

Original Article

Study of Maternal and Perinatal Outcomes in Multiple Pregnancy

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ABSTRACT:

Background: Multiple gestations or multiple pregnancies occur when two or more fetuses are conceived at the same time in the same woman, it can either be a monozygotic or dizygotic pregnancy. Multiple gestations are associated with increased maternal and fetal complications. **Aim of the study:** To study the perinatal outcome and maternal complications that can occur due to multiple pregnancies and hence take appropriate measures to have a better outcome. **Materials and methods:** This is an observational study of patients with multiple pregnancy admitted in our hospital from January 2015 to September 2016. All the patients admitted in ANC ward and labor room with multiple gestation from January 2015 to September 2016. Complete history was taken including the history of multiple pregnancy in the previous pregnancy or in the family and history of taking ovulation induction drugs was recorded. Clinical examination was done, fetal lie and presentation was noted. **Results:** We observed that the majority of subjects in the study were in the age group of 21 to 30 years [81.2%]. In case of twin 1, mean birth weight of babies born between 28-32 weeks was 1.37 kg, mean birth weight of babies born between 33-36 weeks was 1.8 kg, and mean birth weight of babies born beyond 37 weeks was 2.1 kg. In case of twin 2, mean birth weight of babies born between 28-32 weeks was 1.3 kg, mean birth weight of babies born between 33-36 weeks was 1.6 kg, and mean birth weight of babies born beyond 37 weeks was 2.1 kg. Significant association was observed between parity and anemia, PPH. 40.7% of Multigravida and 11.5% of primigravida had anemia as complication, and 25.9% of multigravida and none in primigravida had PPH as complication. **Conclusion:** We conclude that perinatal mortality was more in babies delivered between 28-32 weeks due to respiratory distress syndrome. Due to proper ANC care, timely admission and intervention we were able to avoid complications like eclampsia, obstetric hysterectomy due to postpartum hemorrhage, ICU admission and maternal mortality.

Keywords: Multiple pregnancy, twin pregnancy, complications

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INTRODUCTION:

Multiple gestations or multiple pregnancies occur when two or more fetuses are conceived at the same time in the same woman, it can either be a monozygotic or dizygotic pregnancy.¹ Multiple gestations are associated with increased maternal and fetal complications.²⁻⁴ Although the rates of multiple pregnancies have shown to decline in Europe over the last decades, these rates are still higher compared to those reported in developing countries. For example, in Europe, incidence of multiple pregnancy rates was 21.7% in 2008 compared with 22.3% in 2007, 20.8% in 2006 and 21.8% in 2005 5-7. Recent studies in Nigeria

reported a twinning rate ranging from 1.4%-4.7%.⁸⁻¹¹ The higher multiple pregnancy rate in Europe is attributed to the increased use of assisted reproductive techniques as well as the use of ovulation stimulation agents.^{12, 13} The risk factors for multiple gestation births have been well documented.^{14, 15} These include family history of twins, heredity, advanced age, serum estradiol concentration, race, and use of assisted reproductive technique. Furthermore, women with multiple gestations are at increased risk of pre-eclampsia, preterm labor, delivery of low birth weight infant, antepartum or postpartum hemorrhage, caesarean section delivery, congenital anomalies, intrauterine growth retardation,

maternal and perinatal death as compared to women with singleton gestations.¹⁶⁻¹⁹ In addition, multiple gestations are associated with increased cost to families and health care system.²⁰⁻²³ All these factors are the reasons why multiple pregnancies remain a major public health problem as compared to singleton pregnancies, particularly in sub-Saharan Africa, given the high maternal mortality rate in the region. Thus, it is important to conduct the study at this particular place to have awareness of risks and early detection which will guide the interventions. This might make proper allocation of scarce resources and prevent death of mothers with multiple pregnancy and their babies due to complications. Hence, the present study was conducted to study the perinatal outcome and maternal complications that can occur due to multiple pregnancies and hence take appropriate measures to have a better outcome.

MATERIALS AND METHODS:

This is an observational study of patients with multiple pregnancy admitted in our hospital from January 2015 to September 2016. All the patients admitted in ANC ward and labor room with multiple gestation from January 2015 to September 2016.

INCLUSION CRITERIA-

- All women admitted to the antenatal ward and labor room after clinical or ultrasound diagnosis of multiple gestation.

EXCLUSION CRITERIA-

- Patients coming to out-patient department with multiple gestation.
- One or more fetuses delivered outside our hospital.

Complete history was taken including the history of multiple pregnancy in the previous pregnancy or in the family and history of taking ovulation induction drugs was recorded. Clinical examination was done, fetal lie and presentation was noted. Per vaginal examination was performed when the patient was in labor. Routine investigations like hemoglobin percentage, urine for sugar, albumin, microscopy and blood group was done for all patients. Special investigations like blood urea, serum creatinine, serum uric acid, blood sugar level, liver function tests, complete hemogram, funduscopy, bleeding time, clotting time and urine culture was done whenever necessary. Complications in the mother during antenatal

Figure 1: Age distribution of Patients

period like hypertension, polyhydramnios was noted. USG was done for confirmation. Intrapartum fetal monitoring was done by intermittent auscultation of the fetal heart sounds. Outcome of pregnancy was noted as either, preterm delivery, full term vaginal delivery, instrumental delivery or cesarean section. Indication for cesarean section was recorded. Incidence of post-partum hemorrhage, type of placenta, and presence of retroplacental clots was noted. Both the mother and the babies were followed up until discharge from the hospital. Statistical analysis of the maternal problems during the antepartum, intrapartum and postpartum period was done using the test of proportion or any other suitable statistical analysis. Chi-square and Student's t-test were used for checking the significance of the data. A p-value of 0.05 and lesser was defined to be statistically significant.

RESULTS:

Table 1 shows the age distribution of mothers in the study. We observed that the majority of subjects in the study were in the age group of 21 to 30 years [81.2%]. {Fig 1} Table 2 shows the mean birth weight of Twin 1 and 2. In case of twin 1, mean birth weight of babies born between 28-32 weeks was 1.37 kg, mean birth weight of babies born between 33-36 weeks was 1.8 kg, and mean birth weight of babies born beyond 37 weeks was 2.1 kg. in case of twin 2, mean birth weight of babies born between 28-32 weeks was 1.3 kg, mean birth weight of babies born between 33-36 weeks was 1.6 kg, and mean birth weight of babies born beyond 37 weeks was 2.1 kg. {Fig 2} Table 3 shows the association between Parity and maternal complications. We observed significant association was observed between parity and anemia, PPH. 40.7% of Multigravida and 11.5% of primigravida had anemia as complication, and 25.9% of multigravida and none in primigravida had PPH as complication. This difference was significantly higher in Multigravida. No significant association was observed between other complications and parity. {Fig 3}

Table 1: Age distribution of mothers in the study

Age	Number of patients	Percentage (%)
<20 years	11	13.8
21-30 years	65	81.2
>30 years	4	5.0
Total	80	100

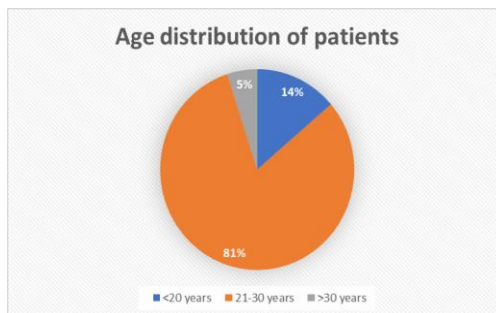


Table 2: Mean birth weight of Twin 1 and 2

Gestational age at time of Labor	Mean birth weight of Twin 1 (kg)	Mean birth weight of Twin 2 (kg)
28-32 (n=15)	1.37	1.3
33-36 (n=25)	1.8	1.6
>37 (n=40)	2.1	2.1

Figure 2: Mean birth weight of twin 1 and 2

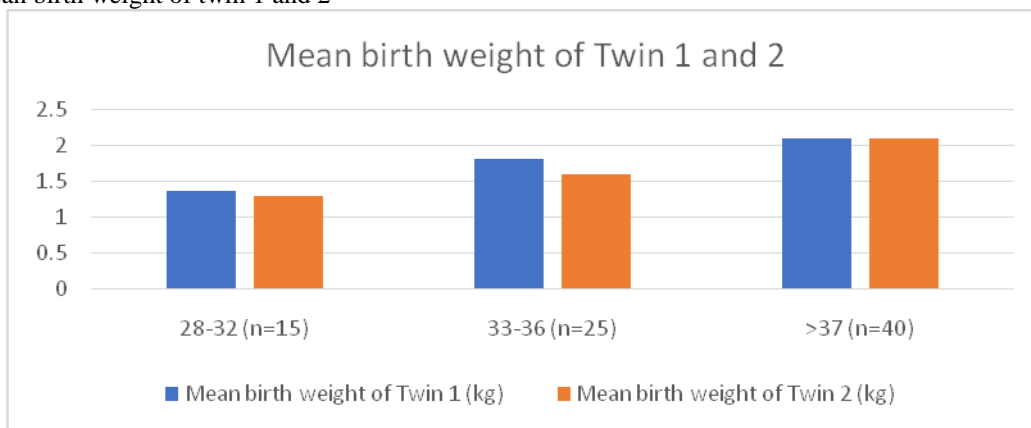
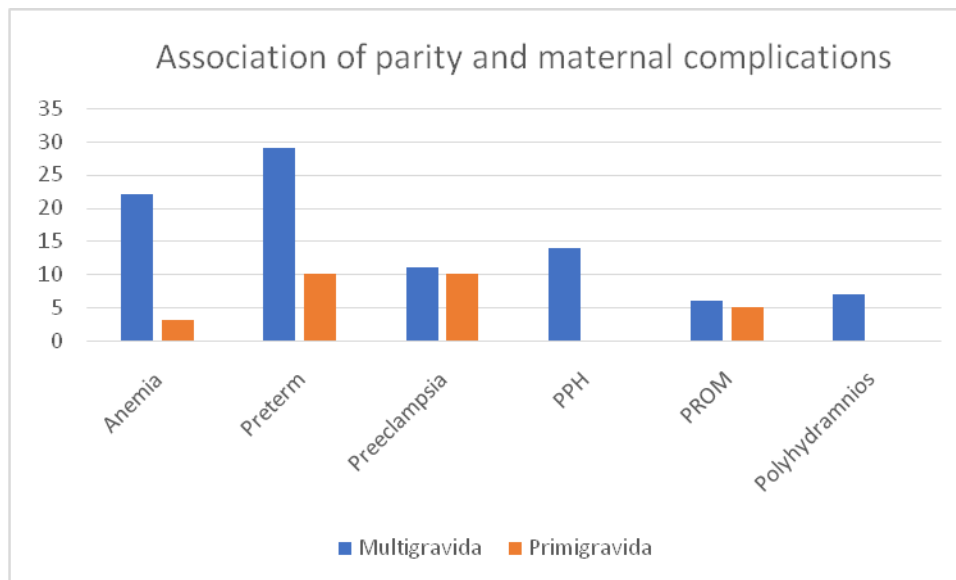


Table 3: Association between Parity and maternal complications

	Parity				p-value
	Multigravida		Primigravida		
	Number	Percentage (%)	Number	Percentage (%)	
Anemia	22	40.7%	3	11.5%	0.008
Preterm	29	53.7%	10	38.5%	0.201
Preeclampsia	11	20.4%	10	38.5%	0.085
PPH	14	25.9%	0	0.0%	0.004
PROM	6	11.1%	5	19.2%	0.323
Polyhydramnios	7	13.0%	0	0.0%	0.055

Figure 3: Association of parity and maternal complications



DISCUSSION:

Multiple pregnancies are associated with poor maternal and fetal or neonatal outcomes and possible long term developmental problems. The frequency of multiple pregnancies is higher in our hospital as it is a tertiary care center. In the study conducted from January 2015 to September 2016, 9263 deliveries occurred. Out of it, 80 were multiple pregnancy and hence, the frequency of multiple pregnancy is 0.86%. Among these 80 cases, one case was of triplet pregnancy. Patient with triplet pregnancy was 26 years old Primigravida with family history of multiple pregnancy. Patient was booked at our hospital. She had regular antenatal visits and all relevant investigations were done. During 36 weeks of gestation patient developed pre-eclampsia. Termination of pregnancy was done by Elective LSCS. There were no major complications like impending eclampsia or PPH. The babies born were 1.2 kg, 3 kg and 2.2 kg. Baby 1 had low birth weight and was shifted to NICU. It was discharged to mother-side after 8 days. Both mother and babies were discharged from hospital with good maternal and fetal outcome. In a study conducted by Mahendra Raj Pandey et al²⁴, study women in age group between 21-30 were 81.2% ,>30 were 5% and, 20 were 13.8%. In present study women in 21-30 age were 66.2, >30 were 10.8% and < 20 were 23% as compared to other studies. In a study conducted by Qazi et al²⁵, there were 35% primigravidas and 65% multigravidas. In a study conducted by Ri- Na Suetal²⁶ study 60.5% patients were Primigravidas and 39.5% were multigravidas. In present study, there were 32.5% primigravidas and 67.5% multigravidas. Mahendra Raj Pandey etal²⁴ study concluded that there were 95.7% spontaneous conception and 2.2% after ovulation induction. In present study 76.2% had spontaneous conception and 23.8% were after using

ovulation induction drugs. History of multiple pregnancy in family was present in 4.3% of the women according to the study conducted by Mahendra Raj Pandey etal was absent in 95.7%. In our study history of multiple pregnancy in family was present in 2.5% of the women and absent in 97.5%.²⁴ According to study conducted by Ri-Na Suetal, major complication was preterm labor. According to Mahendra Raj Pandey and etal major complication was preterm labor. According to Qazi et al study majority of the patients were anemic. Preterm labor was a major complication according to Rizwan N et al study. According to present study preterm labor was a major complication.²⁵⁻²⁷ Anemia was the second major complication observed in my study. Out of 25 patients who developed anemia 4 patients required blood transfusion. Next major complication was pre- eclampsia. Because of regular follow up of cases during antenatal period, early admission and timely intervention none of the patients landed into eclampsia. 14 patients developed post-partum hemorrhage, all were managed by medical line of management. Due to proper and timely intervention we did not have any critically ill patient, ICU admission or maternal mortality. According to Qazi et al study maximum deliveries occurred between 33 to 36.6 weeks followed by after 37 weeks and then between 28 to 32 weeks. In present study maximum deliveries occurred after 37 weeks of gestation followed by between 33 to 36.6 weeks then between 28-32 weeks of gestation.²⁵

CONCLUSION:

From the results of present study, we conclude that perinatal mortality was more in babies delivered between 28-32 weeks due to respiratory distress syndrome. Due to proper ANC care, timely admission and intervention we were able to avoid complications like eclampsia, obstetric hysterectomy

due to postpartum hemorrhage, ICU admission and maternal mortality.

REFERENCES:

1. Wimalasundera R, Fisk NM. In-vitro fertilisation and risk of multiple pregnancy. *The Lancet* 2002; 360(9330): 414.
2. Prapas N, Kalogiannidis I, Prapas I, Xiromeritis P, Karagiannidis A, Makedos G. Twin gestation in older women: antepartum, intrapartum complications, and perinatal outcomes. *Arch Gynecol Obstet* 2006; 273(5): 293-297.
3. Mazhar S.B. PA, Mahmud G. Maternal and perinatal complications in multiple versus singleton pregnancies: A prospective two years study. *J Pak Med Assoc* 2002; 52(4): 143-147.
4. Wen SW, Demissie K, Yang Q, Walker MC. Maternal morbidity and obstetric complications in triplet pregnancies and quadruplet and higher- order multiple pregnancies. *Am J ObstetGynecol* 2004; 191(1): 254-258.
5. Nyboe Andersen A, Goossens V, Bhattacharya S, Ferraretti AP, Kupka MS, de Mouzon J, et al. The European IVF-monitoring consortium: embryology: Assisted reproductive technology and intrauterine inseminations in Europe, 2005: results generated from European registers by ESHRE. *Hum Reprod* 2009; 24(6): 1267.
6. de Mouzon J, Goossens V, Bhattacharya S, Castilla JA, Ferraretti AP, Korsak V, et al. Assisted reproductive technology in Europe, 2007: results generated from European registers by ESHRE. *Hum Reprod* 2012; 27(9): 2571-2584. Page | 44
7. de Mouzon J, Goossens V, Bhattacharya S, Castilla JA, Ferraretti AP, Korsak V, et al. Assisted reproductive technology in Europe, 2006: results generated from European registers by ESHRE. *Hum Reprod* 2010; 25(8): 1851-1862.
8. Olusanya BO. Perinatal outcomes of multiple births in southwest Nigeria. *J Health Popul Nutr* 2011; 29(6): 639-647.
9. Fakeye O. Perinatal factors in twin mortality in Nigeria. *Int J Gynaecol Obstet* 1986; 24(4): 309-314.
10. Rizwan N, Abbasi RM, Mughal R. Maternal morbidity and perinatal outcome with twin pregnancy. *J Ayub Med Coll Abbottabad* 2010; 22(2): 105-107.
11. Akinboro A, Azeez MA, Bakare AA. Frequency of twinning in southwest Nigeria. *Indian J Hum Genet* 2008; 14(2): 41-47. .
12. Botting BJ, Davies IM, Macfarlane AJ. Recent trends in the incidence of multiple births and associated mortality. *Arch Dis Child* 1987; 62(9): 941-950.
13. Martin JA Hamilton BE, Sutton PD, Ventura SJ, Mathews TJ, Kirmeyer S, et al. Births: final data for 2007. *Natl Vital Stat Rep* 2007; 58(24): 1-85.
14. Tur R, Barri PN, Coroleu B, Buxaderas R, Martínez F, Balasch J. Risk factors for high-order multiple implantation after ovarian stimulation with gonadotrophins: evidence from a large series of 52 Enid Simon Chiwanga et al./ *Asian Pacific Journal of Reproduction* (2014)46-52 Page | 45 1878 consecutive pregnancies in a single centre. *Hum Reprod* 2001; 16(10): 2124-2129.
15. Dickey RP, Taylor SN, Lu PY, Sartor BM, Rye PH, Pyrzak R. Relationship of follicle numbers and estradiol levels to multiple implantation in 3 608 intrauterine insemination cycles. *FertilSteril* 2001; 75(1): 69-78.
16. Shebl O ET, Sir A, Sommergruber M, Tews G. The role of mode of conception in the outcome of twin pregnancies. *Minerva Ginecol* 2009; 61(2): 141-152.
17. Garg P, Abdel-Latif ME, Bolisetty S, Bajuk B, Vincent T, Lui K. Perinatal characteristics and outcome of preterm singleton, twin and triplet infants in NSW and the ACT, Australia (1994-2005). *Arch Dis Child - Fetal and Neonatal Edition* 2010; 95(1): F20-F24.
18. Helmerhorst FM, Perquin DAM, Donker D, Keirse MJNC. Perinatal outcome of singletons and twins after assisted conception: a systematic review of controlled studies. *BMJ* 2004; 328(7434):261.
19. Ballabh P, Kumari J, AIKouatly HB, Yih M, Arevalo R, Rosenwaks Z, et al. Neonatal outcome of triplet versus twin and singleton pregnancies: a matched case control study. *Eur J ObstetGynaecolReprod Biol* 2003; 107(1): 28-36.
20. Callahan TL, Hall JE, Ettner SL, Christiansen CL, Greene MF, Crowley WF. The economic impact of multiple-gestation pregnancies and the contribution of assisted-reproduction techniques to their incidence. *New Engl J Med* 1994; 331(4): 244-249. Page | 46
21. De Sutter P, Gerris J, Dhont M. A health-economic decision analytic model comparing double with single embryo transfer

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- in IVF/ICSI. *Hum Reprod* 2002; 17(11): 2891-2896. Kinzler WL, Ananth CV, Vintzileos AM. Medical and economic effects of twin gestations. *J Soc GynecolInvestig* 2000; 7(6): 321-327.
23. Lukassen HGM, Schönbeck Y, Adang EMM, Braat DDM, Zielhuis GA, Kremer JAM. Cost analysis of singleton versus twin pregnancies after in vitro fertilization. *FertilSteril* 2004; 81(5):1240-1246.
 24. Mahendra Raj Pandey, Bikash Jang Kshetri, Deepak Dhakal. Maternal and Perinatal Outcome in Multifetal Pregnancy: A Study at a Teaching Hospital. *American Journal of Public Health Research*. Vol. 3, No. 5A, 2015, pp 135-138.
 25. Qazi G., Obstetric and perinatal outcome of multiple pregnancy. *J Coll Physicians and surgeons Pakistan*, 2011 March; 21(3):142-5.
 26. Ri-Na Sua, Wei-Wei Zhub, Yu-Mei Weia, Chen Wanga, Hui Fenga, Li Lina, Hui-Xia Yanga *Chronic Diseases and Translational Medicine* Volume 1, Issue 4, December 2015, Pages 197-202.
 27. Rizwan N, Abbasi RM, Mughal R. Maternal morbidity and perinatal outcome with twin pregnancy. *J Ayub Med Coll Abbottabad* 2010;22(2): 105-107.