MATERNAL COMPLICATIONS OF MULTIPLE GESTATIONS IN SECOND AND THIRD TRIMESTER OF PREGNANCY.

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ABSTRACT

BACKGROUND: In recent times, the incidence of multiple pregnancies has significantly increased due to medication for induced ovulation and other reproductive technologies. The present study is designed to see the maternal complication of multiple gestations in pregnancy.

OBJECTIVE: To determine the maternal complications associated with multiple gestation in second and third trimester of pregnancy.

METHODOLOGY: This descriptive study was carried out in the department of obstetrics and Gynaecology unit at Lady Reading Hospital Peshawar. Duration of the study was 06 months from 1st January 2012 to 1st July 2012. All patients with twin gestations, triplets and high order multiples visiting obstetrics and Gynaecology unit at Lady Reading Hospital Peshawar and who were admitted in ward were included in the study and after taking informed consent their characteristics were recorded by filling proforma.

RESULTS: Sixty patients with multiple gestations were included in the study. Fifty four (90%) of them had twin pregnancy and 06 (10%) had triplet pregnancy. The antenatal complications detected in these patients were preterm labour 23(32.3%), anaemia 18(30%), pregnancy induced hypertension, pre-eclamptic toxemia, eclampsia 13(21.7%), Malpresentation 13(21.7%), Antepartum Haemorrhage 5 (8.3%), 5 patients (8.3%) had PROM, 4 (6.7%) had polyhydramnios, 3(5%) had miscarriages, 5 (8.3%) had postpartum haemorrhage, 44(73.3%) patients had spontaneous vaginal delivery and 15(25%) underwent caesarean section. In 28(46.7%) patients cephalic/cephalic was the most common presentation.

CONCLUSION: Multiple gestation is a high risk pregnancy and is associated with both maternal and fetal complications. Patient needs to be educated about the importance and advantages of early antenatal booking and regular antenatal follow-up to reduce the risks to the mother and the babies.

KEY WORDS: Twin pregnancy, Triplets, High-order multiplets; Complications-Second Trimester, Third trimester.

INTRODUCTION

The incidence of multiple pregnancies especially with more than two fetuses has significantly increased since the introduction of ovulation agents and assisted reproductive technologies.¹ Multiple pregnancy still poses challenging problems for modern medicine.^{2,3} Multiple gestations are associated with an increased risk of perinatal mortality and morbidity and accounts for increasing percentage of low birth weight infants, preterm births, infants mortality⁴

and increased incidence of congenital malformation.⁵ There is also increased risk of operative vaginal deliveries, caesarean delivery, weight discordance, intrauterine growth restriction and low apgar score.⁶

Twin to twin transfusion syndrome is also a complication of monochorionic diamniotic twins.⁷ An acardiac pregnancy is a rare but serious complication of monochorionic twinning.⁸ Long term fetal complications include increased

risk of cerebral palsy, learning disability, and language and neuro behavioral deficit.⁹

Multiple pregnancies are associated with increased maternal morbidity and mortality. Multiple pregnancy itself represents a state of magnified nutritional requirement with a greater nutrient drain on maternal resources and accelerated depletion of nutritional reserves resulting in anaemia.¹⁰ Other complications include gestational diabetes, pregnancy induced hypertension and placenta previa.¹¹

One of the most important complications of multiple gestations is preterm labour and subsequently preterm delivery. A study was conducted in 2004 in Lahore to see the complications of multiple gestations in 50 patients with multiple gestations. It was concluded from the result that the most common complication in multiple gestation is preterm labour which was 54%.¹²

A study was conducted to evaluate the obstetric complication in triplet pregnancies¹. A total of 91% of the pregnancies had at least one antenatal complication. Among these complications preterm labour was the most common (80%).¹³ has shown that multiple pregnancies are responsible for larger rates of prematurity.

This study will evaluate incidence of maternal and fetal complications in patients with multiple pregnancy presenting to a tertiary care hospital, identification and proper management of these high risk patients.

METHODOLOGY

This descriptive study was carried out in the department of obstetrics and Gynaecology unit at Lady Reading Hospital Peshawar for 06 months from 1st January 2012 to 1st July 2012. All patients with twin gestations, triplets and high order multiples visiting OPD and admitted in ward were included in the study and after taking informed consent. Those women who were

booked at institute and delivered in another hospital were excluded from the study.

The data of women with multiple gestation was collected on a specially designed proforma. The maternal demographics including age, and gestational age were noted. The Obstetric outcomes including length of gestation at delivery and antenatal admissions were assessed. The data regarding antenatal complications, intrapartum details and postpartum complications was also collected. Main outcome measures were maternal complications (i.e. anemia, preterm labour, pregnancy induced hypertension, postpartum hemorrhage etc. Data was entered and statistical analysis was performed using the statistical package SPSS version 12. Mean $\pm$ SD was calculated for numeric variables, whereas frequency distribution and their percentages were calculated for categorical variables.

RESULTS

Sixty patients with multiple gestations were included in the study. Out of these 60 patients 54 (90%) were twin pregnancy and 6 (10%) were triplet pregnancies.

Maternal age analysis showed that 2(3.3%) were of 19 years, 4 (6.7%) were between 20-24 years, 17(28.3%) of the mothers were between 30-34 years, 20(33.3%) of the mother were aged 35 years and older. The youngest maternal age in the study was 19 years and the oldest age was 40 years. Mean age was 30.48 years, with standard deviation ratio of 5.39.

The gestational age at delivery was 13-20 weeks and 6 days in 2(3.3%) multiple gestations, 21-27 weeks and 6 days in 3(5%) of the cases. 28-36 weeks 6 days in 23(38.3%) of the cases and 37-41 weeks in 32(53.3%) of the cases. Mean gestational age at delivery was 34 weeks and 5 days with standard deviation ratio of 5.272 (Table No.1).

Table No. 1: Various Characteristics

Variables	No. of Patients	Percentage
Multiplets:		
Twin	54	90%
Triplets	6	10%
Maternal Age:		
≤ 19 years	2	3.3 %
20 – 34 years	4	6.7 %
25 – 29 years	17	28.3 %
30 – 34 years	17	28.3 %
35 – 39 years	18	30 %
≥ 40 years	2	3.3 %
Gestational age:		
13 – 20 weeks	2	3.3 %
21 – 27 weeks	3	5 %
28 – 36 weeks	23	38.3 %
37 – 41 weeks	32	53.3 %

Among the study group 18(30%) women were anaemic, 23(38.3%) presented with pre-term labour, 5(8.3%) presented with premature rupture of membrane, 5(8.3%) of the patients presented with Antepartum haemorrhage among which 3(5%) were having placental abruption and 2(3.3%) cases were having major degree of placenta previa. 4(6.7%) cases were having polyhydramnios. 8(13.3%) patients presented with pre-eclamptic toxemia, 3(5%) presented with pregnancy induced hypertension and 2 patients (3.3%) presented with eclamptic fits together making a percentage 21.7%. 13(21.7%) patients out of 60 cases presented with malpresentation. Five patients (8.3%) had primary postpartum haemorrhage and required alone transfusion, 3(5%) patients were having problem in breast feeding postnatally. One (1.7%) patient presented with cord prolapse and miscarriage occurred in 3(5%) cases (Table No.2).

Table no. 2: Maternal Complications

Complications	No. of patients	Percentage
Preterm labour	23	38.3%
Anaemia	18	30%
Malpresentation	13	21.7%
Preeclamptic toxemia	11	18.3%
Premature rupture of membrane	5	8.3%
Antepartum haemorrhage	5	8.3%
Postpartum haemorrhage	5	8.3%
Polyhydramnios	4	6.7%
Abortion	3	5%
Problem in Breast feeding	3	5%
Eclampsia	2	3.3%
Cord prolapse	1	1.7%
Total	60	100%

Analysis of mode of delivery showed that 44 patients (73.3%) had spontaneous vaginal delivery, 15(25%) patients were delivered by abdominal route among which 3(5%) cases were delivered by elective lower segment caesarean section and 12(20%) patients underwent emergency lower segment caesarean section. 1 delivery (1.7%) patients had elective vaginal delivery (Table No.3).

Table no. 3: Mode of Delivery

Mode of Delivery	No. of Patients	% age
Spontaneous vaginal Delivery	44	73.3%
Abdominal Delivery	15	25%
Operative vaginal Delivery	1	1.7%
Total	60	100 %

DISCUSSION

Over the past years, the number and rate of multiple births have dramatically increased. The rise in multiple births is mainly attributable to the increased use of ovulation inducing drugs and the newly developed assisted reproductive technology such as in vitro fertilization. Multiple gestation pregnancies are considered to be at high obstetric risk and present unique challenges to the modern obstetrician.

Multiple pregnancy is associated with increased risk of maternal and neonatal complications as compared to singletons. The focus of this study was to evaluate the maternal and fetal complications associated with multiple gestations in second and third trimester of pregnancy.

The rate of multiple gestation is fairly common in tertiary case hospitals in our country. Like others,^{14,15} in our study it was found that increasing rate of multiple gestations with advancing maternal age i.e. 28.3% in the age range of 25 - 29 years, 28.3% in the range of 30 - 34 years and 33.3% in the mothers aged 35 years and older. The average maternal age in our study was 30.48 years almost similar to the study by Jalil G et al.¹⁶

In this study the rate of multiple pregnancy was also common among women with high parity. A similar association has been shown in a study done by Kamal K et al.¹⁷ The mean parity of the mother in our study was 2.9. This is close to that i.e. 3.20 which was found by Mutihir JT et al¹⁸ in their study.

Thirty two (53%) patients in our study presented at 37 plus weeks of gestation. This is similar to 54% of the patients who presented at this gestation observed by Naheed I et al.¹⁹ The mean gestational age of presentation was 34 weeks and 5 days. A number of studies,^{16,19,20,21} have shown a similar mean gestational age of presentation. Prolong pregnancy beyond 40 weeks of gestation is uncommon in multiple gestation and in my

study also just 1.7% of patients presented beyond 40 weeks.

Multiple pregnancy is associated with a number of maternal and fetal complications. Among the maternal complications pre-term labour is the most common complication. Study by Kurdi AM et al²² has shown the preterm labour in multiple pregnancies was 7 times greater than singletons. A study by Gessesew A²³ showed that pre-term delivery occurred in 39.4% of the cases.

Similarly in our study the most common maternal complication was preterm labour accounting for 38.3% of the cases, other studies by Yasmeeen N et al²⁴ and by Mazhar SB et al²¹ also showed that preterm labour was the most common pre-natal complication.

Our study showed that anaemia is the second most common complication after pre-term delivery which was in 30% of the cases. Retrospective case record analysis by Kurdi AM et al²² and study by Ashraf R et al¹² also showed that anaemia was the second commonest prenatal complication accounting for 22% and 38% of the cases respectively. Malpresentation is one of the common complications of multiple gestations. In fact abnormal lie during the last weeks of pregnancy may arouse the suspicion of the multiple gestation. The next common maternal complication in this study was malpresentation 13(21.7%).

A study also found a similar frequency (23%) of malpresentation in multiple gestation¹⁹. Another study found a frequency of malpresentation to be 14%²³. This difference might be due to the fact that his study included twin gestations only while in this study twin, triplets and high order multiple gestations were also included and with increasing order of multiple gestations the frequency of malpresentations also increases.

The overall rate of pregnancy induced hypertension, pre-eclampsic toxemia and eclampsia was 21.7%. In a similar study

conducted at women and children hospital, Abbottabad²⁵ the frequency was 22.6% and a study found frequency of 28%. almost a similar risk¹⁹⁻²⁶. The rate of premature rupture membranes was 8.3%¹². A similar study by Ashraf 12%²⁷ and 10% risk of premature rupture of membranes respectively.

In our study the rate of antepartum haemorrhage was 8.3% which is almost similar to that found by a number of other studies.^{12,25}. Post-partum haemorrhage was found at a similar rate i.e. 8.3% in our study all of which were primary postpartum haemorrhage. A study by Yasmeen N et al²⁴ has found the frequency to be 6% and in another study²⁷ the frequency was 5.6%.

Poly hydramnios was found in 6.7% of the cases and in all cases the cause was idiopathic. A study conducted in Khyber Teaching Hospital Peshawar²⁸ reported the rate of 15.38%. The difference might be due to the reason that the cases in their study group also included diabetic patients and diabetes itself is a risk factor for the development of Polyhydramnios.

The risk of miscarriages increases with multiple gestations. The rate of miscarriage in our study was 5% which is similar to that found by Yasmeen N.²⁴

In our study the most common mode of delivery was spontaneous vaginal delivery which was in 73.3% of the cases while in 25% of the cases the delivery was by caesarean section. This is in contrast to other studies^{24,27,29,30} in which the most common mode of delivery was caesarean section due to risk of prolong or obstructed labour.

CONCLUSIONS

Multiple gestations are high risk pregnancies, which may be complicated by prematurity, anaemia, pre-eclampsia, malpresentation, post partum haemorrhage, low birth weight infants, intrauterine growth restriction, neonatal morbidity and mortality. Multiple pregnancy

thus warrants special attention from the obstetrician.

Many problems associated with multiple gestation necessitate supervision and observation for early detection of complications. Majority of the women in our country prefers to have good deliveries at homes and come to hospitals only if they had complications at the time of delivery. Therefore, most of the times multiple gestations are left undiagnosed. Thus the incidence of maternal complications in our country is far more than that in the developed countries. Our general public needs to be educated about the importance of early diagnosis; antenatal booking and regular antenatal follow up. Antenatal booking would allow up for early detection of congenital anomalies and detection of intrauterine growth restriction, Anaemia, pre-eclampsia etc. Similarly malpresentation can be detected and patients adequately counselled and managed accordingly. Medical disorder can be controlled when detected antenatally and perinatal outcome can be improved.

Due to increase risk of preterm deliveries better ways of preventing labour needs to be devised and neonatal facilities needs to be improved for a better survival of preterm infants. Home deliveries needs to be discouraged. All these goals can be achieved only by improving standard of antenatal and health care in our country.

REFERENCES

1. Al-Suleiman SA, Al-Juma FE, Rahman J, Rahman MS. Obstetric complications and Perinatal outcome in Triplet pregnancies. *J Obstet Gynaecol.* 2006;26:200-4.
2. National Collaborating Centre for Women's and Children's Health. Multiple pregnancy. In: Multiple pregnancy: the management of twin and triplet pregnancies in the antenatal period. London: Royal College of Obstetricians and Gynaecologists; 2011:27-9.
3. Lewi L, Jani J, De Prest J. Invasive antenatal interventions in complicated Multiple pregnancies. *Obstet Gynaecol Clin North Am.* 2005;32:105-26.

4. Blickstein I, Shinwell ES. Obstetric management of multiple gestation and birth. In: Martin RJ, Fanaroff AA, Walsh MC, eds. *Fanaroff and Martin's Neonatal-perinatal medicine: diseases of the fetus and infant*. 9th ed. Philadelphia: Saunders/Elsevier; 2011:19-21.
5. ACOG Practice Bulletin No. 144: Multifetal gestations: twin, triplet, and higher-order multifetal pregnancies. *Obstet Gynecol*. 2014;123:1118-32.
6. Heard AJ, Ramus RM, Ralston SJ. Multifetal pregnancy [Online] 2015. Available from URL://http://www.medscape.com/multifetal_pregnancy.html
7. Cai LY, Lzumi S, Koido S, Uchida N, Suzuki T, Matsubayashi H, et al. Abnormal placental cord insertion may induce intrauterine growth restriction in IVF - Twin pregnancies. *Hum Reprod*. 2006;21:1285-90.
8. Van-Gemert MJ, Umur A, Van-den-Winngaard JP, Vanbarel E, Vandebussche FP, Nikkels PG. Increasing cardiac output and decreasing oxygenation sequence in pump twins of acardiac twin pregnancies. *Phys Med Biol*. 2005;50:N33-42.
9. Chauhan SP, Scardo JA, Hayes E, Abuhamad AZ, Berghella V. Twins: prevalence, problems, and preterm births. *Am J Obstet Gynecol*. 2010;203:305-15.
10. Ida LilywatyMd Latar and Nuguelis Razali. The desire for multiple pregnancy among patients with infertility and their partners. *Intern J Reprod Med*. 2014;1-7.
11. Qazi G. Obstetric and perinatal outcome of multiple pregnancy. *J Coll Physicians Surg Pak*. 2011;21:142-5
12. Ashraf R, Gul A, Noor R, Siddique S. Complications of multiple gestation. *Ann King Edward Med Coll*. 2004;10:173-4.
13. Lee YM, Clearly-Goldman J, Dalton ME. The impact of multiple gestations on late preterm (near term) births. *Clin Perinatol*. 2006;33:777-92.
14. Rao A, Sairam S, Shehata H. Obstetric complications of twin pregnancies. *Best Pract Res Clin Obstet Gynaecol*. 2004;18:557-76.
15. Cassel KA, O'Connell CM, Baskett TF. The origins and outcomes of triplet and quadruplet pregnancies in Nova Scotia. 1980 to 2001. *Am J Perinatal*. 2004; 21: 439-45.
16. Jalil G, Sohail N, Razaque A. Triplet pregnancy the improving obstetrical outcome. *Ann King Edward Med Coll*. 2004;10:440-3.
17. Kamal K, Gaba MI. Multiple births in a hospital setting. *Pak Paed J*. 1997;21: 163-6.
18. Mutihir JT, Pam VC. Obstetric outcome of twin pregnancies in JOS, Nigeria. *Niger J Clin Pract*. 2007;10:15-8.
19. Naheed I, Zaineb A, Almas S. Twin pregnancy (High risk for the mother and the fetus). *Pak Postgrad Med J*. 2001;12:50-4.
20. Roman AS, Rebarber A, Pereira L, Sfakianaki AK, Mulholland J, Berghella V. The efficacy of Sonographically indicated cerclage in multiple gestation. *J Ultrasound Med*. 2005;24:763-8.
21. Mazhar SB, Peerzada A, Mahmud G. Maternal and perinatal complications in multiple versus singleton pregnancies: A prospective two years study. *J Pak Med Assoc*. 2002;54:143-7.
22. Kurdi AM, Mesleh RA, Alhakeem MM, Khashoggi TY, Khalifa HM. Multiple pregnancy and preterm labour. *Saudi Med J*. 2004;25:635-7.
23. Gessesew A. Twin deliveries in a Zonal hospital: ten years retrospective study. *Ethiop Med J*. 2007;45:55-9.
24. Yasmeen N, Aleem M, Iqbal N. Maternal and fetal complications in multiple pregnancies. *Ann King Edward Med Coll*. 2006;12:512-4.
25. Bashir R, Khattak K, Faisal S. Affect of Improved antenatal case and intrapartum management on the outcome of twin pregnancy. *J Ayub Med Coll*. 1999;11:21-3.
26. Chittacharoen A, Wetchapruangkit S, Suthutvoravut S. Pregnancy induced hypertension in twin pregnancy. *J Med Assoc Thai*. 2005;88:S69-74.
27. Chittacharoen A, Singhakun D, Ayudhya NI. Pregnancy outcome of twin pregnancy in Ramathibodi Hospital. *J Med Assoc Thai*. 2006 ;89:S76-80.
28. Naqvi MM. Outcome of twin pregnancy in booked versus unbooked cases. *J Coll Physicians Surg Pak*. 2003;13:498-500.
29. Hack KE, Derk JB, De-visser VL, Elias SG, Visser GH. The natural course of monochorionic and dichorionic twin pregnancies; a historical cohort. *Twin Res Hum Genet*. 2006;9:450-5.
30. Yucesoy G, Ozkan S, Bodur H, Tan T, Chalis Kan E, Vural B, et al. Maternal and perinatal outcome in pregnancies complicated with hypertensive disorders of pregnancy: a seven years experience of tertiary care center. *Arch Gynaecol Obstet*. 2005;273:43-9.

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