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Original Research Article

INCIDENCE OF MULTIPLE PREGNANCY AND ITS ASSCIATED CHARACTERISTICS AND ITS OUTCOME IN A TERTIARY CARE CENTER IN NORTH-EAST INDIA

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ABSTRACT

Background: The incidence of twin pregnancy has been increasing due to use of assisted reproductive technology and increasing number of women having pregnancy at advanced age. It is associated with maternal and neonatal complications which can lead to morbidity and mortality. **Objectives:** The present study was done to estimate the proportion of twin pregnancies and to determine its associated characteristics and also to assess the maternal and perinatal outcome.

Material and Methods: A prospective study was carried out in the Dept. of Obstetrics & Gynaecology, JNIMS, Porompat during the period of Sept. 2020 to Aug. 2022 among 618 pregnant women aged above 18 years and period of gestation above 28 weeks admitted in the Dept. of Obstetrics & Gynaecology JNIMS, Porompat. Eligible women were consecutively enrolled as per Obstetrics & Gynaecology admission registered list. Records of pregnant women with twin pregnancy, ultrasonography reports and proforma were used as tools for the study.

Results: Out of 618, 16 turned out to be twin so, incidence of twin pregnancy in this study was 2.5%. Mean (SD) age of the mothers with twin pregnancy was 29.3 (4.6). Multipara was dominant among twin pregnancy. Period of gestation (SD) was lower for twin pregnancy (35.0; 0.92 weeks) than singleton pregnancy (39.2; 1.5 weeks) in this study. Incidence of preterm delivery was seen in 37.5% of twin pregnancy. Half of them had anaemia. And a quarter of them needed CS. But no maternal and neonatal death was observed in this study.

Conclusion: Twin pregnancy rate in the study area was 2.5%. Lower period of gestation, pre-term and anaemia were important associated factors. More than one-third (37.5%) needed CS.

Keywords: Associated factors with multiple pregnancy, Neonatal complications, Twin pregnancy.

INTRODUCTION

The most common variety of multiple pregnancy is twin pregnancy, which is considered a high-risk pregnancy. Spontaneous twin pregnancy accounts for 2–4% of the total number of births around the globe.[1-3] The lowest incidence occurs in the Mongoloid and Asian countries (lowest in Japan) and is highest in Nigeria. This difference is mainly due to dizygotic twin pregnancies, since the prevalence of monozygotic pregnancies is practically constant, ranging from 3–5 per 1,000 births.[4]

Twin pregnancies may result from two fertilization events or from a single fertilization followed by an erroneous splitting of the zygote. So, it can either be monozygotic or dizygotic. It is associated with an increased risk of maternal and neonatal complications, both in developed and developing countries.

The incidence of twins has been on the rise due to multiple reasons. These include women conceiving at

an advanced age, assisted reproductive techniques (ART) such as drugs for induction of ovulation, in-vitro fertilization (IVF) and a variety of inter-fallopian transfer procedures. Other factors contributing to twin pregnancy include family history, previous twin delivery, maternal weight, height and dietary habits.[5]

Multiple pregnancy remains one of the highest-risk situations for the mother, fetus and neonate despite recent advances in obstetrics and neonatal care. Twin pregnancy occurs in 1 in 80 pregnancies. It accounts for preterm birth (12.2%) and neonatal deaths (15.4%) as compared to singleton pregnancy. Twin pregnancies have a higher risk of miscarriage, pre-eclampsia, postpartum haemorrhage, preterm labour, anaemia, polyhydramnios, fetal malformations, stillbirths, increased rate of caesarean section, etc.[6] Moreover, maternal death associated with a twin pregnancy is 2–5-fold higher than a singleton pregnancy.[7]

Thus, twin pregnancies require close surveillance at an early stage to detect complications, good antenatal care and delivery in hospitals with facilities available for neonatal and intensive care, thereby preventing neonatal and maternal mortality and morbidity.

Hence, the present study aimed to estimate the incidence of twin pregnancy among pregnant women and the factors associated with twin and also to study the maternal and perinatal outcomes of twin pregnancy.

Objectives

The objective of the current study was to estimate the proportion of twin pregnancy among pregnant women and the characteristics associated with twin pregnancy and also to assess the perinatal outcomes of twin pregnancy.

MATERIALS AND METHODS

A prospective observational study was carried out in the Department of Obstetrics and Gynaecology, JNIMS, Porompat during the period Sept 2020-Aug 2022. The study participants were pregnant women aged ≥18 years with a period of gestation >28 weeks, admitted to the Department of Obstetrics and Gynaecology, JNIMS, Porompat. Women with serious medical and surgical problems were excluded.

Considering an earlier study finding of 1.27% incidence of multiple pregnancy, 95% confidence level and an absolute allowable error of 1.25, a sample size of 618 was calculated. All the eligible women were selected consecutively and enrolled as per the OBS & Emergency admission register list until the required sample size was obtained. Clinical records and USG reports were retrieved and relevant information were noted by using a pre-tested proforma. These women were followed up until discharged from the hospital.

The independent variables were maternal age, parity, gestational age, literacy and BMI while the outcome variables were pre-eclampsia, mode of delivery and any complications thereafter.

Collected data were analysed using SPSS version 21.0 (IBM). Descriptive statistics such as mean, standard deviation (SD) and percentages were used. Inferential statistical tests such as the t-test, chi-square test and Fisher's exact test were used to determine statistical significance. A p-value of < 0.05 was considered statistically significant. Approval for the study was obtained from the Institutional Ethics Committee (IEC), JNIMS, Imphal. Written informed consent was obtained from the study participants before data collection.

RESULTS

Completed data sets could be collected from 618 pregnant women. There was no refusal. A total of 16 were found to have twin pregnancy, giving a proportion of twin pregnancy as 2.5%. The mean (SD) age of women with twin pregnancies was 29.3 (4.6) years. There was no statistically significant difference in twin pregnancy (p=0.905), by residency (p=0.902) or by religion.

The period of gestation was significantly (<0.05) lower among twin pregnancy (35.0 ± 0.92 weeks) than singleton pregnancy (39.2 ± 1.5 weeks). [Table 1]

Table 1: Distribution by period of gestation in weeks

Groups	Gestation in weeks (Mean ± SD)	t-test (p-value)
Singleton pregnancy	39.2 ± 1.5	t = -7.33
Twin pregnancy	35.0 ± 0.92	p = 0.000

Table 2: Distribution of participants by associated factors

Factors	Singleton pregnancy (%)	Twin pregnancy (%)	p-value
Anaemia			
• Yes	218 (36.2)	8 (50.0)	0.42
• No	384 (63.8)	8 (50.0)	
Malpresentation			
• Yes	70 (11.6)	6 (37.5)	0.02
• No	532 (88.4)	10 (62.5)	
Eclampsia			
• Yes	30 (4.9)	2 (12.5)	0.34
• No	572 (95.1)	14 (87.5)	
Pre-term delivery			0.00

• Yes • No	14 (2.4) 588 (97.6)	6 (37.5) 10 (62.5)	
Caesarean section • Yes • No	 54 (8.9) 584 (91.1)	 4 (25.0) 12 (75.0)	 0.02
Low birth weight • Yes • No	 66 (10.9) 536 (89.1)	 8 (50.0) 8 (50.0)	 0.00
Parity • Primipara • Multipara	 290 (48.2) 312 (51.8)	 6 (37.5) 10 (62.5)	 0.55
Apgar score at 5min • ≥9 • <9	 572 (89.1) 30 (10.9)	 10 (62.5) 6 (37.5)	 0.00

Anaemia was seen in 50% of twin pregnancy and 36.2% in singleton pregnancy. But the difference was found not to be statistically significant (p>0.05). Malpresentation was seen in 37.5% of twin pregnancy and it was statistically significant (p=0.02). Pre-eclampsia was seen in 12.5% of twin and only 4.9% in case of singleton. However, the difference was statistically insignificant (p > 0.05). Preterm delivery was seen in 37.5% of twin and only 2.4% of Singleton and the difference was statistically significant (p<0.05). Caesarean section was seen in 25.0% of twin pregnancies and 8.9% among singleton pregnancies and the difference was found to be significant (p=0.02). Half of twin pregnancy had low birth weight (LBW) whereas only 10.9% singleton pregnancy. This finding was statistically significant (p=0.000). No statistically significant difference could be observed between primipara and multipara (p=0.55). Apgar score less than 9 was seen in 37.5% of twin pregnancy and 10.9% among singleton pregnancy and the difference was again statistically significant (p=0.00) (Table 2)

Cephalic-cephalic presentation was the most common (10; 62.5%) among the twin pregnancies. It was followed by cephalic-breech (4; 25.0%) and breech-cephalic (2; 12.5%). [Table 3 & Figure 1]

Table 3: Distribution of presentation among twin pregnancies

Presentation	Frequency	Percentage
Cephalic-cephalic	10	62.5
Cephalic-breech	4	25.0
Breech-cephalic	2	12.5
Total	16	100.0

The mean (SD) weight of babies in singleton pregnancy was 3.0 (0.4) kg whereas, in twin pregnancy it was 2.3 (0.2) kg. This difference was found to be statistically significant (p=0.00). [Table 4]

Table 4: Distribution by weight of baby

Groups	Weight of baby in kg (Mean ± SD)	t-test (p-value)
Singleton pregnancy	3.0 ± 0.4	t = -2.27 p = 0.00
Twin pregnancy	2.3 ± 0.2	

There was no perinatal death seen.

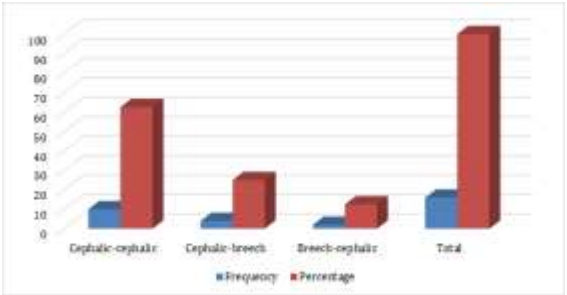


Figure 1: Distribution of presentation among twin pregnancies

DISCUSSION

The incidence of twin pregnancy in this study was 2.5%. This finding is in concordance with the study by Bhalla S et a where incidence was 2.8%.[7] Almost similar finding was also found in the study by Upreti P et al where incidence was 1 in 52 or 1.9%.[8] Pandey MR et al had the same finding.[9]

The mean age of women with twin pregnancy was 29.3 years with a standard deviation of 4.6 years and it was not significantly different with mean age of singleton pregnancies. Mean age of twin pregnancies was almost similar with the studies by Upreti P et al and Pandey MR et al where mean age was 25.4 years.[8,9] In a study by Basirat et al the mean age was not significantly different for single or twin pregnancy.[10] The highest incidence of multiple pregnancy was found in 21-25 years of age group (42%).[11]

Multipara among twin pregnancy was seen in 62.5% which is consistent with the findings made by Ali J et al and Masuda S et al where multipara was seen in 66% and 65.2% respectively.[11,12] Rezavand N et al, Bangal VB et al and Blickstein et al observed no difference in parity between singleton and twin

pregnancies.[13-15] The current study got similar results.

Period of gestation was significantly ($p<0.05$) lower among twin pregnancy (35.0 ± 0.92 weeks) than singleton pregnancy (39.2 ± 1.5 weeks) in this study. Similar findings were noted in the studies by Upreti P et al and Muzhar et al where both had mean gestational age of 35 weeks.[8,16] Incidence of preterm delivery was seen in 37.5% of twin pregnancy in this study which is almost same with other study findings done elsewhere.

Preeclampsia was seen in 12.5% in this study which is almost similar to the study by Upreti P where it was 17.9%. Anaemia was seen in half of the women in this study. Similar finding was noted in the study by Ali J et al where anaemia was seen in 45% of twin pregnancies.[12] In the study by Bhalla S et al, anaemia was seen in 62% which is higher than this study.[7] Maternal complications like preterm labour, anaemia, PIH, are common in the study by Deepthi HR et al.[17] Caesarean section was seen in 25% of twin pregnancy in this study. CS was higher in most of the studies, Bhalla S et al had CS rate of 54%.[7] CS rate in Rami BD et al study was 40%.[18] No neonatal and maternal mortality was seen in this study. This finding is comparable with other previous study findings.

The study being a hospital-based study may not be representative of all the pregnancies in the general community. Hence, the findings may be valid only for the study-area.

CONCLUSION

The proportion of twin pregnancy was found to be 2.5% which is comparable with other study findings. The period of gestation was found to be lower in the twin group. The important factors associated with twin pregnancy were malpresentation, pre-term delivery, Caesarean section, low birth weight and low Apgar score. Cephalic-cephalic presentation was the most common among the twin pregnancies. No perinatal death was seen.

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REFERENCES

1. Collins J. Global epidemiology of multiple birth. Reprod Biomed Online. 2007;15(Suppl 3):45–52.
2. Young BC, Wylie BJ. Effects of twin gestation on maternal morbidity. Semin Perinatol. 2012;36(03):162–8.
3. Walker MC, Murphy KE, Pan S, Yang Q, Wen SW. Adverse maternal outcomes in multifetal pregnancies. BJOG. 2004;111(11):1294–6.
4. Bortolus R, Parazzini F, Chatenoud L, Benzi G, Bianchi MM, Marini A. The epidemiology of multiple births. Hum Reprod Update. 1999;5(02):179–87.
5. Reddy MA, Madhavi KSS, Niharika. A study on risk of twin pregnancy. IAIM. 2016;3(10):139–45.
6. Gupta D, Mital P, Meena BS, Benwal D, Saumya, Singhal S. Comparative assessment of fetomaternal outcome in twin pregnancy with singleton pregnancy at tertiary care centre. Int J Reprod Contracept Obstet Gynecol. 2017;6(1):2395–2400.
7. Bhalla S, Bhatti SG, Devgan S. Obstetric and perinatal outcome of twin pregnancy: a prospective study in a tertiary care hospital in North India. Int J Reprod Contracept Obstet Gynecol. 2018;7:2435–41.
8. Upreti P. Twin pregnancies: incidence and outcomes in a tertiary health centre of Uttarakhand, India. Int J Reprod Contracept Obstet Gynecol. 2018 Sep;7(9):1–6.
9. Pandey MR, Kshetri BJ, Dhakal D. Maternal and perinatal outcome in multifetal pregnancy: a study at a teaching hospital. Am J Public Health Res. 2015;3(5A):135–38.
10. Basirat Z, Hajiahmadi M. Comparison of maternal and fetal outcomes in twin and single pregnancy. Baol Univ J. 1385;8(2):47–50.
11. Masuda S, Sabera K, Rifat A, Parui A, Abu B, Siddique S. Maternal and perinatal outcome of twin pregnancy in a tertiary hospital. Ibrahim Card Med J. 2011;1(2):35–39.
12. Ali J, Patar J, Srivastava K. A clinical study of maternal & perinatal outcome in multiple pregnancies in Guwahati Medical College and Hospital, Guwahati, Assam. Sch J App Med Sci. 2017;5(11A):4377–80.
13. Rezavand N, Veisi F, Malek-Khosravi S, Zangeneh M, Kohzadi M. Assessment of frequency of twin pregnancy and neonatal outcome in deliveries of Mo'tazedi Hospital, Kermanshah in 2004–2007. J Obstet Gynecol India. 2014;64(1):19–22.
14. BangaI VB, Patel SM, Khairnar DN. Study of maternal and fetal outcomes in twin gestation at tertiary care teaching hospital. Int J Biomed Adv Res. 2012;3(1):758–62.
15. Blickstein I. Maternal mortality in twin gestations. J Reprod Med. 1997;42(11):680–84.
16. Mazhar S, Peerzada A, Mahmud G. Maternal and perinatal complications in multiple versus singleton pregnancies. J Pak Med Assoc. 2002;52(4):143–47.
17. Deepthi RH, Pradeep RM, Lalitha S. Retrospective study of maternal and perinatal outcome of twin pregnancy in a teaching hospital. J Dent Med Sci. 2015;14(1):29–32.
18. Rami BD, Kaul S. Study of fetomaternal outcome in twin pregnancy. Int J Reprod Contracept Obstet Gynecol. 2019 Dec;8(12):4762–65.