

# Fetomaternal Outcome of Patients with Multiple Pregnancy: A Single Centre Experience

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## Abstract

**Background:** Multiple pregnancies are prone to be associated with adverse maternal and perinatal outcome. The incidence of multiple pregnancies has shown a significant increase over the last decades. **Aim of the Study:** This study aimed to describe the maternal and perinatal outcomes in multiple pregnancies delivered in a tertiary care hospital, Bangladesh. **Methods:** This was a prospective observational study; 23 patients were enrolled and analyzed. The study conducted with 23 women with twin pregnancies, over 2 year's months from January 2020 December 2021 in the department of Gynecology and Obstetrics, Chittagong Medical College and Hospital, Chittagong, Bangladesh. **Result:** Out of 23 cases, 8 patients had intrapartum complications like PPH, mal-presentation, cord prolapse, low-lying placenta, and placental abruption. In this, 4(23.53%) had mal-presentation, and only one had PPH. These intrapartum complications were also categorized according to their chronicity. Mal presentations were seen in 23.53% of DCDA and 33.3% of MCDA with  $p=0.47$ . Both were not statistically significant, as shown in Table 4. These twin-specific complications were noted according to their chronicity. Discordant twin was seen in 11.76% of DCDA and 16.67% MCDA. Single IUD in 7.9% of DCDA. The complications and outcomes of the study population; more than 65% of patients needed NICU. In our study, we noted 4 perinatal death caused by intrauterine death, twin-to-twin transfusion syndrome, birth asphyxia, and respiratory distress. **Conclusion:** Majority of the multiple pregnancy is high risk one. So, all multiple pregnancies need early diagnosis, adequate antenatal, intra-natal and post-partum care to improve the outcome and should have mandatory hospital delivery.

**Keywords:** Multiple gestation, Maternal and fetal outcome.

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## INTRODUCTION

Multiple pregnancies have a global impact on maternal and perinatal risk in any pregnancy and impact society in terms of social and economic effects [1]. Multiple gestations have risen significantly over several decades, primarily due to the increased use of fertility drugs for ovulation induction, superovulation, and Assisted Reproductive Technologies (ART) such as in vitro fertilization. Multiple pregnancies refer to the development of 2 or more fetuses simultaneously in a pregnant uterus. The simultaneous development of two fetuses in the uterus is called twins, and that of three is triplets and quadruplets, and pentuplets depending on

the number of fetuses. The naturally occurring twin pregnancy is approximately 1 in 80 births, and natural higher-order multifetal gestations are uncommon. The evolving infertility treatment has lowered the rate of higher-order multifetal births. The incidence was 1% of all pregnancies, but the incidence rate appears variable in different parts of the world [2-4]. Historically, only 1% of all pregnancies are twin pregnancies, indicating that by nature, human reproduction is programmed to carry and nurture only one fetus at a time [5]. The rates, the number of twins, and higher-order multifetal gestation increased between 1980 and 2001 [6]. The prevalence of twin births varies "between" 2-20 per

1000 births worldwide. Multiple gestations are a mixed blessing and, if successful, allow a couple to expand their family with a minimum number of pregnancies rapidly. It has aroused curiosity, reverence, and even cruelty since ancient times [7]. The study of twins and the phenomenology of twinning are called GEMELLOLOGY [8]. Multiple pregnancies have always been a subject of interest to obstetricians and paediatricians alike. Since 1980, there has been a 65% increase in the frequency of twins and a 500% increase in triplet and higher-order births [9]. Multifetal gestations are also associated with significantly higher maternal morbidity and healthcare costs. Women with multiple gestations are nearly 6 times more likely to be hospitalized with complications, including pre-eclampsia, preterm labor, premature rupture of membranes, placental abruption, pyelonephritis, and postpartum hemorrhage [10]. More frequent and severe complication increases as the number of fetus increase. With the advent of superovulation and assisted conception, the incidence of multiple pregnancies has increased. It contributes disproportionately to the perinatal mortality rate. So attentive antenatal and intrapartum care is needed. The success of treatment results from better understanding, early diagnosis, fetal surveillance, counselling, skill, and timely intervention. This study aimed to describe the maternal and perinatal outcomes in multiple pregnancies delivered in a tertiary care hospital, Bangladesh.

## METHODOLOGY & MATERIALS

This was a prospective observational study; 23 patients were enrolled and analyzed. The study conducted with 23 women with twin pregnancies, over 2 year's months from January 2020 December 2021 in the department of Gynecology and Obstetrics, Chittagong Medical College and Hospital, Chittagong, Bangladesh. Patients in this study were from different socio-economic statuses and educational statuses. Detailed history, including family history and infertility treatment history, was taken. All routine and specific investigations were done. They were hospitalized when required, and complications were treated. Information about the study, like age, residence, parity, gravida, and family history of twin pregnancy, was obtained. Chronicity was assessed using ultra sonogram antenatal and placental examination after delivery of the placenta. All the patients delivered babies in our institution under close observation. The course of labor, mode of delivery, and outcome of labor, including fetal outcome, were noted. The date, delivery time, duration of labor, and interval between the two babies were noted. All stages of labor were carefully managed with the presence of a team of obstetricians. Antepartum, intrapartum, and postpartum complications were also noted. A neonatologist examined all the babies after birth, and NICU care was given when required. Patients were followed-up till discharge.

### Inclusion Criteria:

- Women with twin pregnancies of more than 28 weeks of gestational age attending antenatal OP/ antenatal ward/ labor ward were included in the study.

### Exclusion Criteria:

- Patients with triplet pregnancy and higher-order multifetal gestations.
- Patients with gestational age less than 28 weeks.
- Patients with a known history of chronic hypertension/diabetes mellitus/chronic renal disease and other chronic medical disorders.
- Fetuses delivered outside our hospital were excluded from the study.

All data were presented in a suitable table or graph according to their affinity. A description of each table and graph was given to understand them clearly. All statistical analysis was performed using the statistical package for social science (SPSS) program, and Windows. Continuous parameters were expressed as mean  $\pm$ SD and categorical parameters as frequency and percentage. Comparisons between groups (continuous parameters) were made by Student's t-test. Categorical parameters compared by Chi-Square test. The significance of the results as determined by a 95.0% confidence interval and a value of  $P < 0.05$  was considered to be statistically significant.

## RESULT

This prospective observational study was conducted with 23 patients with multiple gestations; all gave birth to a baby at our hospital. By satisfying the inclusion criteria, the following results were observed. Higher incidences were noted between the age group of 20-25 years (78.26%), 4(17.39%) were noted between the age group of 26-30 years, and a lower incidence was noted in patients above 30 years (4.35%). In our study, the highest incidence of twin pregnancies regarding parity was among prim gravida 15(65.22%), and the maximum was of spontaneous conception 18(78.26%). None of them had a family history of twins or a history of the same. In our study, 10(43.48%) had preterm deliveries, and 16 (32%) delivered after 36 weeks of gestation, as shown in Table 1. Regarding maternal complications, we noted 8 women (34.78%) with anemia and 5(21.74%) with pre-eclampsia. However, only one patient had eclampsia. Two patients had hypothyroidism, one had GDM, and one had Oligohydramnios. Most 12(52.17%) patients underwent cesarean section, and 11(47.83%) delivered vaginally, as shown in Table 2. The majority of the twin had cesarean sections, either elective or emergency. Mode of delivery according to chronicity was also noted. Seventeen cases with DCDA and 6 with MCDA underwent cesarean section, as shown in Table 3. Out of 23 cases, 8 patients had intrapartum complications

like PPH, mal-presentation, cord prolapse, low-lying placenta, and placental abruption. In this, 4(23.53%) had mal-presentation, and only one had PPH. These intrapartum complications were also categorized according to their chronicity. Mal presentations were seen in 23.53% of DCDA and 33.3% of MCDA with  $p=0.47$ . Both were not statistically significant, as shown in Table 4. These twin-specific complications were noted according to their chronicity. Discordant twin

was seen in 11.76% of DCDA and 16.67% MCDA with  $p=0.57$  (statistically insignificant). Single IUD in 7.9% of DCDA and none in MCDA with  $p=0.57$  (statistically insignificant), as shown in Table 5. Table 6 shows the complications and outcomes of the study population; more than 65% of patients needed NICU. In our study, we noted 4 perinatal death caused by intrauterine death, twin-to-twin transfusion syndrome, birth asphyxia, and respiratory distress (Table 6).

**Table-1: Demographic profile of the study population (N=23)**

| Characteristics                | Frequency | Percentage |
|--------------------------------|-----------|------------|
| <b>Maternal age (years)</b>    |           |            |
| 20-25                          | 18        | 78.26      |
| 26-30                          | 4         | 17.39      |
| >30                            | 1         | 4.35       |
| <b>Parity</b>                  |           |            |
| Primigravida                   | 15        | 65.22      |
| Multigravida                   | 8         | 34.78      |
| <b>Mode of conception</b>      |           |            |
| Spontaneous                    | 18        | 78.26      |
| Infertility treatment          | 5         | 21.74      |
| <b>Gestational age (weeks)</b> |           |            |
| 28-32                          | 10        | 43.48      |
| >32-36                         | 6         | 26.09      |
| >36                            | 7         | 30.43      |

**Table-2: Antenatal maternal complications and mode of delivery (N=23)**

| Characteristics                         | Frequency | Percentage |
|---|-----------|------------|
| <b>Antenatal maternal complications</b> |           |            |
| Pre-eclampsia                           | 5         | 21.74      |
| Eclampsia                               | 1         | 4.35       |
| Anaemia                                 | 8         | 34.78      |
| Abruptio placenta                       | 1         | 4.35       |
| Oligohydramnios                         | 1         | 4.35       |
| GDM                                     | 1         | 4.35       |
| Hypothyroidism                          | 2         | 8.70       |
| Premature rupture of membrane           | 1         | 4.35       |
| Preterm premature                       | 2         | 8.70       |
| Gestational thrombocytopenia            | 1         | 4.35       |
| <b>Mode of delivery</b>                 |           |            |
| Normal vaginal delivery                 | 11        | 47.83      |
| Caesarean section                       | 12        | 52.17      |

**Table-3: Mode of delivery depending on chronicity (N=23)**

| Mode of delivery        | Di-chorionic diamniotic (n=17) |            | Mono-chorionic diamniotic (n=6) |            | P-value |
|-------------------------|--------------------------------|------------|---------------------------------|------------|---------|
|                         | N                              | %          | N                               | %          |         |
| Normal Vaginal Delivery | 8                              | 47.06      | 2                               | 33.33      | 0.98    |
| Caesarean               | 9                              | 52.94      | 4                               | 66.67      | 0.97    |
| <b>Total</b>            | <b>17</b>                      | <b>100</b> | <b>6</b>                        | <b>100</b> |         |

**Table-4: Intrapartum complications according to the chronicity (N=23)**

| Variables              | Di-chorionic diamniotic (n=17) |             | Mono-chorionic diamniotic (n=6) |              | P-value |
|------------------------|--------------------------------|-------------|---------------------------------|--------------|---------|
|                        | N                              | %           | N                               | %            |         |
| Post-Partum Hemorrhage | 1                              | 5.88        | 1                               | 0.06         | 0.47    |
| Malpresentation        | 4                              | 23.53       | 2                               | 33.30        | 0.72    |
| Cord prolapses         | 1                              | 5.88        | 0                               | 0            | 0.97    |
| Low lying placenta     | 1                              | 5.88        | 0                               | 0            | 0.54    |
| Placental abruption    | 1                              | 5.88        | 0                               | 0            | 0.97    |
| <b>Total</b>           | <b>8</b>                       | <b>47.6</b> | <b>3</b>                        | <b>33.36</b> |         |

**Table-5: Twin-specific fetal complications according to the chronicity (N=23).**

| Variables                         | Di-chorionic diamniotic (n=17) |             | Mono-chorionic diamniotic (n=6) |           | P value |
|-----------------------------------|--------------------------------|-------------|---------------------------------|-----------|---------|
|                                   | N                              | %           | N                               | %         |         |
| Twin-to-twin transfusion syndrome | 0                              | 0           | 1                               | 16.67     | 0.24    |
| Discordant twins                  | 2                              | 11.76       | 1                               | 16.67     | 0.57    |
| Acardiac twins                    | 2                              | 11.76       | 1                               | 16.67     | 0.24    |
| Single intrauterine fetal demise  | 1                              | 5.88        | 0                               | 0.00      | 0.57    |
| Congenital anomalies              | 1                              | 5.88        | 0                               | 0.00      | 0.54    |
| <b>Total</b>                      | <b>4</b>                       | <b>29.4</b> | <b>3</b>                        | <b>50</b> |         |

**Table-6: Complications and outcomes of the study population (N=23).**

| Variables                                   | Frequency | Percentage |
|---|-----------|------------|
| <b>NICU admission</b>                       |           |            |
| Needed                                      | 15        | 65.22      |
| Not needed                                  | 8         | 34.78      |
| <b>Perinatal mortality (cause)</b>          |           |            |
| Intrauterine death                          | 1         | 4.35       |
| Twin to twin transfusion syndrome           | 1         | 4.35       |
| Birth asphyxia                              | 1         | 4.35       |
| Respiratory distress                        | 1         | 4.35       |
| <b>Expired neonates and their chorionic</b> |           |            |
| Di-chorionic diamniotic (n=17)              | 3         | 17.65      |
| Mono-chorionic diamniotic (n=6)             | 2         | 33.33      |

## DISCUSSION

Despite the advances in perinatal care, twins and pregnancies of higher order have challenged obstetricians today. This is because of the high risk to both the mother and foetus. Multifetal gestation is a high-risk pregnancy as it has antepartum, intrapartum, and fetal complications, including long-term developmental issues. In the last 2 decades, assisted reproductive technologies have seen a more significant number of multiple gestations. Studies conducted in India since the 1970s showed the maternal twinning rate at 9-16/1000 births [11]. In our study, almost 80% had spontaneous conception, and more than 20% conceived from ovulation induction. Our findings show that maternal and perinatal morbidity and mortality among twin births were in a low-resource setting and twin pregnancy poses an intrinsic risk to both mother and neonates. We observed the highest incidence in the 20-25(78.26%), and the most negligible incidence was noted in women above 30 years (4.35%). The highest incidence was noted among primigravida. All participants were registered, had regular antenatal check-ups in our institution, and underwent good ultrasounds. Despite this good antenatal care, 58% had preterm delivery in our study, whereas Chowdhury *et al.*, showed 44%, Hashimoto *et al.*, and other series showed 29-54%. Bengal *et al.*, showed 88% preterm delivery, much higher than our study [12, 13]. Our study showed that common antepartum complications associated with twin pregnancy were anemia (34.78%), pre-eclampsia (21.74%), and preterm deliveries (58%). However, a study conducted by Rizwan *et al.*, showed preterm labor (84%), anemia (65.6%), and hypertension (31.2%) as common antepartum complications, which

is much higher than our study [14]. Spellacy *et al.*, study showed 9.4%, and Chowdhury *et al.*, showed 26% of anemia in their study [15]. Generally, pre-eclampsia is 2.6 times higher in twin gestation than in singleton pregnancies [16]. Spellacy *et al.*, showed 12% of pre-eclampsia, whereas, in this study, we noted a higher rate of 26%. In our study, 54% had a cesarean section, like in the Chittacharoen study [17, 18]. No maternal mortality was noted in our study. NICU admissions were required in 65.22% of cases. Our study showed 4 perinatal deaths (17.39%), like Adesina *et al.*, and Sulthan *et al.*, reported 11% of perinatal mortality [19].

### Limitations of the Study

Every hospital-based study has some limitations and the present study undertaken is no exception to this fact. The limitations of the present study are mentioned. Therefore, the results of the present study may not be representative of the whole of the country or the world at large. The number of patients included in the present study was less in comparison to other studies. Because the trial was short, it was difficult to remark on complications and mortality.

## CONCLUSION AND RECOMMENDATIONS

Twin pregnancy seems to be a significant risk factor for maternal and perinatal mortality and morbidity. Even though the management of twin pregnancy is challenging, most of the complications are preventable. Proper antenatal care with timely decisions can lead to better fetomaternal outcomes and better

antenatal care proved to be an important factor in lowering the incidence of perinatal mortality.

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#### CONFLICT OF INTEREST

None declared.

#### ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee.

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