

Prospective Case Control Assessment of the Maternal Fetal Outcome in Multiple versus Singleton Pregnancies Delivered PMCH, Patna, Bihar

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Abstract

Aim: To compare the maternal and fetal outcome in multiple versus singleton pregnancies in PMCH, Patna, Bihar.

Material & Method: This was a prospective case control study between twin deliveries (cases) beyond 24 gestational weeks and demographically matched singleton deliveries (controls) immediately following those twin births, were carried out in the Department of Obstetrics and Gynecology, PMCH, Patna, Bihar, India from October 2021 to February 2022

Results: There were 2901 births during the study period, among them 60 were twin births, which were compared with 60 singleton births. Mean parity for twin and singleton deliveries were 3.7 ± 1.8 and 1.88 ± 0.8 , mean gestational age were 37.8 ± 3.7 weeks and 39.6 ± 2.7 weeks respectively. Anemia complicated 5 times more often in twin pregnancies than singleton pregnancies (OR: 6.528, CI: 0.92-25.62), similarly hypertension complicated 3.2 times more often than controls (OR; 3.819, CI: 0.86-11.2).

Conclusion: Despite improvement in antenatal and neonatal care, twins pose a higher threat to MCH outcome. Hence, thorough counselling, patient awareness, more vigilance at interpretation of antenatal tests, intrapartum monitoring and bridging the gap between demand and supply at NICU facility can improve maternal and neonatal outcome; as well as can help parents cope with the psychological stress.

Keywords: Twin pregnancy, Fetal outcome, Singleton pregnancies.

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Introduction

Multiple gestations are becoming a problem of increasing dimensions with the dramatic increase in numbers due to a trend towards late childbearing and the widespread use of assisted reproduction. The Worldwide incidence of multiple

pregnancies varies considerably it is around 2 -20 per 1000 births. [1] Highest burden of multiple pregnancies has been found in Sub-Saharan Africa, with an average twinning rate of 20 per 1,000 deliveries compared to 10 per 1,000

deliveries in Europe and around 5-6 per 1,000 deliveries in Asia. [2-4]

A number of factors have been associated with increased incidence of twinning. These include advanced maternal age and the use of fertility drugs for induction of ovulation.[5]. Other factors include family history of twinning, maternal height and weight, previous history of twin delivery and diet. [6, 7]

Twin pregnancy has been attributed to increasing maternal, fetal and neonatal complications especially in terms of maternal anemia, hypertensive disorders, preterm birth, polyhydramniotic, antepartum and postpartum hemorrhage; as well as prematurity, low birth weight, congenital anomaly and perinatal death.

Hence, this study was undertaken to know the incidence of twin gestation and to study the maternal and fetal complications when compared to singleton pregnancies.

Material & Method:

This was a prospective observational and case control study between twin deliveries (cases) beyond 24 gestational weeks and demographically matched singleton deliveries (controls) immediately following those twin births, were carried out in the Department of Obstetrics and Gynecology, PMCH, Patna, Bihar, India from October 2021 to February 2022

Data were collected from the delivery record book and case records of twin deliveries beyond 24 gestational weeks, entered into a predesigned excel sheet on maternal age, parity, antenatal medical and obstetric complications, and gestational age at birth, birthweight, and postpartum maternal and neonatal complications.

Data were analyzed in terms of frequency, means and standard deviations with use of MS excel, comparative analysis was done using student's t test and odds ratio (OR) with 95% confidence interval (CI) was calculated where applicable. A P – value <0.05 was taken as significant.

This study defines preterm as gestations below 37 weeks, low birth weight as less than 2500gm at birth. Chorionicity was determined from USG reports.

Results:

There were 2901 births during the study period, among them 60 were twin births, which were compared with 60 singleton births.

Table 1 shows Birth weight distribution. 75% babies in twin pregnancy were under 1.5-2.5 weight group while 73.3% babies in singleton pregnancy belonged to >2.5 weight group.

Table 2 Shows mean maternal age for twins and singleton deliveries were 22.1±2.11 years and 23.71±3.7 years respectively. Mean parity for twin and singleton deliveries were 3.7±1.8 and 1.88±0.8, mean gestational age were 37.8±3.7 weeks and 39.6±2.7 weeks respectively. The mean birth weight for twins was 3.6±0.77 kgs and that for singletons was 3.8±0.87 kg. There was statistical significance (P<0.05) between two groups in three parameters measured. NICU stay was prolonged, surfactant therapy and complex interventional procedures were often needed for management of twin neonates; average stay was 7.27±7.6 days vs 3.1±1.91 days for singleton babies.

Table 3 shows maternal complications and fetal outcome between twin and singleton deliveries. Anemia complicated 5 times more often in twin pregnancies than singleton pregnancies (OR: 6.528, CI: 0.92-25.62), similarly hypertension complicated 3.2 times more often than controls (OR; 3.819, CI: 0.86-11.2). The preterm birth rate for twins was 44.2 times higher than that for singleton deliveries (OR: 55.927, CI: 9.82-188.20), similarly LBW was 30-fold frequent among twins than singleton neonates (OR: 30.728, CI: 9.90-67.81).

Table 1: Birth weight distribution

Type of pregnancy	Weight					
	<1.5	%	1.5-2.5	%	>2.5	%
Twin Pregnancy	5	8.3%	40	75%	5	8.3%
Singleton Pregnancy	2	3.3%	5	8.3%	43	73.3%

Table 2: Maternal and fetal characteristics between twin and singleton groups

Characteristics	Twin gestation	Singleton gestation	t-test	P-value
Maternal age	22.1±2.11	23.71±3.7	0.695	>0.05
Mean parity	3.7±1.8	1.88±0.8	2.176	<0.05
Gestational age	37.8±3.7	39.6±2.7	9.810	<0.05
Birth weight	3.6±0.77	3.8±0.87	-5.629	>0.05
NICU stay	7.27±7.6	3.1±1.91	2.715	<0.05

Table 3: Maternal complications and fetal outcome

Variables		Twin No (%)	Singleton No (%)	Odds Ratio	CI 95 %
Anemia	Yes	10	3	6.528	0.92-25.62
	No	50	57		
HDP	Yes	12	6	3.819	0.86-11.2
	No	48	56		
Malpresentation	Yes	9	2	7.328	0.72-70.82
	No	51	58		
PROM	Yes	8	4	5.271	0.481-10.77
	No	52	56		
Mode of delivery	C- section	32	29	2.917	0.629-4.691
	Vaginal	28	31		
PPH	Yes	5	1	7.269	0.571-39.62
	No	55	59		
Preterm Birth	Yes	41	4	55.927	9.82-188.20
	No	19	56		
Low Birth weight	Yes	12	5	30.728	9.90-67.81
	No	48	55		
Perinatal death	Yes	10	0	NA	
	No	150	60		
Congenital anomaly	Yes	5	0	NA	
	No	55	60		

Discussion:

Studies reported in different regions in Nigeria such as in Jos (1:43), [8] Iyielu (1:35.5), [9]. Calabar (1:37.7), [10] Benin city (1:43), [11] and Maiduguri (1:69.4).8 [12]. It is also much higher than that reported in Europe (1.5% in UK), 1:80 in Northern America, [13] and 1:100 in Saudi Arabia. [14] Therefore, twinning can be said to vary among races and ethnic

groups, and this may be due to genetic influences.

Obiechina Nj et al [15] al reported mean maternal age as 30 years and Assuncao RA et al [16] reported it as 29.1 years.

There was an increase in the incidence of twinning among the Igbo women, as shown in the work done by Adinma and Agbai. [9] This difference may be explained by the increasing use of ovulation induction drugs in the

management of infertility and/or the increase in the postponement of pregnancy until the thirties as women increasingly pursue careers before childbearing.

Perinatal loss was 6.52 % in birth weight 2.01-2.5 kg and there were no deaths above 2.5 kg. In singleton controls, all deaths were confined to babies weighing less than 2.5 Kg, with maximum deaths occurring between 1.51- 2kg group (42.85%). Mahita Reddy et al found highest perinatal mortality in birth weight of 1-1.5 kg and highest survival in >2.5 kg weight. [17]

Upreti Preported a CS rate at 49% in her study of 218 twin pregnancies, where they operated on two cases for second twin delivery. Congenital anomalies were observed among 4% of twins in our study, Pandey MR et al [18] reported as 8.4% among their twin NICU admissions, and Assuncao RA et al [19] reported it as 12.8 %. [20]

Conclusion:

Despite improvement in antenatal and neonatal care, twins pose a higher threat to MCH outcome. Hence, thorough counselling, patient awareness, more vigilance at interpretation of antenatal tests, intrapartum monitoring and bridging the gap between demand and supply at NICU facility can improve maternal and neonatal outcome; as well as can help parents cope with the psychological stress. Maternal outcome continued to be same due to rising number of mothers postponing pregnancy and experiencing fertility assistance.

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