Original Article

Triplet pregnancies in a southeastern Nigerian Hospital: Before the artefacts set in

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ABSTRACT

Background: Triplet pregnancies, though uncommon, occur with much higher maternal discomfort, morbidities, mortalities and perinatal morbidity and mortality when compared to singleton pregnancies. It is a well-known fact that the incidence of triplet pregnancies differ in different regions of the world and even in different parts of the same country and that they are increasing around the world due to assisted reproductive technologies. The incidence and outcome of naturally occurring triplet pregnancies has never been evaluated in our center for us to know and have a baseline to compare any increase brought about by assisted reproduction along with other factors, and hence, we conducted this study.

Materials and Methods: This is a retrospective study of all the cases of triplet pregnancies delivered in Mile Four Maternity Hospital, Abakaliki, Ebonyi state in southeast Nigeria from January 1995 to December 2005. The cases were from the antenatal, labour ward and theater registers, and relevant information were retrieved and analysed.

Results: There were 22 triplet pregnancies over the 10-year period under review and 23126 deliveries, giving an incidence of triplet pregnancy of 0.1% or 1 triplet pregnancy in 1051 deliveries. Many of the women 10 (45.5%) were in the 31–35 years age group, and half (11) were grand multiparas. Half of the gestational ages at delivery 11 (50%) were 35–37 weeks. The major antenatal complication was preterm labour in 5 or 22.7% of the women or half (50%) of the complications that occurred in the women. Two or 9.1% of the women had preeclampsia, 1 each or 4.5% had prolonged rupture of membrane, polyhydramnious and anaemia. Majority of the women, 18 (81.8%) were delivered vaginally and 4 (18.2%) by caesarean section. The babies had a weight range of 0.6–3.4 kg, with an average weight of 1.73 kg. Sixty babies (90.9%) were born alive and 6 (9.1%) were dead, giving a perinatal mortality rate of 91 babies per 1000. Of the alive babies, 42 (63.6%) had good Apgar score of 8–10 in 1 minute and 7 (19.6%) Apgar score of 1–4.

Conclusion: Triplet pregnancies are rare and high risk pregnancies that are associated with many fetal and maternal complications that are of great importance to the parents, care giver, and the health system. Obstetricians must find ways to optimize the outcome of these pregnancies, especially now that the incidence is bound to increase due to assisted reproductive technologies.

Key words: Antenatal complications; Ebonyi State; incidence; increased medical bill; perinatal mortality; triplet pregnancies.

Introduction

Triplet pregnancies, though uncommon, occur with much higher maternal discomfort, morbidities, mortalities and perinatal morbidity and mortality than singleton pregnancies.[1] They are also associated with increased risk of intrauterine growth restriction, preeclampsia, eclampsia, preterm delivery, intrapartum complications,

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increased caesarean section rates, disabilities and deaths[2] than twin and singleton pregnancies.[2,3] Moreover, while carrying multiple pregnancies, women are more likely to incur extra medical costs due to longer periods of bed rest, hospitalizations, administration of medication to prevent preterm labor and surgical procedures such as cervical cerclage and caesarean sections,[4] and these are also more with triplet pregnancies. The incidence of naturally occurring triplet pregnancies is rare,[5] with reported incidence of higher order multiple pregnancies ranging from 0.01 to 0.1% of all pregnancies.[5,6] According to Hellin's rule, the natural rate for spontaneous triplet pregnancies is one in 89 pregnancies,[2] that is, 1 in 7921 pregnancies.[7] Egwuatu in his study in Enugu, southeastern Nigeria found an incidence of o1ne triplet pregnancy in 1014 deliveries.[8] Umeora *et al*., in their study in two tertiary institutions in Abakaliki, Nigeria, found an incidence of one in 771 deliveries or 0.13%.[9] It is, however, a well-known fact that the incidence of triplet pregnancies and other multiple pregnancies are increasing around the world due to assisted reproductive technologies.[10,11]

Mile 4 Maternity Hospital, Abakaliki, where this study was carried out, is a Missionary Hospital established by the Medical Missionary of Mary, a Roman Catholic Church congregation, in 1948 and is one of the oldest hospitals in Ebonyi State, Nigeria, and indeed the foremost maternity hospital in the State. It has contributed very significantly in rendering efficient maternity services in the state and the surrounding states. Given the number of deliveries conducted in this very busy maternity hospital, the incidence and outcome of triplet pregnancies in its naturally occurring form can never be complete in this part of Igboland without taking into consideration their services in this regard.

It is against this background of evaluating the naturally occurring incidence of triplet pregnancies and their outcome before the confusion or distortion in the incidence of such pregnancies, especially by assisted reproduction, which is becoming established here as a means of providing solution to the numerous cases of infertility that abound here sets in if we do not establish the incidence and outcome of naturally occurring triplet pregnancies now, we will not have a baseline with which to compare the future trend in this area. It is against this backdrop that the incidence and outcome of naturally occurring triplet pregnancies from 1995 to 2005 were evaluated in this center. This will form a baseline to appreciate any increase or distortion that assisted reproduction will bring to the incidence and outcome of triplet pregnancies in this part of the world.

Materials and Methods

This is a retrospective study involving all the cases of triplet pregnancies delivered in Mile Four Maternity Hospital, Abakaliki, Ebonyi state in southeast Nigeria from January 1995 to December 2005. The cases were obtained from the antenatal, labour ward and theater registers. Their case notes were retrieved from the hospital's Records Department and relevant information such as age, booking status, parity, gestational age, complications before delivery, mode of delivery, and complications after delivery were retrieved and analyzed using numbers and percentages.

Mile 4 Maternity Hospital, Abakaliki where this study was carried out is a 150-bedded Missionary Hospital established by the Medical Missionary of Mary, a Roman Catholic Church congregation, in 1948 and is one of the oldest hospitals in Ebonyi State, Nigeria and the foremost maternity hospital in the State. It has contributed very significantly in rendering efficient maternity services in Ebonyi state as well as the surrounding states. Abakaliki where this hospital is situated is the capital of Ebonyi State, one of the 36 states that make up Nigeria. It is situated in the southeast geo-political region of the Country and belongs to the Igbo tribe of Nigeria. According to the 2006 national census, it has a population of 278, 560 people with males constituting 132, 153 and females 146, 467.[12] Its inhabitants are mainly civil servants, farmers, business people, traders, students, artisans, semi-skilled and unskilled workers. The health needs of the people are served by a healthy mix of private and government hospitals with the Federal Teaching Hospital all in Abakaliki, an amalgam of the former Federal Medical Center and Ebonyi State University Teaching Hospital, as the only Tertiary health institution and Mile Four Hospital as the foremost Missionary secondary/referral maternity hospital.

Results

Perinatal mortality

6/66 × 1000, i.e., 91 per 1000 deliveries.

There were 22 triplet pregnancies over the 10-year period under review and 23126 deliveries, giving an incidence of triplet pregnancy of 0.1% or 1 triplet pregnancy in 1051 deliveries or 1 in 32 squared deliveries.

Many of the women 10 (45.5%), as seen in Table 1, were in the 31–35 years age group and half, 11 or 50% were grandmultiparas. Half of the gestational ages at delivery 11 (50%) were 35–37 weeks, 7 (31.8%) were term whereas 4 (18.2%) were delivered between 28 and 34 weeks. All the women were booked.

Majority of the leading triplets 16 (72.7%), as shown in Table 2, were cephalic. Ten (45.5%) had all the triplets

Table 1: Sociodemographic characteristics

Characteristic	Number
Age (Years)	
20-25	4 (18.2)
26-30	4 (18.2)
31-35	10 (45.5)
36-40	4 (18.2)
Total	22 (100)
Parity	
Primipara	2 (9.1)
2-4	9 (40.9)
>5	11 (50)
Total	22 (100)
Gestational age	
Term	7 (31.8)
35-37	11 (50)
28-34	4 (18.2)
Total	22 (100)

presenting cephalic, 1 (4.3%) were all breech and half had mixed presentations. The major antenatal complication, as shown in Table 2, was preterm labour in 5 or 22.7% of the women or half (50%) of the complications that occurred in the women. Two or 9.1% of the women had preeclampsia, 1 each or 4.5% had prolonged rupture of membrane, polyhydramnious and anaemia.

Majority of the women [Table 2], 18 (81.8%), were delivered vaginally and 4 (18.2%) by caesarean section. Forty babies (64.5%) were males whereas 21 (33.9%) were females. The sex of one set was not mentioned. Eight (36.4%) were all males, 3 (13.6) all females and 11 (50%) were mixed. As shown in Table 2, the babies had a weight range of 0.6–3.4 kg with an average weight of 1.73 kg, with triplet 1 having a weight range of 0.6–2. 6 kg and average weight of 1.79 kg, triplet 2 a weight range of 0.6–3.4 kg and an average weight of 1.72 kg and triplet 3 a weight range of 0.7–2.5 and an average weight of 1.69 kg. Sixty babies (90.9%) were alive and six (9.1%) were dead giving a perinatal mortality rate of 91 babies per 1000. As shown in Table 2, of the babies alive, 42 (63.6%) had good Apgar score of 8–10 in 1 minute and 7 (19.6%) Apgar score of 1–4. Fifty one babies (85%) had Apgar scores in 5 minutes of 8–10, 7 (11.72%) of 5–7 and 2 (3.3%) of 1–4.

Of the six babies that died, one set were premature deliveries and weighed 0.6 to 0.7 kg. They all suffered early neonatal death. In another set of the triplets where one died and the other two were severely asphyxiated, the one that died was a macerated still born which could have meant that they suffered some form of insult in-utero antenatally. The two other babies that died were from two other sets of triplets.

Table 2: Characteristics of triplet pregnancy

Characteristic	Number
Types of presentation	
All cephalic	10 (45.5)
All Breech	1 (4.6)
Breech, vertex, breach	2 (9.1)
Vertex, vertex, breech	2 (9.1)
Vertex, breech, breech	4 (18.2)
Breech, breech, vertex	2 (9.1)
Breach vertex, Vertex	1 (4.6)
Total	22 (100)
Type of antenatal complications	
Preterm labour	5 (50)
Pre eclampsia	2 (20)
Prolonged rupture of membrane	1 (10)
Polyhydramnious	1 (10)
Anaemia	1 (10)
Total	10 (100)
Sex of babies	
Male	40 (64.5)
Female	21 (33.9)
Not stated	1 (1.6)
Total	62 (100)
Sex of the fetuses	
All male fetuses	8 (36.4)
All female fetuses	3 (13.6)
Mixed male/female fetuses	11 (50)
Total	22 (100)
Range and average weight of babies	
Range of weight of Triplet I	0.6-2.6 kg
Average weight of triplet 1	1.79 kg
Range of weight of Triplet 2	0.6-3.4 kg
Average weight of Triplet 2	1.72 kg
Range of Weight of Triplet 3	7-2.5
Average weight of triplets	1.685 kg
Average weight of all fetuses	1.73 kg
Total	22 (100)
Apgar score in 1 minute	
8-10	42 (63.6)
5-7	11 (11.7)
1-4	7 (10.6)
0	6 (7.6)
Total	66 (100)
Apgar score in 5 minutes	
8-10	51 (85)
5-7	7 (11.7)
1-4	2 (3.3)
Total	60 (100)

Discussion

Triplet pregnancies are associated with numerous major adverse short and long-term birth outcomes for the baby, mother and the entire family.

In this study, half of the mothers of triplet pregnancies 11 (50%) were grandmultiparas. There were 22 triplet pregnancies in the 23126 deliveries over the 10-year period giving an incidence of 0.1% or one triplet pregnancy in 1051 deliveries or one in 32 squared pregnancies. This makes naturally occurring triplet pregnancy to be a very rare type of pregnancy in this part of the world. This degree of rarity is most likely due to the fact that during the period under review, 1995–2005, assisted reproduction was still a very rare occurrence in our area, and hence, all the triplet pregnancies were from naturally conceived pregnancies, i.e., the true incidence of triplet pregnancies before the advent of *in vitro* fertilization and other assisted reproductive technologies. Furthermore, the notorious killing of twins and other higher order deliveries in this part of the world in the olden days may have also depleted the genes of multiple pregnancies thereby making the occurrence of such pregnancies rare.

The incidence of 0.1% or 1 triplet pregnancy in every 1051 deliveries generally agrees with the 1 in 1014 deliveries reported by Egwuatu[8] among the Igbos in Enugu in 1980. This similarity could be because his work was done among the same Igbo women and at a time when assisted reproductive technologies had not started. His work, therefore, like ours was the natural incidence of triplet pregnancy before the advent of assisted reproductive techniques. Our incidence of 0.1 is also similar to the 0.12 found by Nkwabong *et al*. in Cameroun.

Our incidence, however, is lower than the one in 808 pregnancies found by Umeora *et al*.[9] in their work in the same Abakaliki region. The difference between the work of Umeora *et al*. and ours could be due to referral bias because they performed their work using two tertiary institutions in the same place. This is because in Ebonyi State, where these works were done, the secondary health system is weak and near-collapse, thereby necessitating cases that should be handled by this level of health institutions to be handled by the tertiary health institution in the State. This, added to the usual cases of triplet pregnancy that would be referred to them because of their more sophisticated equipment and personnel and as referral Centers in the state could have accounted for this disparity.

Our triplet pregnancy incidence being lower than the incidence of triplet pregnancies in western Nigeria[13] may be due to their culture of preserving twins and other higher order multiple deliveries with their mothers in the olden days whereas they were killed in the eastern part of the country where this work was done. The incidence in our study is higher than the 1 in 7921 incidence for naturally occurring triplet pregnancies estimated by Hellin's rule. This could be due to the fact that works that led to these estimations were done in a different environment from where this work was done. The incidence of 0.1% in our study is equivalent to the 0.09% found by Al-Suleiman[14] in Saudi Arabia and less than the 0.66% observed in Belgrade Serbia.[15]

In our study, the leading triplet was cephalic in majority, 16 (72.7%) of cases and breech in 6 (27.3%). None was transverse. Ten (45.5%) were all cephalic whereas only 1 (4.62) was all breech. Others had mixed presentation. This work agrees with earlier work on triplet pregnancies by Egwuatu[8] in Enugu, Igboland, and Umeora *et al*[9] in Abakaliki were majority of the leading triplets presented as cephalic.

In our work, the predominant antenatal complication 5 (22.7%), as in other works,[4-,9,10] were due to preterm labour/delivery. Others were preeclampsia, polyhydramnios, prolonged rupture of membranes and anaemia 1 each (4.6%).

The mode of delivery for the majority 18 (81.8%) of the triplets in our study was by vaginal route. Only 4 (18.2%) were delivered by caesarean section due to varied indications. This was similar to the work of Umeora *et al*.[9] in the same locality of our study and Nkwa Bong *et al*.[10] in Cameroun where majority of their triplets were delivered by vaginal route and contrary to the work of Caserta *et al*.[4] in Rome, Italy where 90% of their triplets were delivered by caesarean section. This could be due to the practice environment in Rome, Italy where the threshold for caesarean section is usually very low for varied reasons including the fear of litigation.

Though caesarean section is the route of choice for delivery of triplets according to some researchers,[14,16] others opt for vaginal delivery. Alama *et al*.[17] established a protocol for planned vaginal delivery of triplets. According to the authors, the prerequisites for such planned vaginal delivery of triplets were cephalic presentation of the first triplet, electronic monitoring of the three fetuses, the delivery should be conducted by an experienced obstetrician and a neonatologist should be present. They had 88% success rate of vaginal delivery of triplet pregnancies using these criteria.

Majority of the babies in our study 40 (64.5%) were males with 21 (35.5%) females. This is contrary to the work of Caserta,[4] where 40% of the babies were females.

The average weight of our triplet babies was 1.73 kg with a weight range of 0.6–3.4 kg. The averages weight of triplet one was 1.796 kg, which is higher than the 1.72 kg for triplet 2, which is in turn higher than the 1.69 kg for triplet 3. The

average birth weight of 1.73 kg in our study was higher than the mean birth weights of 1.59 kg, 1.66 kg, and 1.55 kg reported by Caserta *et al.*[4] in Rome, Ziadeh in Jordan[18] and Al-Suleiman *et al.*[14] in Saudi Arabia. The smaller birth weights in their study may be genetic or due to the high rate or preterm delivery that was associated with their study. The average weight of our triplet one of 1.796 kg, which is similar to the 1.850 kg reported by Umeora *et al*. for their triplet one. This similarity could be because the two studies were conducted in the same environment. Same reason could also explain the similarity in both studies of triplet, i.e. one being heavier than triplet two and triplet two in turn being heavier than triplet three. However, the average weight of our triplet two of 1.72 kg was different from the 1.828 kg they noted for their triplet two. However, the average weight of our triplet three of 1.69 kg, on the other hand, was more than the 1.377 kg Umeora *et al*. noted for their triplet three.

Similar to the work of Nkwabong *et al*.,[4] the mean fetal weight of the first triplet in our study was the highest. While the lowest average fetal weight in their study was the second triplet, the lowest in our study, similar to the study of Umeora *et al*.[9] was the third triplet.

Majority 42 (63.6%) of triplet babies in our study had good Apgar scores of 8–10 in 1 minute, 11 (11.7%), 5–7 and 7 (10.6%) were severely asphyxiated with Apgar scores of 1–4. The Apgar scores in 5 minutes increased to 51 (85%) for the 8–10 Apgar group, and 7 (11.7%) to the 5–7 Apgar score. Only 2 (3.3%) of the babies were in the severely asphyxiated group by 5 minutes after delivery.

In 2 of the severely asphyxiated babies, 1 of the triplet babies was a macerated still born most probably indicating some insult in the antenatal period. The number of severely asphyxiated babies in our study is although much less than the 14 of 55 babies reported by Umeora *et al*.[9] to have suffered from varying degrees of asphyxia in the same environment as ours is a source of concern and may point to caesarean section as a preferred route of delivery. This may be due to referral bias as their work was in tertiary institutions where difficult cases were referred to.

The perinatal mortality rate in our study of 91 per 1000 was high. Half of the perinatal mortality in our work was contributed to by a set of premature triplet weighing 0.6 to 0.7 kg who suffered early neonatal death. This finding in our study of half of the perinatal mortality being contributed to by prematurity confirms findings in other studies.[4,9,14] The most common antenatal complication in triplet pregnancies in our study was preterm labour and delivery, as in other studies.[4,9,10]

Conclusion

Triplet pregnancy, though rare, is a high risk pregnancy that is associated with many fetal and maternal complications that are of significant importance to the parents, care giver and the health systems. Obstetricians, in addition to researching on ways to improve the outcome of this type of pregnancy, must not only cooperate with but lead the relevant health professionals in finding ways to optimize the outcome of such pregnancies, especially now that the incidence is bound to increase due to assisted reproductive technology.

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Conflicts of interest

There are no conflicts of interest.

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