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Triplet Pregnancy: A 10-Year Review of 105 Cases at Harare Maternity Hospital, Zimbabwe

C.A. Crowther, R.A. Hamilton

Department of Obstetrics and Gynaecology, Harare Central Hospital, Harare, Zimbabwe

Abstract. During the 10-year period, 1975-1984, 105 triplet pregnancies were delivered at Harare Maternity Hospital, Zimbabwe, among 286,338 pregnancies in the Greater Harare Unit, giving an incidence of triplets of 1:2,727. The mean gestational age at delivery was 32.5 wk with 81 women (77.1%) delivering before 37 wk. Primigravidas delivered at a significantly earlier mean gestational age ($P < 0.05$)-and had a higher perinatal mortality ($P < 0.001$) compared with grand multigravidas. Of the 315 babies, 277 (87.9%) weighed < 2500 g. The overall perinatal mortality rate was 327‰, with a perinatal mortality rate of 146‰ for infants weighing ≥ 1000 g. Women hospitalised for bed rest during the antenatal period had fewer perinatal deaths compared with those diagnosed during the antenatal period, but not hospitalised for bed rest ($P < 0.02$). No difference was found in the mean gestational age at delivery or the mean birth weights between these two groups. Among infants ≥ 28 wk gestation there were fewer perinatal deaths in triplets delivered by cesarean section compared with triplets delivered vaginally ($P < 0.0004$). This suggests that cesarean section may offer the optimal mode of delivery in triplet pregnancy.

Key words: Triplets, Bed rest, Perinatal mortality, Mode of delivery

INTRODUCTION

The incidence of triplet pregnancy varies between racial groups from 1:11,111 in white Americans to 1:516 in Nigerians [13]. In Harare the expected incidence of triplets using Hellin's hypothesis is 1:3,103 [3]. The incidence of higher order multiple pregnancies has increased with the introduction of ovulation agents [10,15]. Although there have been several recent reports on triplets, some aspects of ante-

natal management and delivery remain controversial [5,7,9,11,14,15]. This study reviews the results of antenatal care, management at delivery, and fetal outcome in 105 triplet pregnancies to try to assess optimal management.

MATERIALS AND METHODS

Harare Maternity Hospital is a referral centre for high-risk obstetric patients. The majority of women are referred from the municipality-run urban maternity clinics which provide low-risk obstetric care and are staffed by sister midwives and medical assistants. Harare Maternity Hospital, together with the urban clinics, constitute The Greater Harare Obstetric Unit (GHU). All triplets within the GHU are referred to Harare Maternity Hospital for delivery. A few triplet referrals are also received from other parts of the country.

Triplets presenting at Harare Maternity Hospital during the 10-year period from January 1975 to December 1984 were reviewed with respect to age and parity of the mother, antenatal management and complications, mode of delivery, Apgar scores, birthweight, and perinatal outcome. Statistical analysis was performed by the chi-square test to compare frequencies between groups and the Student's *t* test to compare means between groups.

RESULTS

During the 10-year period there were 286,338 pregnancies in the Greater Harare Unit, of which 105 were triplets giving an incidence of 1:2,727 pregnancies.

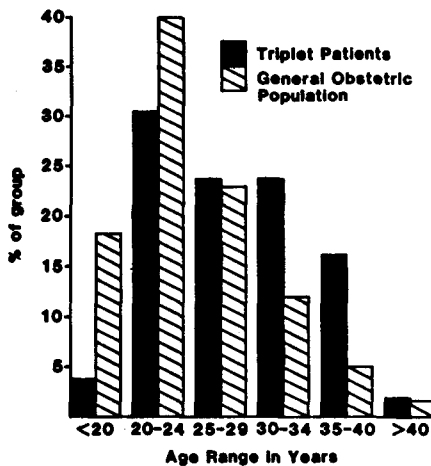


Fig. 1. Maternal age distribution in triplets compared to the general obstetric population.

The age and parity of women with a triplet pregnancy was compared with that in the general Harare obstetric population using a minimum basic data collection set [2 and Brown, personal communication] (Figs. 1,2). Women with a triplet pregnancy were more likely to be 30 years ($P < 0.001$) and para 4 ($P < 0.001$) when compared with the general obstetric population.

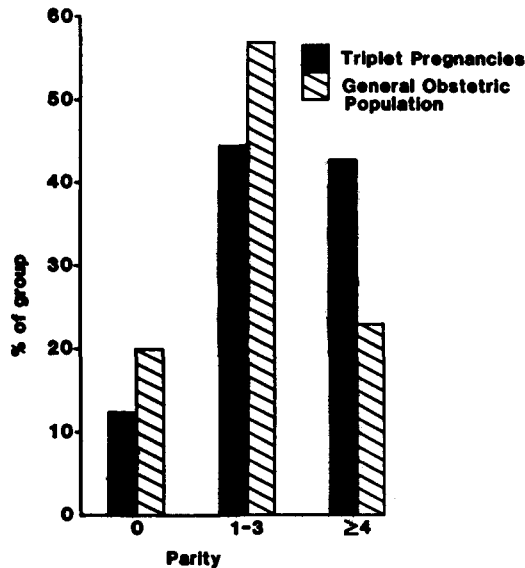


Fig. 2. Parity distribution in triplets compared to the general obstetric population.

A history of one or more previous multiple births was given by 22 women (21%). Preterm labour was the most common reason for antenatal admission in the 71 women (67.6%) diagnosed during the antenatal period. Triplets were only diagnosed at delivery in 34 women (32.4%), 9 women booked for antenatal care and 25 unbooked women. Of the 9 booked cases undiagnosed until labour, 7 were misdiagnosed as a twin pregnancy by ultrasound or X-ray examination and 2 women with a clinical diagnosis of twin pregnancy failed to have the multiple pregnancy confirmed by ultrasound or X-ray examination.

Duration of Pregnancy

The mean gestational age at delivery was 32.5 wk (SD 5.5). Eighty-one (77.1%) women delivered before 37 wk gestation and 45 (42.8%) before 33 wk gestation. The duration of pregnancy achieved increased with increasing parity, with a mean of 31.1 wk (SD 5.2) in primigravidas, compared with a mean of 34.0 wk (SD 3.4) in grand multigravidas ($P < 0.05$). Comparison of the birthweights achieved at

different gestational ages between primigravidas and grand multigravidas failed to show any significant differences.

Delivery

At the onset of labour, 59 women (56.2%) were on the antenatal ward at the hospital. Of the 46 women (43.8%) who came from home, 14 (30.4%) were fully dilated on arrival. Including both women on the antenatal ward when labour began and those admitted from home, 30 (28.6%) were 8 cm dilated or more when first examined on the labour ward. The mode of delivery is shown in Table 1. Eighty-eight women (83.8%) were delivered vaginally and of the 17 women delivered by cesarean section (CS), 6 were elective and 11 were emergency sections.

Table 1 - Mode of delivery of triplets

	Vaginal delivery - No. (%)		CS No. (%)
	Cephalic	Breech	
Triplet I	57 (54.3)	33 (31.4)	15 (14.3)
Triplet II	40 (38.1)	48 (45.7)	17 (16.2)
Triplet III	34 (32.4)	54 (51.4)	17 (16.2)
Total	131 (41.6)	135 (42.9)	49 (15.5)

Fetal Outcome

There were 315 triplets delivered of which 146 were male and 169 female giving a male/female ratio of 0.86. The mean birthweight was 1658 g (SD 644). A total of 277 infants (87.9%) weighed < 2500 g. The mean birthweight of triplet I was greater

Table 2 - Perinatal deaths and perinatal mortality rates by birth order

	Stillbirth	Early neonatal death	Perinatal death	Perinatal mortality rate/1000
Triplet I	10	22	32	305
Triplet II	9	22	31	295
Triplet III	11	29	40	381
Total	30	73	103	327

than the mean birthweight for triplet II and III, although this was not statistically significant. No significant difference was found in the number of infants with a 5-minute Apgar score of < 7 for triplet I, II and III. There were 103 perinatal deaths, 30 stillbirths and 73 early neonatal deaths, giving a perinatal mortality rate of 327‰ (Table 2). Of these, 57 infants weighed < 1000 g giving a perinatal mortality rate of 146‰ for infants \geq 1000 g. When compared with triplet I and II, triplet III had the greatest number of perinatal deaths although this was not statistically significant. Perinatal mortality was significantly higher in primigravidas compared with grand multigravidas ($P < 0.001$).

Table 3 - Duration of pregnancy, mean birthweight and perinatal mortality in women who received antenatal bed rest, compared with women diagnosed antenatally, but who did not receive antenatal bed rest, and women diagnosed in labour

	Bed rest (antenatal)		No bed rest (antenatal)		No bed rest (labour)	
Duration of gestation	N = 36		N = 35		N = 34	
Mean in weeks (SD)	34.7	(3.3)	33.2	(4.0)	30.7	(5.4)
No. < 32 weeks (%)	8	(22.2)	13	(37.1)	20	(58.9)
Birthweight	N = 108		N = 105		N = 102	
Mean in g (SD)	1898	(483)	1756	(583)	1300	(711)
No. < 1500 g (%)	26	(24.1)	32	(30.5)	63	(61.8)
Perinatal deaths	N = 108		N = 105		N = 102	
No. of deaths (%)	19	(17.6)	34	(32.4)	50	(49.0)
Perinatal mortality/1000	175.9		323.8		490.2	

Antenatal Hospitalisation for Bed Rest

As part of their routine antenatal management for triplet pregnancy, some consultants advised hospitalisation for bed rest. Thirty-six women (34.3%) were admitted for bed rest. The mean gestational age when bed rest started was 30.9 wk (SD 3.6) and the mean length of hospital stay was 24.4 days. The 36 women who were hospitalised for bed rest were compared with the 35 women (33.3%) who were diagnosed as carrying triplets antenatally, but who were not hospitalised for bed rest and with the 34 women (32.4%) in whom the diagnosis of triplets was only made in labour (Table 3). These groups were not randomized. The mean time from diagnosis to delivery in the non bed-rested antenatal group was 28.0 days (SD 24.5). There was no difference in the mean gestational age at delivery or mean birthweight between the group of women hospitalised for bed rest and the group diagnosed as triplets

antenatally but not bed-rested. However, the bed-rested group had significantly fewer perinatal deaths compared with the antenatally diagnosed group that was not bed-rested ($P < 0.02$). The group hospitalised for bed rest delivered at a significantly later mean gestational age ($P < 0.001$), had a greater mean birthweight ($P < 0.001$) and fewer perinatal deaths ($P < 0.0001$) compared with the group of women only diagnosed as triplets when in labour.

Outcome Versus Mode of Delivery

Fetal outcome, in infants who were ≥ 28 wk gestation at birth, was compared between those delivered by CS and those delivered vaginally (Table 4). There were fewer perinatal deaths in the infants delivered by CS compared with infants born vaginally ($P < 0.0004$). Fewer infants had an Apgar score of <7 at 5-minutes when delivered by CS compared with those delivered vaginally ($P < 0.001$). These figures suggest an improved fetal outcome for cesarean delivery compared with vaginal delivery.

Table 4 - Comparison of infants delivered by cesarean section (CS) with infants delivered by vaginal delivery (VD), ≥ 28 weeks gestation

	CS	VD
No. perinatal deaths (%)		
Triplet I	0/15 (0.0)	22/72 (30.6)
Triplet II	1/17 (5.9)	21/70 (30.0)
Triplet III	2/17 (11.8)	27/70 (38.6)
No. 5-minute Apgar score < 7 (%)		
Triplet I	0/15 (0.0)	22/72 (30.6)
Triplet II	0/17 (0.0)	22/70 (31.4)
Triplet III	2/17 (11.8)	23/70 (32.9)

DISCUSSION

The incidence of triplet pregnancy in Harare of 1:2,727 is higher than that reported for England and Wales [1] and the US [5], similar to that reported from other parts of Southern Africa [7,14], but considerably lower than the rates reported from Nigeria [13].

Misdiagnosis as twin pregnancy occurred in 8.6% of cases. Ron-El et al [15] reported a 21% misdiagnosis rate. Confirmation of a clinical suspicion of more than one fetus and efforts made to reduce errors in interpretation of ultrasound and radiological findings are important. The duration of labour was strikingly short in most cases. When first examined 28.6% of women were in the late first

stage of labour. This reason alone would suggest that hospital admission to await labour may be beneficial.

The mean duration of pregnancy in mothers with triplets increased as parity increased. Primigravidas were indentified as high risk as they delivered at a significantly earlier mean gestational age and were associated with significantly higher perinatal mortality compared with grand multigravidas. The increased perinatal mortality seemed to be related to the earlier gestational age at delivery. The importance of parity influencing the duration of pregnancy has been stressed previously [15]. McKeown and Record [12] postulated that distensibility of the uterus was one factor influencing the duration of pregnancy and suggested that the amount of distensibility of the uterus at a given period of gestation is greater in later pregnancies than in the first. This study supports the view that uterine distension in primigravidas is less than in the multigravidas leading to delivery at an earlier gestational age.

As reported in other studies, preterm labour was the major antenatal complication [11,15]. Bed rest is believed to decrease the risk of preterm labour and has been advocated to decrease perinatal mortality in triplet pregnancy [6,10]. The suggested timing of bed rest is variable. For example, bed rest has been advised "early" [15], and at home "as soon as the diagnosis is made" with hospitalisation planned at 28-30 wk [11].

In the present series there was no difference in the mean duration of pregnancy or in mean birthweight when women hospitalised for bed rest in the antenatal period were compared with the group of women who were diagnosed during the antenatal period but who were not admitted for bed rest. There was, however, a significantly lower perinatal mortality in the bed-rested group compared with the non-bed-rested group. Loucopoulos and Jewelewicz [11] also reported improved fetal outcome with hospitalisation for rest, but found no difference in mean gestational age at delivery compared with women who were not bed-rested. Daw [5], however, failed to detect any difference in the duration of pregnancy or in fetal survival rate among those women hospitalised for bed rest.

As with the other reports, this study was uncontrolled. Although the improved fetal outcome may be a true effect of hospitalisation for bed rest in triplet pregnancy, it may be due to selection bias or uncontrolled variables such as the increased number of CS in the bed-rested group or better immediate intrapartum care in those who started labour in hospital. In view of the present available evidence from randomized controlled trials showing that bed rest in twin pregnancy actually increases the risk of preterm delivery in women hospitalised for bed rest [4,8,16], and the widespread practise of antenatal bed rest for triplet pregnancy, there is a need for a well-controlled study to examine the effects of bed rest in triplet pregnancy.

Opinion is divided as to preferred method of delivery in triplet pregnancy. Some favoured CS [5], finding a decreased perinatal mortality for the second and third triplet when delivered by CS [7]. Others have recommended vaginal delivery after 34 wk for uncomplicated triplets [9]. Two papers, with CS rates of 42% and 44%, respectively, report fetal outcome at differing gestational ages to be similar in vaginal and cesarean delivery [11,15].

In the present study the CS rate was 16.2%. The results showed a significantly decreased perinatal mortality in triplets delivered by CS compared with vaginal delivery in women delivered at or after 28 wk gestation. Although the results suggest that CS may improve fetal survival in triplet pregnancy, the series is small and uncontrolled and further study in the form of a multicentred randomized controlled trial would seem advisable.

In conclusion, antenatal diagnosis with confirmation of higher order multiple pregnancies is essential for optimal antenatal care. Primigravidas should be recognised as being at high risk of preterm labour with associated increased perinatal mortality. With the available evidence, the value of antenatal bed rest and the optimal mode of delivery remains unclear and further controlled evaluation of treatment policies are needed to clarify the picture.

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Correspondence: Dr. C.A. Crowther, Department of Obstetrics & Gynaecology, Queen Victoria Hospital, Rose Park, South Australia 5067.