3%) having other forms of presentation.

The male: female ratio was 650 (50.6%): 634 (49.4%). The mean birth weight of twin I being 2.43 kg while that of II was 2.3kg with the range of weight for twin I between 1.83kg and 3.24kg while twin II between 1.75 and 3.15kg, while the median weight for twin I was 2.35kg and 2.2Kg for twin II.

95(14.7%) had a weight difference between twins I and II, more than or equal to 0.5 kg. The placentae weight varied between 600gm and 1.90 kg with an average of 1.60 kg.

There were a total of 269(41.9%) cases of operative deliveries of which there were 236 (36.8%) cases of delivery by caesarean section, 24 (3.74%) were elective while the remaining 212 (33.0%) were emergency caesarean section. 16 (2.5%) had a vacuum extraction for either of the twin while 17 (2.7%) had forceps delivery. 373(58%) had vaginal delivery as in [Table 5](#).

Table 2: Age Distribution.

Age	Frequency	Percentage
16-19 Years	14	2.0%
20-24 Years	91	14.2%
25-29 Years	247	38.4%
30-34 Years	202	31.5%
35-39 Years	75	11.7%
>40 Years	14	2.2%

Table 3: Parity Distribution of Twin Pregnancy.

Parity	Frequency	Percentage
0	250	38.9%
1	140	21.8%
2	104	16.3%
3	78	12.2%
4	31	12.2%
5	20	4.8%
6	11	3.1%
7	4	0.6%
8	4	0.6%

Table 4: Pattern of Presentation of Twins in Labour.

Presentation	Frequency	Percentage
Cephalic- Cephalic	308	47.9%
Cephalic- Breech	170	26.5%
Breech-Cephalic	91	14.2%
Breech- Breech	71	11.1%
Other Forms Of Presentation	2	0.3%

Indications for caesarean section ([Table 6](#)) were mainly retained second twin, two previous caesarean sections, leading twin breech in a primigravid, cord prolapse, hypertensive disease of pregnancy, and failure to progress/prolonged labor. Hypertensive diseases of pregnancy and failure to progress accounted for the highest no of cesarean section; 64 (27.1%) and 55 (27.5%) of cases. 353 (94.6%) of those who had vaginal delivery had a twin delivery interval less than 30 minutes while 20 (5.4%) had an interval greater than 30 minutes. 357(55.6%) had an estimated postpartum blood loss less than 500mls while a significant 281(43.8%) had a loss between 500mls and 1 liter. 4(0.6%) had an estimated blood loss greater than 1 liter; [Table 7](#). There was a total of 85 (6.6%) perinatal loss.

Discussion

Although it is very difficult to assess the incidence of twin pregnancy in our environment due to a multiplicity of reasons, which include the fact that not all deliveries take place in the hospitals and in some cases proper records are not taken, the incidence of 1:44 deliveries obtained in this study still makes it a major obstetric issue considering the increased risk of obstetric complications as well as the increased perinatal and neonatal morbidity and mortality rates.

The incidence of 1: 44, obtained in this study is higher than 1:47 obtained in Lagos [9] and the 1:80 in Caucasians [3,4] but less than the 1 in 19 in western Nigeria [2].

The mean age at delivery was 29.2 years and the highest prevalence was seen between the ages 25 and 35 years, lower than the age group 30-35 years found in a study in France [10]. It is however important to note that the single commonest occurrence in this study was at 28 years of age.

The patients were mainly of low parity (77%) as against previous studies where it has been shown that increasing maternal age and parity have a positive influence on the incidence of twinning.

Only 6% were grand multipara in this study, however, this might be reflecting the hospital referral population rather than the true rate in the populace.

The duration of pregnancy was between 36 and 40 weeks with a mean gestational age at delivery of 36.2 weeks, which is comparable to about 37 to 37.4 weeks found in previous studies [3,11]. This is generally attributable to uterine over-distension as there is a belief that uterine contractions commence at a critical degree of myometrial stretch and then increase in frequency and strength to cause ultimately progressive cervical dilatation and labor.

The mean birth weight for twins I and II were 2.43 kg and 2.3kg

Table 5: Mode of Delivery.

Type	Frequency	Percentage
Vaginal Delivery	373	58%
Caesarean Section	236	36.8%
Forceps Delivery	17	2.7%
Vacuum	16	2.5%

Table 6: Indication for Caesarean Section.

Indication	Frequency	Percentage
Failure to Progress/Prolonged Labour	65	27.5%
Severe Pregnancy Induced Hypertension/ Preclampsia/Eclampsia	64	27.1%
2 Previous Caesarean Section	36	15.3%
Primipara with Leading Twin Breech	34	14.4%
Retained Second Twin	23	9.7%
Cord Prolapse	14	5.9%

Table 7: Postpartum Blood Loss.

Blood Loss	Frequency	Percentage
<500 ml	357	55.6%
500 ml- 1 Liter	281	43.8%
> 1 Liter	4	0.6%

and these corresponded with previous studies where the mean birth weight of a twin had been found to be less than 2.5 kg [3]. Increased preterm labor and deliveries as well as a higher incidence of fetal growth restriction found in twins might account for this.

In this study, 14.7% had a weight difference greater than 0.5 kg between twin I and II as compared to other studies [12] where a discordant growth of 10% had been detected between twin I and II and this might be due to the unequal sharing of available maternally derived nutrients, reduced placental surface area for each of the two infants, the twin to twin transfusion syndrome or genetics.

The male: female ratio was about 1:1 comparable to previous studies and singleton gestations [11].

The presentation was mostly cephalic (74.4%) with both twins in cephalic presentation in about 47.9% of cases, comparable to other studies in which about 70% have the first twin presenting cephalic with between 40 and 45% of both fetuses being born by this presentation [8].

Cephalic-breech, breech-cephalic and breech-breech were: 26.5%, 14.2% and 11.1% comparable with 35%, 10% and 10% respectively in other studies (3)(10). A significant 14.2% had the leading twin presenting breech when compared with the 2-3% at term seen in singleton pregnancies [3].

94.6% of patients who achieved vaginal delivery had a twin-twin delivery interval less than 30 minutes while only 5.4% had an interval greater than 30 minutes, though the optimal time interval between births is 10-30 minutes, with satisfactory fetal heart rate monitoring, greater delay may be quite safe.

An increased incidence of operative delivery (vaginal or abdominal), with a caesarean section rate of 36.8% with the attendant increased maternal morbidity and mortality is in comparison higher than the overall incidence of about 15-21% caesarean section rate found in most West African countries [13].

A significant 43.8% had estimated blood loss >500mls while 0.6% had an estimated blood loss > 1 liter and these might be accounted for by the increased incidence of uterine atony, retained placenta and operative delivery.

A perinatal mortality rate of 66 per 1000 births, lower than the 146.4 and 173.93 per 1000 births detected in Lagos and Ibadan in 1984 and 1971 respectively was found and this might be due to a higher number of our patients being booked, improved standard of obstetrics care and probably the hospital referral population. The figure was however still higher than 40.83 per 1000 births from singleton pregnancies and this might be due to the high incidence of preterm deliveries and low birth weight rather than twinning per se [3,4].

Conclusion

This study showed that there is still a high incidence of multiple pregnancies in our environment and it is associated with an increased occurrence of preterm delivery with its sequelae of low birth weight and subsequent increased perinatal morbidity and mortality in addition to the increased incidence of operative delivery with its associated maternal complications.

A significant number of patients also had postpartum hemorrhage thereby highlighting the fact that multiple gestation still remains a serious obstetrics problem, however early diagnosis, appropriate antenatal, vigorous Intrapartum and postpartum care with the use of uterotonics and adequate neonatal care with prompt referral to well equipped centers manned by skilled attendants may assist in reducing this increased incidence of morbidity and mortality.

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