ASSESSMENT OF TWIN PREGNANCY AND NEONATAL OUTCOME IN TERTIARY CARE CENTER, KIMS, KARAD

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ABSTRACT: INTRODUCTION: Twin pregnancy is a high risk pregnancy with different prevalences in different regions of the world which is on the rise due to growing use of assisted reproductive technology. The objective of this study is to determine the frequency of twin pregnancy and the neonatal outcome of these pregnancies. **MATERIAL AND METHOD:** This is descriptive analytical study conducted in Aug 2012- Aug 2013 in KIMS, karad on 62 twin deliveries, by assessing maternal age, gestational age, newborn's gender, presentation of twins, birth weight, Apgar score, fetal anomalies and neonatal morbidity and mortality. **FINDINGS:** After assessment of 5211 deliveries performed from 2012 -2013, the frequency of twin pregnancy was found out to be 1 in 86 cases(1.16%).The mean age of mother was higher in twin pregnancies. The mean gestational age of twin pregnancy was 34.3 weeks. Apgar score and neonatal weight were significantly lower in twin pregnancy ($p<0.001$). Furthermore, visible anomalies and mortality was significantly higher in neonates born to twin pregnancies ($p<0.0001$). The ratio of male to female was 1. **CONCLUSION:** This study indicated that twin pregnancy is a high risk condition and entails greater neonatal complication compared to singleton pregnancy. Therefore, it is recommendable to have greater perinatal care and perform deliveries in well-equipped centers by an obstetrician.

KEYWORD: Twin pregnancy.

INTRODUCTION: During the last 25 years, the prevalence of twin and higher order multiple pregnancies has been rising considerably due to novel therapies of infertility Martin et al and Aston et al study reported the prevalence of twin pregnancies to have risen from 18.9 cases per 1,000 live birth in 1980 to 32.1 cases in 2005.^{1,2} The frequency of monozygotic twin is almost constant throughout the world and is independent of race, heredity, age and parity. On the other hand, the incidence of dizygotic twin pregnancy is considerably influenced by race, heredity, maternal age, parity and specially drugs affecting reproduction, thus giving rise to different frequency throughout the world.^{3,4} Unusual increase in multiple pregnancies is a public health concern. The higher rate of preterm labor in these pregnancies compromises the survival of neonates and increases their risk of life long morbidities. Different studies have indicated that in addition to perinatal mortality and morbidity attributable to preterm labor, fetuses in multiple pregnancies are susceptible to certain complications, such as congenital anomalies as well as twin –twin transfusion syndrome, intrauterine growth retardation, prematurity. Multiple pregnancies increase the rate of maternal complication.^{5,7}

MATERIAL AND METHODS: This is a descriptive analytical study conducted in Krishna institute of medical sciences, Karad in 2012-2013. In this study, 62 twin pregnancies and neonatal outcomes were assessed. All participants in the study had a gestational age of above 28 weeks, with no history of systemic disease. The information collected include maternal age, gestational age, neonate's gender,

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presentation of twins, Apgar score, fetal anomalies and neonatal morbidity and mortality which were derived from the medical files. The data recorded is analyzed using independent t test.

FINDINGS: In our study, the total number of deliveries in year 2012-2013 were 5211, with 62 cases of twin pregnancy, yielding a frequency of 1 in 86 pregnancies (1.16%). In twin pregnancies the maternal age ranged from 18 to 45 years. The minimal and maximum gestational ages were 29 and 38 weeks for the twin group. No significant difference was found in terms of parity (Table 1), no significant difference was noted in terms of 1- and 5- min Apgar scores.(Table 3)

In present study, the minimum and maximum weight of the first and second twins was 1,450 gm and 2,800 gm respectively. Although cephalic- cephalic presentation was the most frequent type in both groups, the incidence of breech presentation was significantly higher in the twin group ($p < 0.001$). The most frequent type of presentation was cephalic – cephalic in the twin group (36.36%) (Table 4). In twin group contained 50% girls and 50% boys, indicating no significant difference between the groups. ($p = 0.504$)

The neonatal mortality rates for twin group was 12 cases (19.35%) indicating a significant difference. ($p = 0.009$)

DISCUSSION: In our study, the frequency of twin pregnancy found to be 1 in 86 cases (1.16%) while it was reportedly 1.4% in the study by Basirat et al⁸ and 1.8% in another study by Kavehmanesh et al.⁹ The prevalence of twin pregnancy was reported to be 1 in 80 births by Usta in United state(6), 1 in 48 births by Musilli et al in Kenya¹⁰ and 1 in 43 births by Mutihir et al in Nigeria.¹¹

In general, the growing use of assisted reproductive technology is causing an increase in the prevalence of twin pregnancy throughout the world.^{6,10,12} In a study by Klasa et al,¹³ the incidence of twin pregnancy was reported to be 1%, while it was 0.84% during the 1980s and 1.28% during the 1990s. The prevalence of twin pregnancy is influenced by racial and genetic factors, as well as some environmental factors and use of assisted reproductive technology, accounting for the different figures reported from different regions. In our study, the mean maternal age, was higher in the twin group. Szymusik et al¹⁴ reported the mean maternal age of mother with twin pregnancy to be significantly higher in women aged more than 40 years compared to those aged 31 -35 in study group.

Our study observed no difference in parity in twin pregnancy, which corroborates the findings of Blickstein et al.¹⁵ However, Musilli et al¹⁰ reported twin pregnancy to be significantly more frequent in women with lower parity and Szymusik et al¹⁴ observed twin pregnancy to be significantly more frequent in multiparous women. This difference may be accounted for differences in genetics and use of assisted reproductive technology. Our findings indicate the mean gestational age of twin pregnancies to be 34.3 weeks. Mazhar et al¹⁶ in Pakistan reported the mean gestational age of twin pregnancies as 36 weeks, indicating significantly higher rate of preterm labor in twin pregnancies.

In our study, the mean Apgar score values of 1st and 5th minutes was significantly lower for the twin group, which is in line with the findings of Jhab, Kavehmanesh and Melamed^(7,9,17). One reason may be the relationship of gestational age and birth weight with Apgar score; considering the higher prevalence of preterm labour in twin pregnancy as well as the lower birth weight, these neonates will tend to have lower Apgar score.

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In present study, the mean birth weight of newborns of twin pregnancy was significantly lower than those of singleton pregnancy – 2,122gm for the first twin and 2,320 gm for second twin. In the study by Kato et al¹⁸ the mean birth weight of twin pregnancies was also lower: 2,590 gm for the first twin and 2,560 for second twin. The difference between weight of newborns may reflect the difference in quality of perinatal care and consequently the mean age on delivery and fetal growth retardation.

In our study, neonates in twin pregnancies, yielding a boy to girl ratio was 1:1. Actually, other studies showed the number of male newborn was smaller in twin pregnancies. Mutihir et al¹¹ reported 54.7% of twin pregnancies to be boys, which was not significant. In the study by Kavehmanesh et al⁹ 58.2% of neonates were girls and 41.8% were boys. However, Melamed et al and Chittacharoen et al^{17,20} indicated that female neonates were significantly more frequent in twin pregnancies. This may be due to the tendency of genetically female zygotes for division or the nutritional and spatial limitations associated with the presence of multiple fetuses. In our study neonatal mortality rate was significantly higher. Studies by Jadranko, Mutihir, Mazhaar and Chittacharoen^{11,12,16,20} Basirat et al did not observe any difference in terms of neonatal mortality. The greater mortality rate of twin pregnancies may be accounted for by higher frequency of preterm labor and fetal anomalies, intrauterine growth retardation, preeclampsia and placental abruption.

Maternal age	No. of cases
18-20 yrs	5 (8.09%)
21-25 yrs	10 (16.12%)
26-30yrs	13 (20.96%)
31-35 yrs	25 (40.32%)
36-40yrs	9 (14.51%)
Total	62 (100%)

Table 1: Relation between maternal age, gestational age

Gestational age in weeks	No. of cases
29- 31 wk	18 (29.03)
32-34wk	32 (51.62%)
35-38wk	12 (19.35%)
total	62 (100%)

Table 2: Relation between gestational age

Characteristics of neonatal	Twin pregnancy		P value
	First	second	
Apgar min 1	7/7	7/9	0/000
Apgar min 5	9/1	9/1	0/000
Neonatal weight	2122	2302	0/000

Table 3: Relationship between 1- and 5- min Apgar score and neonatal weight twin pregnancies

Data is present as median.

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%	Presentation
36.36	Cephalic-cephalic
34.45	Cephalic –breech
17.27	Breech-cephalic
11.81	Breech-breech
0.02	Others

Table 4: Separated types of presentation of twins in twin pregnancies

Neonatal outcome	No. of cases
NICU admission for preterm care	50 (80.64%)
Neonatal mortality	12 (19.35%)
Fetal anomalies	—

Table 5: Neonatal outcome

CONCLUSION: Twin pregnancy is a high risk condition with higher rates of fetal and maternal complication. It is recommended to antenatal care in shorter intervals and higher precision for twin and higher order multiple pregnancies to reduce the complication as much as possible. Moreover, twin pregnancies should be delivered in centers with facilities for special care of low weight and premature newborns.

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