

FETOMATERNAL OUTCOME IN WOMEN WITH TWIN PREGNANCY PRESENTING AT TERTIARY CARE TEACHING HOSPITAL

Original Research

Nuzhat Afza¹, Khwja Fawad Pervez^{2*}, Ayesha Fayyaz³, Ghazala Naz⁴

¹Trainee Medical Officer, Department of Obstetrics & Gynaecology, Lady Reading Hospital, Peshawar, Pakistan.

²Assistant Professor, Department of Obstetrics & Gynaecology, Lady Reading Hospital, Peshawar, Pakistan.

³Trainee Medical Officer, Department of Obstetrics & Gynaecology, Lady Reading Hospital, Peshawar, Pakistan.

⁴Trainee Medical Officer, Department of Radiology, Lady Reading Hospital, Peshawar, Pakistan.

Corresponding Author: Khwja Fawad Pervez, Assistant Professor, Department of Obstetrics & Gynaecology, Lady Reading Hospital, Peshawar, Pakistan, drfawadparvez@hotmail.com

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ABSTRACT

Objective: To evaluate the fetomaternal outcome in women with twin pregnancy presenting at tertiary care teaching hospital.

Methodology: This descriptive study was conducted from 19-September-2024 to 19-March-2025. Eighty women with twin pregnancies who were aged between 15 to 35 years were selected. Fetomaternal outcomes were assessed which included, NICU admissions, low birth weight, preterm birth, perinatal mortality, preterm labor, anemia, pregnancy-induced hypertension and postpartum hemorrhage.

Results: We found that a large number of the women experienced preterm labor 51.2% while 47.5% were diagnosed with anemia. The neonatal outcomes revealed that 80% of the neonates had low birth weight and 52.5% required NICU admission. Perinatal mortality occurred in 5% of the neonates. Pregnancy-induced hypertension was observed in 20% patients.

Conclusion: Twin pregnancies present potential maternal and neonatal risks such as preterm labor (51.2%), anemia (47.5%), and pregnancy-induced hypertension (20%) while neonatal outcomes such as low birth weight (80%) and NICU admissions (52.5%).

Keywords: Twin pregnancy, fetomaternal outcomes, preterm labor, low birth weight, NICU admission, anemia, pregnancy-induced hypertension.

INTRODUCTION

Multifetal gestations present higher dangers compared to singleton gestation. In 2021, the incidence of twin births was 21.3 per 1,000 live births, whereas triplet as well as more complex births took place at an average of 80 per 100,000 live births.¹ The most effective mode of delivery to twin gestations remains a subject of debate in literature. ACOG guidelines suggest that twin gestation typically not a reason for cesarean section.² Further discussion exists concerning types of twin pregnancies that qualify for vaginal delivery that considers the risks associated with modifications to fetal lie following delivery of first twin, potential for placental abruption resulting from abrupt uterine decompression and alterations in cervical dilation which might impede delivery of second twin.³ A study assessed twin birth outcomes, demonstrated no elevated risk of neonatal morbidity as well as mortality among women who experienced vaginal delivery in comparison to those who underwent C-section.⁴ Management of twin delivery offers challenges for obstetricians especially when it comes to the surveillance of both twins throughout labor and maneuvers required for delivery of second twin.⁵

Twin pregnancies may be either identical or fraternal. While exact cause of twinning is unresolved multiple pregnancies are more common when two separate oocytes are fertilized than when a single fertilized egg splits in 2 identical twins. Approximately 70 percent are dizygotic whereas 30% are monozygotic. Worldwide, the incidence of twins who are monozygotic is constant at 1 in 250 births. ART-assisted pregnancy increases the chance of monozygotic twins by two to five times. The incidence of dizygotic twins rises by maternal factors such as high parity and inherited factors. The most important factor of pregnancy outcome is chorionicity, not zygosity.⁶⁻⁹

The likelihood of IUD, fetal defects, as well as twin-twin transfusion syndrome increases in monochorionic twins with an increasing incidence of discordant growth observed among this group. Consequently, monozygotic twins encounter a heightened risk. Three The probability of maternal risks such as antepartum haemorrhage, anaemia, PROM, and postpartum haemorrhage rises in multifetal gestation. The rate of C sections is elevated in multiple pregnancies due to a higher rate of challenges compared to singleton gestations.⁹⁻

¹¹ A study reported the 11.4% of perinatal mortality among twin pregnancy.¹²

Aim of the study is to evaluate the fetomaternal outcome in women with twin pregnancy. Although few study has been conducted on the said topic but no such study has been carried out in our population for the last five years. So this study will provides us the latest and updated magnitude of maternal and fetal outcome in twin pregnancy. The results of the study will be shared with other health professional for timely diagnosis and better management of women presenting with twin pregnancies.

METHODOLOGY:

This descriptive study was conducted at the Department of Gynecology and Obstetrics at Lady Reading Hospital, Peshawar after taking ethical clearance from the hospital. Study was conducted from 19-September-2024 to 19-March-2025. Eighty patients with twin pregnancies were selected using a non-probability consecutive sampling method. We included women aged between 15 and 35 years with twin pregnancies diagnosed after 24 weeks of gestation. Patients were enrolled whether they had booked or unbooked pregnancies having any parity or gravidity. Exclusion standards included those with pre-existing medical conditions such as chronic hypertension, pre-gestational diabetes, cardiac diseases or renal disorders as well as women with severe anemia (Hb <6 gm %) or major fetal congenital abnormalities. The sample was selected using previous proportion of perinatal mortality 11.4%¹², 7% and 95% margin of error and confidence interval respectively.

Patients gave in their consent. A thorough medical history including parity, gravidity and socioeconomic status along with residence and educational level was recorded. A detailed physical examination was conducted alongside radiological confirmation of twin pregnancies. The management of the patients followed standard RCOG guidelines under the supervision of a consultant obstetrician with laboratory investigations performed by an expert pathologist.

We assessed the maternal and fetal outcomes. Fetal outcomes included NICU admissions, low birth weight (defined as a birth weight less than 2500 grams), preterm birth (defined as delivery before 37 weeks of gestation) and perinatal mortality (the number of perinatal deaths including stillbirths and deaths within the first 7 days after birth). Maternal outcomes included preterm labor (spontaneous onset

of contractions leading to cervical dilation before 37 weeks), anemia (hemoglobin level of less than 12 gm/dl), pregnancy-induced hypertension (systolic BP >140 mmHg and/or diastolic BP >90 mmHg after 20 weeks) and postpartum hemorrhage (blood loss of more than 500ml within 24 hours of vaginal delivery).

Data analyzed was performed with SPSS 23. Age and gestational age were measured using mean and SD. Parity, gravidity, socioeconomic status, residence, fetomaternal outcomes and educational level was assessed using frequencies along with percentages. We stratified fetomaternal outcomes with parity, age, gravidity and demographic parameters with Chi Square test keeping P value notable at ≤ 0.05 .

RESULTS:

There were 80 patients in our study with mean age 24.13 ± 5.95 years. Gestational age was 38.30 ± 1.23 weeks.

The baseline profile of the patients is presented in table 1. Regarding the fetomaternal outcomes, neonatal intensive care unit (NICU) admissions were required for 42 (52.5%) neonates. Low birth weight was observed in 64 (80.0%) neonates. Preterm birth occurred in 33 (41.2%) cases. Perinatal mortality was observed in 4 (5.0%) cases. Preterm labor was reported in 41 (51.2%) women and anemia was present in 38 (47.5%). Pregnancy-induced hypertension affected 16 women (20.0%) and postpartum hemorrhage occurred in 10 (12.5%) women (Table 2). Stratifications of fetomaternal outcomes with various variables can be seen from table no 3 to table no 8.

Table 1: Baseline profile

Baseline profile		n	%
Parity	0 to 2	55	68.8%
	> 2	25	31.2%
Gravidity	0 to 3	50	62.5%
	> 3	30	37.5%
Socioeconomic status	Poor (monthly income <50,000 Rs)	19	23.8%
	Middle Class (monthly income 50,000 -100,000 Rs)	46	57.5%
	Rich (monthly income >100,000 Rs)	15	18.8%
Residence	Rural	46	57.5%
	Urban	34	42.5%
Educational level	Literate	35	43.8%
	Illiterate	45	56.2%

Table 2: Fetomaternal outcomes

Fetomaternal outcomes		n	%
NICU admission	Yes	42	52.5%
	No	38	47.5%
Low birth weight	Yes	64	80.0%
	No	16	20.0%
Preterm birth	Yes	33	41.2%
	No	47	58.8%
Preterm mortality	Yes	4	5.0%
	No	76	95.0%
Preterm labor	Yes	41	51.2%
	No	39	48.8%
Anemia	Yes	38	47.5%
	No	42	52.5%
Pregnancy induced hypertension	Yes	16	20.0%
	No	64	80.0%
Postpartum hemorrhage	Yes	10	12.5%
	No	70	87.5%

Table 3: Stratification of fetomaternal outcomes with age

Fetomaternal outcomes		Age groups (years)				P value
		15 to 30		>30		
		n	%	n	%	
NICU admission	Yes	35	83.3%	7	16.7%	P > 0.05
	No	30	78.9%	8	21.1%	
Low birth weight	Yes	53	82.8%	11	17.2%	P > 0.05
	No	12	75.0%	4	25.0%	
Preterm birth	Yes	26	78.8%	7	21.2%	P > 0.05
	No	39	83.0%	8	17.0%	
Preterm mortality	Yes	3	75.0%	1	25.0%	P > 0.05
	No	62	81.6%	14	18.4%	
Preterm labor	Yes	31	75.6%	10	24.4%	P > 0.05
	No	34	87.2%	5	12.8%	

Fetomaternal outcomes		Age groups (years)				P value
		15 to 30		>30		
		n	%	n	%	
Anemia	Yes	31	81.6%	7	18.4%	P > 0.05
	No	34	81.0%	8	19.0%	
Pregnancy induced hypertension	Yes	12	75.0%	4	25.0%	P > 0.05
	No	53	82.8%	11	17.2%	
Postpartum hemorrhage	Yes	7	70.0%	3	30.0%	P > 0.05
	No	58	82.9%	12	17.1%	

Table 4: Stratification of fetomaternal outcomes with parity

Fetomaternal outcomes		Parity				P value
		0 to 2		> 2		
		n	%	n	%	
NICU admission	Yes	30	71.4%	12	28.6%	P > 0.05
	No	25	65.8%	13	34.2%	
Low birth weight	Yes	44	68.8%	20	31.2%	P > 0.05
	No	11	68.8%	5	31.2%	
Preterm birth	Yes	24	72.7%	9	27.3%	P > 0.05
	No	31	66.0%	16	34.0%	
Preterm mortality	Yes	3	75.0%	1	25.0%	P > 0.05
	No	52	68.4%	24	31.6%	
Preterm labor	Yes	24	58.5%	17	41.5%	P < 0.05
	No	31	79.5%	8	20.5%	
Anemia	Yes	25	65.8%	13	34.2%	P > 0.05
	No	30	71.4%	12	28.6%	
Pregnancy induced hypertension	Yes	9	56.2%	7	43.8%	P > 0.05
	No	46	71.9%	18	28.1%	
Postpartum hemorrhage	Yes	5	50.0%	5	50.0%	P > 0.05
	No	50	71.4%	20	28.6%	

Table 5: Stratification of fetomaternal outcomes with gravidity

Fetomaternal outcomes		Gravidity				P value
		0 to 3		> 3		
		n	%	n	%	
NICU admission	Yes	28	66.7%	14	33.3%	P > 0.05
	No	22	57.9%	16	42.1%	
Low birth weight	Yes	39	60.9%	25	39.1%	P > 0.05
	No	11	68.8%	5	31.2%	
Preterm birth	Yes	21	63.6%	12	36.4%	P > 0.05
	No	29	61.7%	18	38.3%	
Preterm mortality	Yes	3	75.0%	1	25.0%	P > 0.05
	No	47	61.8%	29	38.2%	
Preterm labor	Yes	22	53.7%	19	46.3%	P > 0.05
	No	28	71.8%	11	28.2%	
Anemia	Yes	24	63.2%	14	36.8%	P > 0.05
	No	26	61.9%	16	38.1%	
Pregnancy induced hypertension	Yes	9	56.2%	7	43.8%	P > 0.05
	No	41	64.1%	23	35.9%	
Postpartum hemorrhage	Yes	5	50.0%	5	50.0%	P > 0.05
	No	45	64.3%	25	35.7%	

Table 6: Stratification of fetomaternal outcomes with socioeconomic status

Fetomaternal outcomes		Socioeconomic status						P value
		Poor (monthly income <50,000 Rs)		Middle Class (monthly income 50,000 -100,000 Rs)		Rich (monthly income >100,000 Rs)		
		n	%	n	%	n	%	
NICU admission	Yes	10	23.8%	24	57.1%	8	19.0%	P > 0.05
	No	9	23.7%	22	57.9%	7	18.4%	
Low birth weight	Yes	17	26.6%	36	56.2%	11	17.2%	P > 0.05
	No	2	12.5%	10	62.5%	4	25.0%	
Preterm birth	Yes	7	21.2%	20	60.6%	6	18.2%	P > 0.05
	No	12	25.5%	26	55.3%	9	19.1%	

Fetomaternal outcomes		Socioeconomic status						P value
		Poor (monthly income <50,000 Rs)		Middle Class (monthly income 50,000 -100,000 Rs)		Rich (monthly income >100,000 Rs)		
		n	%	n	%	n	%	
Preterm mortality	Yes	1	25.0%	3	75.0%	0	0.0%	P > 0.05
	No	18	23.7%	43	56.6%	15	19.7%	
Preterm labor	Yes	11	26.8%	22	53.7%	8	19.5%	P > 0.05
	No	8	20.5%	24	61.5%	7	17.9%	
Anemia	Yes	9	23.7%	22	57.9%	7	18.4%	P > 0.05
	No	10	23.8%	24	57.1%	8	19.0%	
Pregnancy induced hypertension	Yes	5	31.2%	8	50.0%	3	18.8%	P > 0.05
	No	14	21.9%	38	59.4%	12	18.8%	
Postpartum hemorrhage	Yes	2	20.0%	6	60.0%	2	20.0%	P > 0.05
	No	17	24.3%	40	57.1%	13	18.6%	

Table 7: Stratification of fetomaternal outcomes with residence

Fetomaternal outcomes		Residence				P value
		Rural		Urban		
		n	%	n	%	
NICU admission	Yes	23	54.8%	19	45.2%	P > 0.05
	No	23	60.5%	15	39.5%	
Low birth weight	Yes	35	54.7%	29	45.3%	P > 0.05
	No	11	68.8%	5	31.2%	
Preterm birth	Yes	15	45.5%	18	54.5%	P > 0.05
	No	31	66.0%	16	34.0%	
Preterm mortality	Yes	2	50.0%	2	50.0%	P > 0.05
	No	44	57.9%	32	42.1%	
Preterm labor	Yes	22	53.7%	19	46.3%	P > 0.05
	No	24	61.5%	15	38.5%	
Anemia	Yes	23	60.5%	15	39.5%	P > 0.05
	No	23	54.8%	19	45.2%	
	Yes	10	62.5%	6	37.5%	P > 0.05

Fetomaternal outcomes			Residence				P value
			Rural		Urban		
			n	%	n	%	
Pregnancy induced hypertension	No	36	56.2%	28	43.8%	P > 0.05	
	Yes	6	60.0%	4	40.0%		
Postpartum hemorrhage	No	40	57.1%	30	42.9%		
	Yes	6	60.0%	4	40.0%		

Table 8: Stratification of fetomaternal outcomes with educational level

Fetomaternal outcomes		Educational level				P value
		Literate		Illiterate		
		n	%	n	%	
NICU admission	Yes	16	38.1%	26	61.9%	P > 0.05
	No	19	50.0%	19	50.0%	
Low birthweight	Yes	26	40.6%	38	59.4%	P > 0.05
	No	9	56.2%	7	43.8%	
Preterm birth	Yes	16	48.5%	17	51.5%	P > 0.05
	No	19	40.4%	28	59.6%	
Preterm mortality	Yes	1	25.0%	3	75.0%	P > 0.05
	No	34	44.7%	42	55.3%	
Preterm labor	Yes	20	48.8%	21	51.2%	P > 0.05
	No	15	38.5%	24	61.5%	
Anemia	Yes	18	47.4%	20	52.6%	P > 0.05
	No	17	40.5%	25	59.5%	
Pregnancy induced hypertension	Yes	5	31.2%	11	68.8%	P > 0.05
	No	30	46.9%	34	53.1%	
Postpartum hemorrhage	Yes	5	50.0%	5	50.0%	P > 0.05
	No	30	42.9%	40	57.1%	

DISCUSSION:

In our study the mean maternal age was 24.13 years with the majority of women aged between 15 and 30 years. A similar distribution was observed in the study conducted by Akhter et al. where the age group of 20–25 years accounted for 78.26% of twin pregnancies. Notably women in this age group are less likely to experience complications typically associated with advanced maternal age such as hypertension and diabetes which were more common in older women.¹³

Gestational age at delivery in our study averaged 38.30 ± 1.24 weeks. This is consistent with the findings reported by Sundaram et al where the majority of twin pregnancies delivered between 32 and > 36 weeks of gestation.¹⁴ However the incidence of preterm birth in our study (41.2%) is comparatively lower than in studies like the one by Rani et al where 57.1% of pregnancies delivered preterm.¹² The higher rates of preterm delivery in the aforementioned study reflect the persistent risk of prematurity inherent to twin pregnancies despite advances in prenatal care.

In terms of maternal complications our findings indicate that 51.2% of the women experienced preterm labor and 47.5% were diagnosed with anemia. These rates are comparable to those in other studies such as those by Akhter et al who found anemia in 34.78% patients and Sundaram et al, they found that 36% patients had anemia.^{13,14} The higher rate of anemia in our study could be attributed to socioeconomic factors including a notable proportion of women with low income and rural residence, where access to adequate nutrition and prenatal care is limited. Similarly the 20% incidence of pregnancy-induced hypertension (PIH) in our cohort is comparable to that in the study by Akhter et al. where pre-eclampsia occurred in 21.74% patients.¹³ These maternal complications are critical markers for assessing the severity of twin pregnancies and they highlight the importance of early detection and management of risks such as anemia and hypertension.

Our study also found a notable incidence of postpartum hemorrhage (PPH) (12.5%). This is in line with the findings by Rani et al, in their cohort of patients with twin pregnancies, about 13.33% patients had the incidence of PPH.¹²

Neonatal outcomes in our study revealed that 80% of the neonates had low birth weight (LBW) and 52.5% required NICU admissions with perinatal mortality occurring in 5% of cases. These outcomes are consistent with Kundariya et al, they observed LBW in around 91.9% neonates and 62% neonates needed admission to NICU. However they had a higher rate of neonatal mortality which was 11%.¹⁵

Shobha Rani et al. reported high rates of LBW and NICU admissions due to prematurity and other complications such as twin-to-twin transfusion syndrome (TTTS) and intrauterine growth restriction (IUGR).¹²

The higher rates of complications observed in twin pregnancies underscore the need for specialized prenatal care. Our findings align with global studies that emphasize the high-risk nature of twin pregnancies and the importance of close monitoring throughout pregnancy to mitigate maternal and neonatal morbidity and mortality.

CONCLUSION:

We conclude that, twin pregnancies present potential maternal and neonatal risks such as preterm labor (51.2%), anemia (47.5%), and pregnancy-induced hypertension (20%) while neonatal outcomes such as low birth weight (80%) and NICU admissions (52.5%). To improve outcomes we suggest it is crucial to enhance antenatal monitoring and early interventions to address these common complications.

AUTHOR CONTRIBUTION

Author	Contribution
Nuzhat Afza	Data Collection, Data Entry, Data Analysis, and Methodology Design, Manuscript Writing, and Manuscript Revision
Khawja Fawad Pervez*	Critical Input, Conception of Study, Final Approval of Draft
Ayesha Fayyaz	Literature Search and Critical Input
Ghazala Naz	Literature Search and Critical Input

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