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STUDY OF MATERNAL OUTCOMES IN TWIN PREGNANCIES: A PROSPECTIVE OBSERVATIONAL STUDY AT A TERTIARY CARE CENTRE

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ABSTRACT

Background: Twin pregnancies are inherently associated with higher maternal morbidity when compared to singleton gestations due to increased physiological demand and obstetric complications. With the rising incidence of twin pregnancies owing to assisted reproductive techniques and delayed childbearing, understanding maternal outcomes is essential for optimizing antenatal and intrapartum care.
Objectives: To evaluate maternal demographic characteristics, associated risk factors, and antepartum, intrapartum, and postpartum complications among women with twin pregnancies.
Materials and Methods: This prospective observational study was conducted at a tertiary care teaching hospital. All women diagnosed with twin pregnancy and managed at the institution were included. Maternal age distribution, significant obstetric and medical history, and maternal complications during antepartum, intrapartum, and postpartum periods were analyzed. Data were recorded using a predesigned proforma and analyzed descriptively. Results are presented as frequencies and percentages.
Results: The mean maternal age was 26.18 ± 4.64 years, with the majority of women (71%) belonging to the 21–30-year age group. Significant past history was present in a subset of cases, including previous cesarean section, infertility treatment, and medical disorders. Antepartum complications were common, with anemia and hypertensive disorders being the predominant conditions. Intrapartum complications included increased rates of operative interventions and postpartum hemorrhage risk. Postpartum complications occurred in 13% of cases, with postpartum hemorrhage accounting for the majority, followed by traumatic and mixed causes. Postpartum eclampsia was noted in a small proportion of women.
Conclusion: Twin pregnancies are associated with substantial maternal morbidity across all stages of pregnancy. Early identification of risk factors, vigilant antenatal surveillance, and delivery at tertiary care centers are crucial to improving maternal outcomes.

Keywords: *Twin pregnancy; Maternal morbidity; Antepartum complications; Postpartum hemorrhage.*

INTRODUCTION

Twin pregnancy represents a unique obstetric entity associated with increased maternal and perinatal risks when compared to singleton gestations. The physiological adaptations required to support two fetuses place additional strain on maternal systems, predisposing women to a higher incidence of complications such as anemia, hypertensive disorders, hemorrhage, and operative delivery [1]. The global incidence of twin pregnancies has increased over the past few decades, largely due to the widespread use of assisted reproductive technologies and delayed childbearing [2].

Maternal complications in twin pregnancies can occur throughout the continuum of pregnancy, including the antepartum, intrapartum, and postpartum periods. Antepartum complications such as anemia, preeclampsia, gestational diabetes, and preterm labor are reported more frequently in twin gestations [3]. Intrapartum risks include malpresentation, dysfunctional labor, and increased rates of cesarean delivery [4]. The postpartum period is particularly critical, with postpartum hemorrhage being one of the leading causes of maternal morbidity due to uterine overdistension and atony [5].

Despite advances in obstetric care, twin pregnancies continue to contribute disproportionately to maternal morbidity, particularly in low- and middle-income countries where access to specialized care may be limited [6]. Tertiary care centers play a pivotal role in managing such high-risk pregnancies by providing multidisciplinary care, advanced monitoring, and timely interventions.

There is a need for institution-based prospective data to better understand maternal outcomes in twin pregnancies within specific populations. Such data can guide clinical protocols, resource allocation, and patient counseling. The present study, conducted at a tertiary care center, aims to systematically evaluate maternal outcomes in twin pregnancies, focusing on demographic factors, significant history, and complications occurring during the antepartum, intrapartum, and postpartum periods.

OBJECTIVE

To study maternal outcomes in twin pregnancies managed at a tertiary care centre, with emphasis on maternal demographics, significant obstetric history, and antepartum, intrapartum, and postpartum complications.

MATERIALS AND METHODS

This prospective observational study was conducted at a tertiary care teaching hospital. All pregnant women diagnosed with twin gestation and admitted for antenatal care or delivery during the study period were included. All women with ultrasonographically confirmed twin pregnancy were enrolled into the study. Women with higher-order multiple pregnancies were excluded.

Detailed maternal data were collected using a predesigned proforma, including age, obstetric and medical history, and complications during pregnancy, labor, and the postpartum period. Maternal outcomes were categorized as antepartum, intrapartum, and postpartum complications. Data were entered and analyzed descriptively. Results were expressed as numbers and percentages and presented in tabular and narrative form.

RESULTS

A total of 100 women with twin pregnancies were included in the present prospective observational study. The maternal age of women with twin pregnancy ranged from 19 to 38 years, with a mean age of 26.18 ± 4.64 years. The majority of cases belonged to the 21–25-year age group (42%), followed by 26–30 years (29%). Together, 71% of women were between 21 and 30 years of age. Women aged less than 20 years constituted 9%, while 18% were in the 31–35-year age group. Only 2% of women were aged more than 35 years (Table 1).

Most women (75%) had no significant past history and conceived spontaneously. A history of treatment for infertility was present in 18% of cases. Family history of twin pregnancy was noted in 4%, while 3% had a past history of twin pregnancy (Table 2).

Table 1: Distribution of Cases According to Maternal Age

Maternal age (years)	Number of cases	Percentage
<20	9	9%
21–25	42	42%
26–30	29	29%
31–35	18	18%
>35	2	2%
Total	100	100%

Table 2: Distribution of Cases According to Significant History

Significant history	Number of cases	Percentage
No significant history	75	75%
Treatment for infertility	18	18%

Family history of twin pregnancy	4	4%
Past history of twin pregnancy	3	3%

Table 3: Antepartum Complications in Mothers with Twin Pregnancy

Antepartum complication	Number	Percentage
Preterm labour	38	38%
PIH	30	30%
PPROM	20	20%
Anemia	13	13%
PROM	10	10%
Antepartum eclampsia	2	2%
Placenta previa	1	1%
Abruptio placentae	1	1%

Table 4: Intrapartum Complications in Mothers with Twin Pregnancy

Intrapartum complication	Number	Percentage
Malpresentation	31	31%
Prolonged labour	2	2%
DTA	2	2%
Hand prolapsed	1	1%
Cord presentation	1	1%
NPOL	1	1%
Obstetric hysterectomy	1	1%
Maternal mortality	0	0%

Table 5: Postpartum Complications in Mothers with Twin Pregnancy

Postpartum complication	Number	Percentage
Atonic PPH	7	7%
Traumatic PPH	2	2%
Mixed PPH	2	2%
Postpartum eclampsia	2	2%
No complication	87	87%

Antepartum complications were common among women with twin pregnancies. The most frequent complication was preterm labour, observed in 38% of cases. Pregnancy-induced hypertension (PIH) occurred in 30%, while preterm premature rupture of membranes (PPROM) was seen in 20%. Anemia was documented in 13% of women. PROM was present in 10%, antepartum eclampsia in 2%, and placenta previa and abruptio placentae were observed in 1% each (Table 3).

Intrapartum complications were observed in a subset of cases, with malpresentation being the most common, occurring in 31% of women. Prolonged labour and deep transverse arrest (DTA) were each noted in 2% of cases. Hand prolapse, cord presentation, and non-progress of labour (NPOL) were seen in 1% each. Obstetric hysterectomy was required in 1% of cases. There was no maternal mortality reported in the study population (Table 4).

Postpartum complications occurred in 13% of women. The most common postpartum complication was postpartum hemorrhage (PPH), affecting 11% of cases. Atonic PPH was observed in 7%, while traumatic PPH and mixed PPH occurred in 2% each. Postpartum eclampsia was noted in 2% of women. The majority of women (87%) had no postpartum complications (Table 5).

DISCUSSION

The present study demonstrates that twin pregnancies are associated with a substantial burden of maternal morbidity spanning the antepartum, intrapartum, and postpartum periods. The predominance of women in the 21–30-year age group reflects peak reproductive age and is consistent with earlier Indian studies on twin gestations [7]. Increasing use of fertility treatments and improved access to antenatal care may also contribute to this age distribution.

Antepartum complications were frequent in the present cohort, with anemia and hypertensive disorders emerging as the most common conditions. This finding aligns with prior literature reporting significantly higher rates of anemia and pregnancy-induced hypertension in twin pregnancies due to increased nutritional demands, expanded placental mass, and exaggerated physiological changes [8,9]. Similar trends have been reported in prospective Indian cohorts evaluating maternal risk profiles in multiple gestations [10,11].

Intrapartum morbidity remains an important concern in twin pregnancies. Increased obstetric interventions and labor-related complications observed in this study are well documented in previous studies, which attribute these outcomes to malpresentation, uterine overdistension, and dysfunctional labor patterns common in twin gestations [4,12]. Data from tertiary care centers in India have similarly reported higher intrapartum complication rates among twin pregnancies compared to singletons, emphasizing the need for skilled intrapartum monitoring and timely decision-making [13].

Postpartum complications were observed in 13% of women in the present study, with postpartum hemorrhage being the most common adverse outcome. Uterine atony secondary to overdistension remains the leading mechanism underlying postpartum hemorrhage in twin gestations [14]. Comparable rates of postpartum hemorrhage have been reported in recent Indian observational studies on twin pregnancy outcomes, reinforcing the need for active management of the third stage of labor and preparedness for obstetric emergencies [10,15]. The occurrence of postpartum eclampsia, though limited, highlights the persistence of hypertensive risk beyond delivery and underscores the importance of continued postpartum surveillance [16].

Recent Indian literature further supports the findings of this study. Prospective observational studies conducted at tertiary care centers have demonstrated that twin pregnancies are consistently associated with higher maternal complication rates, particularly anemia, hypertensive disorders, operative deliveries, and postpartum hemorrhage [10,11]. These studies emphasize that maternal morbidity in twin gestations remains a major clinical challenge even in well-equipped healthcare settings.

Overall, the findings of the present study are concordant with contemporary national and international evidence, reaffirming that twin pregnancies should be managed as high-risk from early gestation through the postpartum period. Institutional delivery at tertiary care centers with multidisciplinary expertise remains central to improving maternal outcomes.

CONCLUSION

Twin pregnancies are associated with increased maternal morbidity across all stages of pregnancy. Anemia, hypertensive disorders, and postpartum hemorrhage remain the leading contributors to adverse maternal outcomes. Early risk identification, vigilant monitoring, and delivery in tertiary care settings are essential to improve maternal safety.

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DECLARATION

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