

PERINATAL OUTCOME IN TWIN PREGNANCIES (PART II)

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SUMMARY

In the present case control study perinatal outcome in 100 cases of twins and 100 singleton pregnancies each, was studied. Perinatal loss was statistically significantly more in twins, 11.5% as compared to singleton pregnancies (2%). Statistically significantly more babies were born prematurely, 64% and 9% respectively in twin pregnancies and singleton pregnancies. First baby was delivered by breech in 18% cases and second was delivered by breech in 41% cases (statistically highly significant difference). With first baby by vertex presentation, perinatal loss was 2.53% and with malpresentation 23.8%. All babies who were lost were L.B.W., in first twins below 2 kg. and second below 2.5 kg.

The antepartum management of multifetal gestation represents a major obstetric challenge because of the significant risk associated with these pregnancies. While accounting for only 1% of all pregnancies, twin gestations are responsible for nearly 10% of the perinatal mortality (PNM) (Medearis et al 1979, Botting et al 1987, Ellings et al 1993). Perinatal mortality in twins is believed to

be five to six times higher than in singletons. The perinatal mortality is reported to vary from 6% to 22% in various studies. There is an increased incidence of malposition and malpresentation in twin pregnancies compared with singleton pregnancies because of the multiplicity of fetal parts and also of polyhydramnios (Jones et al 1990). Prematurity and low birth weight along with malpresentations account for most of the mortality (Hawrylshyn et al 1982). Low birth weight

is consistently the major factor in the elevated perinatal death rate for twin pregnancy (Niermeyer, 1990).

MATERIAL AND METHODS

The present study was conducted in the department of Obstetrics and Gynaecology MGIMS, Sevagram in Central India. 100 cases of twin pregnancy were studied for perinatal outcome. It was a prospective as well as retrospective study. The occurrence of still births and neonatal deaths in the first and second twin were studied and also the factors affecting fetal/neonatal mortality. For each case of twin pregnancy next case with singleton pregnancy was taken as control. 27 cases were registered cases and 73 were emergency admissions. Out of emergency admissions with twin pregnancy in 6 cases diagnosis of second twin was made after delivery of the first baby.

OBSERVATIONS

Out of the 200 babies of study group

23(11.5%) perinatal deaths occurred. 11 still births (9 fresh and 2 macerated) and 12 neonatal deaths. Of the 146 babies of 73 emergency cases 20(13.7%) perinatal deaths occurred, where as out of 54 babies of the 27 registered cases the perinatal loss was 2(3.7%). (Statistically highly significant difference $P < 0.001$).

In singleton controls 4 deaths (1 still birth and 3 neonatal) occurred. In control group 22 women (22%) were registered, no perinatal loss occurred in this group and out of 78 emergency cases 4(5.12%) babies were lost. Difference in perinatal mortality in Singleton and Twin emergency cases was statistically significant (p value < 0.05). Perinatal mortality was higher in women below 20 years of age and above 25 years (Table I). However the difference was statistically not significant. The period of gestation at onset of labour varied between 26 to 40 weeks but no patient had postdatism with twins. Premature delivery occurred in 64 cases of twins, mean gestational

Table I
Maternal age and Perinatal Mortality

Maternal age	No. of Study Cases	No. of Babies	No. of Perinatal deaths	No. of Control Cases	No. of Perinatal Deaths
≤ 20 yrs	10	20	3 (15%)	12	1 (8.33%)
21-25 yrs.	56	112	10 (8.02%)	64	1 (56%)
26-30 yrs.	27	54	8 (14.81%)	22	2 (9.09%)
≥ 31 yrs.	7	14	2 (14.2%)	2	0
Total	100	200	23 (11.5%)	100	4 (4%)

($p < 0.05$)

age being 34 weeks (± 1.6 weeks). In the control group 9% women had preterm delivery (statistically highly significant difference from twin pregnancy (p value < 0.001) with mean gestational age of 37 weeks (± 2.02 weeks) and 4 women were postdate.

Out of the 100 cases of twin pregnancy first twin was delivered by breech in 18 (18.00%) cases, while second twin was delivered by breech in 41 cases (statistically highly significant difference ($p < 0.001$). Cesarean section was done in 19 out of 100 cases in the study group. Out of these 3 (15.8%) were for the retained second twin after the first had delivered vaginally at home. In the control group 13 babies were delivered by cesarean section and 3 were delivered by breech (Table II).

The perinatal mortality for first twin was 7% and that of the second twin was 16% (Statistical significant difference (p value < 0.05). With the first twin presenting by vertex the perinatal loss was 2.53% while with malpresentation in the first twin the loss was 23.8% (Statistically highly significant difference (p value < 0.001). In cases of second twin perinatal mortality with vertex presentation was 10.91% and with malpresentation it was 22.2% (Statistically significant (p value < 0.05). In the control group the perinatal mortality was 3.33% with vertex presentation (statistically significant difference (p value < 0.05) (Table III).

Mean interval between delivery of the first and second baby was 14 minutes (minimum 2 minutes and maximum 6 hrs.)

Table II
Mode of delivery and Perinatal Mortality

Mode of delivery	Twins Pregnancy				Singleton Control			
	First baby		Second baby		Total		No	PNM
	No	PNM	No	PNM	No	PNM		
Normal by Vertex	62	2 (3.2)	37	6 (16.21)	99	8 (8.08)	79	1 (1.2)
Breech	18	4 (22.2)	41	8 (21)	59	12 (20.34)	3	1 (33.33)
Face	-	-	1	-	1	-	-	-
Ventouse	1	-	1	-	2	-	-	-
Forceps	3	-	1	-	4	-	5	1 (20)
LSCS	16	1 (6.25)	19	2 (10.5)	35	3 (8.57)	13	1 (7.6)
Total	100	7 (7)	100	16 (16)	200	23 (11.5)	100	4 (4)

($P < 0.05$)

Figures in parenthesis represents percentage.

Table III
Presentation and Perinatal Mortality

Presentation	Twins Pregnancy						Singleton Control	
	First baby		Second baby		Total		No	PNM
	No	PNM	No	PNM	No	PNM		
Vertex	79	2 (2.53%)	55	6 (10.9%)	134	8 (5.97%)	95	3 (3.15%)
Breech	21	5 (23.8%)	41	9 (21.95%)	62	14 (22.5%)	4	1 (25%)
Face	-	-	1	-	1	-	-	-
Transverse	-	-	3	1 (33.33%)	3	1 (33.33%)	1	
Total	100	7 %	100	16 %	200	23 (11.5%)	11	4 (4%)

(P < 0.001)

but the perinatal mortality was not affected significantly even with increased interval.

The perinatal mortality was confined to babies of LBW. 60% cases had low birth weight (LBW). 80% of these were of less than 37 weeks gestation. In the first twin all deaths were confined to babies weighing less than 2 Kg. Of the second twin all deaths occurred in babies weighing less than 2.5 kgs. The perinatal loss was 100% for babies of less than 1 kg. and 50% for babies weighing between 1-1.499 kg (Table IV).

DISCUSSION

Even though twin gestations represent only about 1% of all gestations they contribute disproportionately to the total perinatal mortality and morbidity worldwide. In the past two decades physicians and researchers have emphasized the importance of twin and higher order multiple births to infant morbidity and

mortality. In the United States for example, twin gestations account for 8% to 10% of perinatal deaths (Keith 1992).

Problems in later weeks include increased risk of IUGR, intrauterine deaths & preterm birth, compared to singleton pregnancies (Polin & Frangipane 1986). Intrauterine growth retardation is a very common complication of twin pregnancy (MacMullan & Newman 1984, Jones et al 1990). Inadequate intrauterine growth and immaturity are the major causes of morbidity and mortality among twins. Both are inter-related. Morbidity associated with twin gestations may have life-long implications.

The perinatal mortality in twins is believed to be 10-15, five times that in singletons (Ho & Pyk 1975). The overall risk of pregnancy loss in twin gestation is reported to be between 6.6% (Keith et al 1980) to 13.25% (Hawrylyshyn et al 1982). The perinatal mortality rates in

Table IV
Birth Weight and Perinatal Mortality in Twins and Singletons

Weight in Kg.	Twin Pregnancy						Singleton Control	
	First baby		Second baby		Total		No	PNM
	No	PNM	No	PNM	No	PNM		
< 1	3	3 (100)	4	4 (100)	7	7 (100)	-	-
1-1.49	6	2 (33.33)	6	4 (66.66)	12	6 (50)	1	1 (100)
1.5-1.99	30	2 (6.66)	31	4 (12.9)	61	6 (9.84)	4	1 (25)
2.0-2.49	41	-	42	4 (9.5)	83	4 (4.82)	24	2 (8.33)
2.5-2.99	17	-	16	-	34	-	46	-
3.0-3.49	2	-	1	-	3	-	20	-
> 3.5	-	-	-	-	-	-	5	-
	100	7	100	16	200	23 (11.5)	100	4

Figures in parenthesis represent percentage.

most developed world are much lower 6.4% in Sweden, 9.3% in Finland and 9.0% in USA (Fakey 1986). The Indian studies quote incidence of 21.7% (Nayak & Dalal 1991) 26.9% (Saha 1987) & 35.8% (Sholapurkar 1984). In our study it was 11.57% over all but it was higher in unregistered cases (14%). Preterm labour is overwhelmingly the most frequent complication of twin gestation. The incidence of preterm labour was five times more 42.7% as compared to singletons (8.4%) in the study by Kovac et al (1989). The incidence in our study was 64% as most cases were emergency admissions. Preterm labour along with intrauterine growth retardation were the two single most important factors responsible for the neonatal deaths which were

nearly three times more as compared to singletons.

Intrauterine fetal demise is an uncommon but very important complication of twin pregnancy. It occurred in 3.9% cases as compared to 0.98% in the controls in Kovac et al study (1989). The use of Ultrasound and antepartum testing in the form of the nonstress test, the biophysical profile, and Doppler ultrasound may lead to major advances in the diagnosis of intrauterine fetal growth retardation and twin to twin transfusion syndrome in twins.

Vaginal delivery is appropriate in most instances, although cesarean section is preferred by many obstetricians when malpresentation of the first or second twin exists. Manipulative and operative deliveries are more frequently necessary in twin

deliveries because of malpresentations and malpositions. Second twins do less well than first one due to hypoxia which may be due to one or more of several factors like premature placental separation, cord prolapse, retained second twin and/or malpresentation. Second twin has consistently higher intrapartum and neonatal mortality than first twin irrespective of caesarean section rate (Rydstrom & Ingemarsson 1991). Fowler et al (1991) found only a slight increase in overall mortality for second twin. While it is generally accepted that low birth weight is the greatest threat to the twins, malpresentation is the next in the order of concern. Malpresentation accounted for the major chunk of perinatal mortality and the second twin was found at more risk in our study also. Perinatal mortality increases when the presentation of twin is breech or otherwise abnormal (Cetrulo et al 1980). However Adam et al (1991) have demonstrated that perinatal mortality was not influenced by vaginal breech delivery of the second twin. The time interval between the delivery of each twin is no longer a critical factor in obtaining a successful outcome, (Rayburn et al 1984, Chervenak et al 1985) provided that the second stage of labour is progressing and that there is no evidence of fetal distress. As long as fetal surveillance is maintained there need be no rigid time restriction for delivery interval between twins and conservative management and oxytocin augmentation for delay with both vertex and frank or complete breech presentation is advocated.

Congenital anomalies occur with increased frequency in twins as compared

to singletons (Neirmeyer 1990) and male twins are believed to be at higher risk than female twins (Jones et al 1990). We did not find any difference.

Twin gestation is now an area of vital concern to the perinatologists. Within the last decade a substantial reduction in perinatal mortality has been achieved mostly through advances in neonatal care. However preterm birth and its consequences remain the most important causes of perinatal mortality and morbidity. Intervention to decrease the neonatal mortality rates in multiple gestation should be directed towards reducing the incidence of low birth weight infants. Efforts should center on improved antenatal care (including prophylactic bed rest), prevention, early detection and treatment of preterm labour and delivery in appropriate perinatal setting. An increase in the use of caesarean section can do nothing to affect birth weight distribution.

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