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A Clinical Study on Maternal and Fetal Outcome in Multiple Pregnancies in Women Attending Government Maternity Hospital, Tirupathi.

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Abstract: ***Objective****: To study the prevalence, etiological factors, maternal and foetal outcome in multiple gestation*
Methods*: All women with multiple gestation admitted at Government Maternity Hospital, Tirupathi from January 2012 to August 2013 were studied.*
Results*: Incidence of multiple pregnancies in present study was 1.09%.Of which 235 are twins, 6 triplets and 1 quadruplet. 60.3% of multiple pregnancies is found in age group of 21-25, 41.3% incidence is noted in primigravidas.7.36% have family history of multiple pregnancy ,5.3% in maternal side and 2.06% in paternal side.9.09% taken ovulation induction drugs, 3.3% had past history of twin pregnancy. Maternal complications were preterm labour 43.3%, anaemia 26.03%, hypertensive disorders 19.4%, and severe postpartum haemorrhage 2.4% were seen. Vertex-vertex was the most common presentation noted with 63.6% followed by breech-breech 11.5%.Incidence of caesarean section accounts for 28.5% and exclusively for 2nd twin is 4% and the most common indication was non vertex presentation of 1st twin.Dichorionic placentation accounts for 65.7% monochorionic in 31.3% and trichorionic in 2.4% of cases. Perinatal deaths are highest when birth weight is < 1.5kg, Intertwin delivery interval, gestational age and monochorioncity had a significant association with perinatal mortality. Perinatal morbidity is twin 1 is 16.7% and twin 2 is 18.5%. No maternal deaths noted.*
Conclusion*: Multiple pregnancies are associated with increasing risk for mother and baby. Gestational age, birth weight and intertwin delivery interval are important determinants of neonatal outcome. .Earlier determination of chorionicity is useful in assessing the prognosis of multifetal gestation. Outcomes can be improved with appropriate interventions.*
Key words*: Multiple gestation, Prevalence, Aetiology, Outcome.*

I. Introduction:

Multiple gestations are considered as one of high risk pregnancy. Incidence of multiple births has been rising steadily for the past 30yrs(1).The incidence of multiple births in 1980 is 18.9/1000 live births and in 2008 is 32.6/1000 live births(2), the reason being advances in reproductive medicine as well as greater proportion of older women becoming pregnant. The increase of multiple birth is a public health concern, the higher rate of preterm of these neonates compromise their survival chances and increase their risk of lifelong disability. Maternal morbidity is increased 3 to 7 times in multiple gestation (3).Perinatal mortality is an index for developed nation and contributes to infant mortality rate. There is a need for reappraisal of the outcome of multiple pregnancy to decrease the maternal and foetal morbidity and mortality related to multiple pregnancy. Hence the study was undertaken to determine the prevalence, etiological factors pregnancies and maternal and foetal morbidity and mortality.

II. Subjects And Methods:

All women with multiple pregnancies admitted to Government Maternity Hospital, Tirupathi which is a tertiary teaching and referral hospital from January 2012 to August 2013 were studied prospectively after their written informed consent. A standard proforma was used to collect the data. The analysis was carried out on the basis of etiological factors, maternal complications associated, presentations of babies, chorionicity, mode of delivery, period of gestation, birth weight, intertwine delivery interval and perinatal outcome. The morbidity and

mortality resulting from this condition were discussed. The data was analyzed using Microsoft excel, Epi info. Permission from Institutional Ethical Committee (IEC) was obtained before the study.

III. Results

In the present study, total deliveries during study period is 22,752 of which the number of multiple pregnancy in the present study is 242(1.06%). In the present study, there are 235 twin cases, 6 cases of triplets and 1 case of quadruplet pregnancy.

In the present study, majority (60.3%) of women were in the age group of 21-25 .77.6% were from rural community. Most of them come under class 3 and 4 of Kuppuswamy‘s socioeconomic classification .74% of them are booked cases. In our study, highest incidence is seen in primigravida (41.3%).Regarding etiological factors, family history was present in 7.36%, of which 5.3% on maternal side and 2.06% paternal side. 9.09% used clomiphene citrate for ovulation induction and 3.3% had past history of twin pregnancies.

Maternal complications associated with multiple pregnancies are listed in Table 1.In our study, preterm labour (43.3%) was the most common complication, followed by anaemia (26.03%) , hypertensive disorders (19.4%), Premature rupture of membranes (9.9%), postpartum haemorrhage (2.4%). No maternal mortality reported in present study. Quadruplet case was terminated due to hyperemesis gravidarum.

In present study, vertex-vertex combination has the highest incidence of 63.6%, followed by breech-breech 11.5%. On comparison of foetal presentation and perinatal outcome, the outcome of 1st twin is worse in breech-breech presentation, followed by vertex-breech. Second twin outcome worse in vertex breech.

During the study period, overall caesarean section rate is 22.23% of which multiple pregnancies account for 1.36%.Among 242 cases, 69 cases underwent caesarean section (28.5%). The most common indication for caesarean section in the present study is the non-vertex presentation of first twin. Emergency caesarean section accounts for 92.7% and exclusively for second twin 4%.The indications for caesarean section for the second twin are hand prolapse in 2 cases and cephalopelvic disproportion in 1 case. In 44.6% of cases intertwin delivery time was within 0-5min after first twin delivery. There was a statistically significant relation between inter twin delivery time and perinatal adverse outcome of the second twin with a chi-square value 15.48 (p=.008)

The perinatal mortality rate (PNMR) is dependent on gestational age and decreases with increasing gestational age.3.71%, 49.1%, 47.1%, pregnancies ended in abortions, pre-term and term respectively. In twin 1 ,PNMR between 28-32 weeks is 56.5%, between 33-36 weeks is 20% while it is only 4.3% in >37 weeks of gestational age. In twin 2,PNMR between 28-32 weeks is 65.2%, between 33-36 weeks is 34% while it is 2.6% in >37 weeks of gestational age. The relation between gestational age and mortality is statistically significant with chi-square value 121.25 (p <0.001).Dichorionic placentation (65.7%) was the most common type of placentation followed by monochorionic diamniotic (27.2%) type of placentation 2.4% had triamniotic trichorionic placentation. In one of quadruplets, type of placentation could not be determined. Perinatal deaths are more in Monochorionic placentation with chi-square value 56.21 (p value <0.001).

In present study, the percentage of low birth weight in twin 1 cases is 56.97% and in twin 2 is 63.17%.The percentage of very low birth weight babies is 17.35% in twin 1 and 18.5% in twin2.The percentage of extreme low birth weight is 6.6% in twin 1 and 9.09% in twin 2.Because of small number, the percentages of baby 3 were not taken into consideration. Perinatal deaths are highest when birth weight is < 1 .5kg with chi-square value 255 (p value <0.001). The perinatal mortality of second twin is 23.9% and that of first is 19%. The perinatal mortality of second twin is more than the first and that of third baby is not compared because of less number.

On comparison of mode of delivery and outcome of babies, perinatal loss was found to be highest in vaginal deliveries in both the twins which is about 25% in 1st twin and 33.3% in second twin. Perinatal morbidity for twin 1 is 16.7% and twin 2 is 18.5%.Perinatal deaths in twin 1 –male babies account for 21.9% , female babies-17.2%.Perinatal deaths in twin 2-male babies account for 30.7%, female babies-18.9%.From the percentages, it is seen that perinatal mortality is more in male babies with chi-square value 4.41(p< 0.03).

IV. Discussion:

In the present study, the incidence of multiple pregnancy is 1.06% correlates marginally with Naushaba Rizwan (4) et al study showing 1.44%. The high incidence can be explained on the basis that Government Maternity hospital being a referral hospital for all high risk cases of surrounding four districts where all women of all socioeconomic classes attend the hospital.

In comparison of maximum twining incidence it was found that, in study by Yuel Veronica Irene et al.(5), 57% of women were between 20-25years of age, in Hung Gikweon et al(6) 62.8% were between 20-29%. In the present study, 60.3% were between 21-25 years. The increase in incidence of twining in this age group can be explained by early marriages resulting in infertility requiring ovulation induction. In Yuel Veronica et al study, increased incidence in younger age group is mainly due to use assisted reproductive techniques used for infertility. The present study is in agreement with the above study.

In the present study, 41.3% of women were primigravidas of which 9.09% had conceived after taking infertility treatment. Yuel Veronica Irene et al study (5), had 58% incidence in primigravidas, where 58.3% had conceived after assisted reproductive techniques. Apichart chittacharoen et al (7) study, had an incidence of 58.3% were primigravidas, of which only 5.3% received assisted reproductive techniques. It shows that assisted reproductive technology is not the major cause of multiple pregnancies in India.

Naushaba Rizwan et al (4) study had an incidence 50% in grand multigravida due to increased incidence of multiple pregnancies in older age group. The present study co-relates marginally with Yuel Veronica Irene et al study (5) and Apichart et al study (7).

In the present study, common gestational age of delivery was less than 36weeks, which is 52.81% perinatal mortality in twin 1 is 34% and twin2 is46%.

Yuel Veronica Irene et al (5) 65% of cases delivered before 36 weeks. NaushabaRizwan et al (4), 84% of cases delivered before 36 weeks. Preterm labour is common in multiple gestation and the study coincides with Yuel Veronica Irena well. In all the above studies, it is observed that preterm labour is the most common antenatal complication followed by anaemia and hypertensive disorders. In the present study, there is a 2.4% incidence of post-dated pregnancies.

In present study, vertex-vertex is the most common combination. Dichorionic placentation (65.7%) is more common than monochorionic 27.1% type and same is evidenced by the Hung GiKweon et al (6); 1992 study. The type of placentation in case of quadruplet pregnancy could not be made out as she had undergone an induced abortion at 3 months amenorrhoea because of hyper emesis gravidarum.

It is observed in our study perinatal mortality largely depend on gestational age and its perinatal mortality rate (PNMR) is greater with gestational age less than 36 weeks. When perinatal mortality of both twins combined and compared with gestational age (p value <0.001).The reason behind this increased PNMR in preterm babies is mainly due to lack of level 3 nursery in our set up. Accordance with Apchart Chitta Charoen et al. (7), (2006) study, where in the PNMR was reduced with increasing gestational age. Naushaba et al., (2010) are of the view that birth weight and gestational age are crucial factors for determining the PNMR. The findings of present study support the above view. We observed that perinatal mortality is maximum in babies <1kg. (p <0.001)

When perinatal deaths of both twins were combined and analysed according to mode of delivery, higher perinatal deaths were associated with vaginal delivery with chi-square value 10.38(p =0.015).When compared individually, the association was not significant.

The present study shows more deaths in cephalic presentation allowed vaginally whereas in Chaudari (8) study more deaths were found in assisted breech delivery. The reason for more deaths were due to liberalisation of caesarean section for non-vertex presentation and deaths due to prematurity. In present study 88.4% of perinatal deaths in second twin occurred who delivered after 10 min of first twin delivery. We observed from this study Perinatal deaths in second twin is directly proportional to intertwin delivery Interval. This can be explained due to premature separation of placenta after delivery of first twin, leading to hypoxia .In Chaudari study, 84% of perinatal deaths in second twin occurred with ITDI more than 10minutes.Armson et al (9) study, prolonged intertwin delivery interval increases the perinatal deaths in second twin. C-Kouam et al (10) study, increased perinatal deaths for second twin, if interval longer than 20 minutes.

In our study, perinatal morbidity in twin 1 was 16.7% and twin 2was 18.5%. In our study, perinatal mortality of twin 1 was 19% and twin was 23.9%.There was no significant difference between mortality of first and second twins. In Chaudari study (8), the perinatal mortality in twin 1 is 15% and Twin 2 is 21%. Morbidity in twin 1 is 23% and twin 2 is 28%.Mortality rates are slightly more because all gestational ages were included whereas in Chaudari study patients with gestational age <28 were excluded. Morbidity in our study, was mainly because of prematurity and its complications.

Table 1: Maternal complications associated with multiple pregnancies

S.NOS	RISK FACTOR	No. OF CASES	PERCENTAGE
1.	PRETERM LABOUR	105	43.3%
2.	ANAEMIA	63	26.03%
4.	HYPERTENSIVE DISORDERS	47	19.4%
5.	PROM	24	9.9%
6.	SEVERE PPH	6	2.4%
7.	INTRAUTERINE DEATH OF ONE FETUS	6	2.4%
8.	ANTEPARTUM HAEMMARAGE	1	0.4%
9.	PRIOR C-SECTION	11	4.5%
10.	HYDROMNIOS	1	0.4%
11.	No complications	61	25.20%

Table 2: Comparison of Intertwin Delivery Interval and Outcome of Babies

S.NO	ITDI (MIN)	NO. OF CASES	PERINATAL DEATHS	PERCENTAGE

1.	0-5	107	28	26%
2.	6-10	50	12	24%
3.	11-15	32	14	43.5%
4.	16-30	30	2	6.6%
5.	31-60	18	1	5.5%
6.	>60	3	1	33.3%
TOTAL			58	

*Chi-square value is 15.48, p value 0.008.

Table 3: Comparison of Gestational Age and Perinatal Outcome.

GESTATIONAL AGE	NO.OF CASES	BABY 1	BABY 2	BABY 3
28_32 WEEKS	46	26(56.5%)	30(65.2%)	4
33_36 WEEKS	73	15(20%)	25(34%)	
>/ 37 WEEKS	114	5(4.3%)	3(2.6%)	

*Chi-square value is 121.25, p <0.001.

Table 4: Comparison of Perinatal Deaths According To Type of Placentation

TYPE OF PLACENTA	NO. OF CASES	BABY 1	BABY 2	BABY 3
DCDA	159	16	26	
MCDA	66	22	23	
MCMA	10	4	6	
TCTA	6	4	3	4

*.Chi-square value is 56.21, p <0.001.

Table 5: Comparison of Birth weight And Perinatal Outcome of Twins

BIRTH WEIGHT	BABY 1		BABY 2		BABY 3	
	NO.	DEATHS	NO.	DEATHS	NO.	DEATHS
<1KG	9	7(100%)	13	13(100%)	3	3
1.1-1.5KG	42	28(66.6%)	45	32(71.1%)	1	1
1.6-2KG	74	6(8.10%)	66	7(10.6%)	1	
2.1-2.5KG	64	3(4.6%)	87	5(5.7%)	1	
>2.5KG	46	0	22	1(4.5%)		

*Chisquare value 255, p <0.001.

Table 6: Causes Of Perinatal Deaths In Present Study

CAUSES OF PERINATAL DEATHSs	Baby 1	Baby 2	Baby 3
PREMATURITY	30	35	4
BIRTH ASPHYXIA	5	8	
IUGR	6	9	
SEPTICEMIA	4	5	
CONGENITAL ANOMALIES	1	1	

V. Conclusion:

There is an increase in the incidence of multiple pregnancy especially in the 21-25 years age group and primiparas due to the infertility management and resulting in maternal complications like preterm labour, anemia, hypertensive disorders, postpartum haemmarage being most common .Gestational age less than 36 weeks is associated with increased perinatal mortality .Birthweight less than 1.5kg and intertwin delivery interval were other important determinants of perinatal mortality. Monochorionicity associated with high perinatal mortality.

Increased perinatal mortality is due to lack of access to effective neonatal care. Increasing care and improving resource strategies including the number and quality of health professionals at least in district health centers where high risk pregnancies can be taken care of and improving terms and conditions will be key for reducing maternal and perinatal morbidity and mortality by which the millennium developmental goal 4 and 5 can be achieved.

References

[1]. Anna dera,Grzegorz H. Breborowicz, Louis Keith: Twin Pregnancy – Physiology, complications and mode of delivery. Archives of perinatal Medicine, 2007; 13(3): 7-16.
[2]. Joyce A.Martin, Brady Hamilton, Michelle J.K. Osterman: Three Decades of Twin Births in the United states, 1980-2009.NCHS Data Brief No.80.Jan 2012.1-7.
[3]. Fernado Arias, Shirish N Daftary, Amarnath G Bhide :Multifetal Gestation chapter 12 , In Practical Guide to high risk pregnancy and delivery-A south Asian perspective ,3rd edition, Elsevier ppublications, 2008, pg 293-322.
[4]. NaushabaRizwan, Razia Mustafa Abbasi, Razia Mughal: Maternal morbidity and perinatal outcome with in twin pregnancy. J Ayub Med Coll Abbottabad 2010 ; 22(2) : 105-107.
[5]. Yuel Veronica Irene, Kaur Vaneet. An Analytical study of pregnancy outcome in multifetal gestation. J ObstetGynaecol India Vol.57, No.6: Nov/Dec 2007. Pg 509-512.
[6]. Hung GiKweon, Jin Sin Lee, Woan Suk Cho,Geon O Kim, Ihn Goo Kang, Yong Tak Kim, et. al; : Statistical Analysis of Multi fetal pregnancy for 6 years (1984 to 1989), Vol.35, No.5, May 1992 : 674-681.
[7]. ApichartChittacharoen, DuangtipSinghakun,NathpongIsrangura Na Ayudhya. Pregnancy outcome of twin pregnancy in Ramathibodi Hospital. J Med Assoc Thai 2006; 89 (suppl 4) : S76-80.
[8]. KR Chaudhari Perinatal outcome of second twin. Bombay Hospital Journal, Vol.51, No.4, 2009 : 437-438.
[9]. Armson BA, O'Connell C, Persad V, Joseph KS, Young DC, Baskett TF : determinants of perinatal mortality and serious neonatal morbidity in second twin. Obstet Gynecol. 2006, Sep; 108 : 556-64.
[10]. L Kouam, J Kandom-moyo. Fetal risk factors in twin pregnancies. Critical analysis of 265 cases. Journal of Obstetrics and gynaecology 04/1995; 90(3) : 155-62.