FREQUENCY OF COMMON MATERNAL COMPLICATIONS IN THIRD TRIMESTER OF TWIN PREGNANCY

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ABSTRACT

Objective: To determine the frequency of common maternal complications in third trimester of twin pregnancy.

Methodology: It was hospital based Cross-Sectional study, descriptive study conducted at the department of Obstetrics & Gynaecology, Postgraduate Medical Institute, Lady Reading Hospital Peshawar from October 2010 to April 2011.Data was collected by non-probability convenience sampling technique.A total of 106 admitted patients with twin pregnancies (confirmed by ultrasonography) were enrolled in the study. Demographic data collected and patients were followed up till delivery to determine complications of twin pregnancies.

Results: Mean age of the sample was 28.76+4.616 years. Mean period of gestation at the presentation was 35 + 2.86. Most patients presented with gravida 2 and para 1. Of the 106 patients with twin pregnancy 21 (19.8 %) had no complications.60 patients (56.6 %) presented with anemia, 34 patients (32.1 %) had preterm labour and 21 (19.8 %) patients suffered from pregnancy induced hypertension. The least common maternal complication was premature rupture of membranes (PROM) which occurred in 12 patients making 11.3 % of the study population.

Conclusion: Twin pregnancy carries high risk of maternal complications like anemia, preterm labour and pregnancy induced hypertension and highlights the need for early recognition and interventions by experienced health professionals.

Key Words: Twin pregnancy, Preterm labour, Premature rupture of membranes(PROM),Pregnancy induced hypertension(PIH).

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INTRODUCTION

Multiple pregnancies are associated with fetomaternal morbidity and mortality due to accompanying complications[1]. Twin pregnancy makeup the vast majority (97-98%) of multiple gestation[2]. Multiple pregnancies rates vary worldwide. The lowest prevalence for twin birth is reported in Japan (6.7 per 1000), with intermediate prevalence reported in North America and Europe (11 per 1000) and the higher prevalence reported in Africa particularly Nigeria (40 per 1000 deliveries)[3-6]. Incidence from one study is 1/57. In a study from Allied Hospital Faisalabad anemia was the most common prenatal complication 48% followed by preterm labour 44%, pregnancy induced hypertension (PIH) 24% ,premature rupture of membranes(PROM) is 16%[7].

Twin pregnancy is associated with more maternal and fetal complications as compared to singleton pregnancy. The objective of the study was to determine the frequency of common maternal complications in third trimester of twin pregnancy and to have an insight into the local trends of complications associated with twin pregnancy. This may help health professionals to improve the antenatal care of the patients with twin pregnancy and to detect and manage complications promptly so to improve maternal and fetal outcome.

METHODOLOGY

This hospital based Cross-Sectional descriptive study was conducted at the department of Obstetrics & Gynaecology , Postgraduate Medical Institute, Lady Reading Hospital Peshawar from October 2010 to April 2011. Permission was taken from Hospital Ethical Committee before starting the study.Data was collected by non-probability convenience sampling technique. Sample size was calculated to be 106 using 95% confidence

level and 7% margin of error, as per WHO software for sample size determination.

All patients with twin pregnancy diagnosed by Ultrasound in third trimester i.e. after 28 weeks of gestation, age range between 15 – 45 years) were included in the study and those with Chronic Hypertension: (blood Pressure >140/90mmHg; Diabetes Mellitus: (fasting blood Sugar> 110mg/dl); add/or anemic patients with Hemoglobin level of less than 11gm/dl) were excluded. Patients were included in the study were admitted in obstetrics & Gynaecology ward through outpatient and casualty department. Diagnostic criteria was ultrasound report to confirm twin pregnancy. Age range was 15 – 45 years.Informed written consent was taken from the patient. Name, age, height, weight, parity and address of the patient were noted. Routine investigations were done which included blood group, hemoglobin (Hb), HbsAg, Anti HCV, Random Blood Sugar (RBS), Urine R/E. All patients were followed till delivery to determine complications of twin pregnancy that were anemia, preterm labour, PIH and PROM. A hemoglobin concentration of less than 11g/dl was considered as anemia in pregnancy. Preterm Labour was defined as onset of labor before 37 completed weeks of gestation. It was diagnosed by the onset of increasingly frequent and painful uterine contractions occurring once every 10 minutes and detected by per abdominal examination and with progressive effacement and dilation of the cervix (80% effacement and at least 3cm dilation of the cervix)as determined by vaginal examination. Blood pressure of at least 140/90mmHg checked on two consecutive occasions 6 hours apart with mercury sphygmomanometer was considered as pregnancy induced hypertension. Premature rupture of membranes was defined as per vaginal gush of watery discharge before onset of labour but after 37 weeks of gestation. Patients with chronic hypertension and diabetes mellitus were excluded from the study to minimize the bias.

The data were entered and analyzed by using SPSS version 15.0. Frequency ad percentages were determined for categorical /qualitative variable i.e. parity, anemia, PIH, Preterm labour and premature rupture of membranes. Mean +/- standard deviation was determined for numeric/quantitative variables like age, height weight and gravidity. Maternal complications were stratified among parity, age, height and weight to rule out confounding variables..

RESULTS

Mean age of 28.76+4.6 years. Height ranged from 60 to 66 inches with mean height of 62.60 $\pm$ 0.9. Bodyweight of the study population ranged from 60 to 88 kg with mean weight of 75.75 $\pm$ 6.314 kg.

All patients included in this study were in their third trimester. Mean period of gestation at the presentation was 35 + 2.86 weeks. Period of gestation ranged from 28 week to 41 weeks (Table 2). Regarding obstetrical history most patients presented with gravida 2 and para 1. Minimum gravida was 2 and maximum gravida was 11 and maximum para was 8.

Most of the patients belonged to the district Peshawar and only few patients were from other districts of Khyber Pakhtunkhwa. Most patients included in this study were from Peshawar (54), Charsadda (7) and Dir district (5) respectively. Of 106 patients 9 (8.5 %) were from Afghanistan.

Of the 106 patients with twin pregnancy 21 (19.8 %) had no complication and underwent normal vaginal delivery. 48 patients (45.5 %) presented with only one complication, 34 patients (32.1 %) presented with two complications while two patients suffered from three complications. Only one patient in the study population had all four complications and underwent caesarian section.

In this study the most common maternal complication was anemia of pregnancy. Hemoglobin of the study population ranged from 4.50 to 12.70 gram per deciliter with mean of 10.54 $\pm$ 1.371 SD. Out of 106 patients 60 (56.6%) presented with anemia with hemoglobin concentration less than 11.0 gram/ dl, while the remaining 46 patients (43.4%) had hemoglobin concentration more than 11.0 gram/ dl .

The second most common complication was onset of preterm labour. Of the 106 women with twin pregnancy 34 patients (32.1 %) had preterm labour. The remaining 72 (67.9 %) patients delivered at full term. Similarly 21 patients suffered from pregnancy induced hypertension. The proportion of pregnancy induced hypertension was 19.8 percent in this study. The least common maternal complication was Premature rupture

Table 1: DEMOGRAPHIC DATA OF THE PATIENTS (N=106)

Parameter	Mean
Age (years)	28.76
Height (inches)	62.60
Weigh (kg)	75.75
Hemoglobin (gram/dl)	10.54
Period of gestation (weeks)	35.43

Table 3: Stratification of maternal complication with various variables (n=106)

Variables		Maternal complications		Total	P Value
		No (21)	Yes (85)		
Age	< 25	5	26	31	0.826
	26-30	9	33	42	
	> 31	7	26	33	
Height (Inches)	60	1	0	1	0.366
	61	0	7	7	
	62	8	34	42	
	63	9	35	44	
	64	2	6	8	
	65	1	2	3	
	66	0	1	1	
Weight (kg)	60	2	3	5	0.050
	63	1	0	1	
	53	0	2	2	
	68	0	1	1	
	70	0	18	18	
	75	12	26	38	
	76	1	0	1	
	78	0	1	1	
	80	3	19	22	
	82	0	1	1	
	85	2	13	15	
	88	0	1	1	
Parity	0	1	1	2	0.092
	1	8	31	39	
	2	4	28	32	
	3	2	11	13	
	4	5	3	8	
	5	1	3	4	
	6	0	3	3	
	7	0	3	3	
	8	0	2	2	

of membranes (PROM) which occurred in 12 patients making 11.3 % of the study population.

We also stratified the maternal complications with parity, age, height and weight of the patients to see the effect modification of these parameters maternal complications (Table 2).

DISCUSSION

All the normal physiological adaptation such as increased cardiac output, glomerular filtration rate and renal blood flow are enhanced in multiple pregnancies. Gestational diabetes is also increased. Preeclampsia is two to three times more common in multiple than singleton pregnancies and likely to be more severe[4]. In a study from Thailand the incidence of pregnancy induced hypertension was significant higher and occurred earlier with greater adverse pregnancy outcome among twin gestations than singleton gestation[3]. Anemia is more frequent in multiple than in singleton pregnancy. Hydramnios is suspected clinically in up to 12% of multiple pregnancies and is associated with an increased risk of

preterm labour. Antepartum hemorrhage as a result of placenta previa and abruption is increased in multiple gestations. Premature rupture of the membranes occurs more frequently in multiple gestations and preterm labour and birth are frequent sequelae[3]. About 10% of twins are born before 32 weeks of twin gestation and very preterm birth rates are increasing[6]. Minor symptoms of pregnancy may be exaggerated[2].

Multiple gestations are increasing and is a common cause for perinatal and neonatal mortality and morbidity as compared to singleton. The incidence of twin pregnancies has been rising steadily for over past 30 years. The reasons for this trend include advances in reproductive medicine as well as a greater proportion of older women getting pregnant who naturally have a higher incidence of multiple gestations. Twin pregnancy is considered a high-risk pregnancy because it is associated with both fetal and maternal complications.

According to this study the mean age of our study population was 28 years. It was lower than that reported by Aziz et al[8]. In his study the mean age was 31 years. Most studies have found that the incidence of twinning increases with advancing maternal age up till 35 years after which the rates decline[9]. The lower mean age in our study group as compared to international data, may due to differences in the ethnicity or the culture of marriages at an early age in our society.

Out of 106 patients, 60 (56.6%) presented with anemia with hemoglobin concentration less than 11.0 g/dl However in the study of Khaliq et al[7] the proportion of anemia among twin pregnancies was 48%. Similarly our results differed with the findings of another study conducted at general hospital lahore in 2008, In which Qureshi S et al reported the proportion of anemia in only 38 % of the patients[10]. The higher rate of anemia in our study may be explained by the delayed first visit, delayed medical checkup and likewise more pronounced presentation of their anemia. Moreover in our study patients were recruited only in their third trimester of pregnancy.

Study of international data indicate that Preterm labour occurs in 7% to 12% of all deliveries, but accounts for over 85% of all perinatal morbidity and mortality[11,12]. Studies from the United States reported that the rate of preterm twin delivery for 2008 was 59 percent before 37 completed weeks of gestation and 12 percent before 32 completed weeks.13 also, male-male twin pairs were at highest risk of preterm birth[14,15].

However in the study of Khaliq et al[7], preterm labour was present in 44 % (22) patients which higher than our findings of 32 %. Similarly Qureshi et al in his study conducted at general hospital lahore also reported comparatively a higher rate (54 %) of preterm labour in his patients[10].

Hypertensive disorders of pregnancy are one of the main complications of multiple gestation; these include hypertension induced by pregnancy and preeclampsia. In this study the frequency if pregnancy induced hypertension was 21 (20 %). Newman and Luke reported in their study that the hypertension induced by pregnancy in twin gestation accounted for 14%, in triplets 21% and quadruplets even 41%[16]. Our results were comparable with that of Khaliq et al[7], which reported PIH in 24 % and preeclampsia in 14 % patients. Similarly Qureshi S et al in his study conducted at general hospital lahore also reported comparatively higher rate (32 %) of pregnancy induced hypertension in his patients[10].

We found Premature rupture of membranes (PROM) in 12 patients (11%) in our study. International data shows that PROM complicates 2-4% of singleton and 7% to 10% of twin pregnancies. Our proportion of 11% of PROM is higher than the study conducted at Fasailabad, in which PROM was seen in 16 % patients[7]. However it is comparable with study of Qureshi S et al conducted at general hospital Lahore in which PROM was seen in 12 % patients[10].

We also stratified the maternal complications with parity, age, height and weight of the patients to see the effect modifier. Chi-square test was applied to see whether the difference of complications in different category of these parameters was significant or not.

When maternal complications were stratified among different groups of age, height and parity, the difference of maternal complications was not statistically significant for different age groups. Similarly height and parity had no significant effect on the rate of complication with p-value of more than 0.05. However the effect of weight was significant on the occurrence of maternal complications (p-value < 0.05)

LIMITATIONS

Our study had several methodological limitations, including its cross-sectional design, selection of only four maternal complications while ignoring potential other maternal and fetal complications. We recruited only those women who were pregnant and were in their third trimester of twin pregnancy and excluded patients in first and second trimesters. The sample size was small, though adequate for most of the analysis presented. But a larger sample size may have increased our ability to analyze different individual factors more reliably. The findings may therefore not be generalizable to other women in Peshawar or elsewhere.

Despite these limitations, we feel that the study is adequate to highlights the burden of the problem and the most common complications associated with twin pregnancy in Pakistani society, and the study findings should be useful to health professionals and planners underscoring the importance of twin pregnancy and

screening of these complications during pregnancy if we are to reduce and prevent the maternal mortality and morbidity. Further research is needed to better understand the best approach to screen for both maternal and fetal complications during multiple pregnancies and manage them accordingly.

CONCLUSION

From the results of this study it is concluded that most patients with twin pregnancy are young. Anemia of pregnancy was the most common complication of twin pregnancy and Preterm labour was the second common complication.

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