

**Original Research Article****A Study on the Maternal and Foetal Outcome of Twin Pregnancy**

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Katihar Medical College, Katihar, Bihar, IndiaPh: +91 9470746823, Email: [drfarhatperweenkmc@gmail.com](mailto:drfarhatperweenkmc@gmail.com)**Abstract**

**Objectives:** *Our study was to evaluate the different clinical aspects and early detection of multiple pregnancy and problems of multiple pregnancies in relation to maternal age, parity, gestational age, foetal presentation and position, birth weight, method of delivery, interval of births between first and second baby in twin pregnancy.*

**Methodology:** *All Mothers were interrogated and detailed history taken regarding last menstrual period, period of amenorrhoea, history of hypertension anaemia, APH, twin pregnancy, mode of previous delivery and other factors. All primigravida were enquired about the duration of their marriage and whether she had taken any medicine for infertility. And all relevant examination was performed like recording of blood pressure, haemoglobin percentage, blood sugar, urine examination, X-ray of lower abdomen and pelvis and ultrasonography of lower half of abdomen and examination of placenta were done. Postnatal examination of the baby was done with special reference to APGAR scores weight of the baby, maturity, soft tissue wasting, measurement of head circumference, chest circumference, crown rump length, femur length and any congenital abnormalities. Gestational age of the baby was assessed by clinical examination with the help of Dubowitz's Chart. Any complication during neonatal period was noted.*

**Results:** *Data was analyzed by using simple statistical methods with the help of MS-Office software.*

**Conclusions:** *Multiple pregnancies bear additional hazards both for the mother and the baby. Once diagnosed proper antenatal care with increased rest and nutritional supplement together with through intranatal and postnatal vigilance has much to its credit in lowering both maternal and foetal dangers.*

*Preterm labour and intra uterine growth retardation were the two single most important factors responsible for the neonatal deaths. The perinatal mortality could be reduced considerably if we can achieve birth weight of more than 1.5 kilograms in twins. Thus proper antenatal care, planned delivery with shorter interval between deliveries of two babies and better facilities for care of premature babies can bring about a reduction in perinatal mortality of twin pregnancies.*

**Key words:** *Maternal outcome, foetal outcome, mode of delivery, twin pregnancy.*

## Introduction

Multiple births are much more common today than they were in the past. According to the U.S. Department of Health and Human Services, the twin birth rate has increased over 50% since 1980, and triplet, quadruplet, and higher order multiple births have increased at an even higher rate.<sup>[1]</sup> Multiple pregnancy warrants special attention, also because they make a disproportionate contribution to maternal/perinatal morbidity/mortality well in excess of that due to multiplication of singleton risks by fetal number.<sup>[1,2]</sup> Throughout the world, the prevalence of twin births varies considerably i.e. 2-20 per 1000 birth. This dramatic rise in the incidence of multiple gestation, especially in higher order multiple gestation, has been attributed to the increase in the use of ovulation inducing agents, use of assisted reproductive technologies, and a shift toward bearing children at older maternal ages, when multiple gestation are more likely to occur naturally.<sup>[4,5,3]</sup>

Twin pregnancy is the simultaneous development of two embryos in the uterus. Twins are inherently different from singletons by their very nature and are at higher risk of maternal and fetal complications.<sup>[6]</sup>

The past two decades have witnessed a sharp rise in the incidence of twin and higher order gestations because of the availability and widespread use of ovulation inducing drugs, and the progress and developments in assisted reproductive technology.<sup>[7]</sup>

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.<sup>[8,9]</sup> Other factors include family history of twinning, maternal height and weight, previous history of twin delivery and diet. Twin pregnancies are associated with increased perinatal morbidity and mortality as well as a higher rate of caesarean deliveries. The obstetric complications include preterm labor, anaemia, pregnancy-induced hypertension,

postpartum haemorrhage, prematurity and low birth weight.<sup>[10,11]</sup>

Twin pregnancies are associated with variety of maternal and fetal complications. Common maternal complications reported in various studies are nutritional anemia, pregnancy induced hypertension, antepartum hemorrhage, preterm labour and polyhydramnios. Fetal complications are reported to be more in monozygotic pregnancies as compared to dizygotic twins. Monochorionic twin gestations are at higher risk of preterm labour, discordant fetal growth, abnormal vascular communications, fetal malformations, cord complications and stillbirths.<sup>[12]</sup>

Obstetric management of twin pregnancies is controversial. There is no consensus whether the TTDT (twin to twin delivery time) has any effect on the morbidity or mortality of the second twin or whether there is a cut-off for optimal TTDT. After delivery of twin I there may be a risk that the significant reduction in uterine volume may lead to partial placental separation and reduced uterine perfusion, placental circulation and fetal supply. Therefore, TTDT theoretically should be kept brief. Some studies suggest that the second twin should be delivered within 15–30 minutes of the first twin (MacLennan, 1994); other studies concluded that the TTDT is of minor importance. (Susanne Schneuber 2011).<sup>[13]</sup>

Foetal malformation and twin to twin transfusion syndrome also has a important contribution for a high rate of loss in twin pregnancy.

Although a few studies have not shown an unusually high incidence of antepartum haemorrhage in twin pregnancies, the general impression and many other studies support the view that placenta praevia is more common, as is placental abruption (Karegard and Gennser, 1986).<sup>[14]</sup>

Polyhydramnios is more common in multiple than in singleton pregnancies. It is not a common complication. Acute severe polyhydramnios especially during mid-pregnancy suggests twin-twin transfusion syndrome. In all cases of unambiguous polyhydramnios, the possibility of foetal abnormalities must be considered.

Detection of small for date's twin fetuses by abdominal palpation is invariably made more difficult by the presence of other baby. Tape-measurement of symphysis-fundal height can detect about 60% pregnancies in which both babies are small for dates (Neilson et al., 1981) <sup>[15]</sup> but is very poor at identifying pregnancies in which only one of the twins is small for date.

When there is a reason to anticipate pattern delivery corticosteroids should be given to accelerate foetal lung maturation (Crowley, 1992).<sup>[16]</sup>

Twin gestation is now an area of vital concern to the perinatologists. Prevention of preterm labour is the major challenge in the management of multiple pregnancies. Within the last decade a substantial reduction in perinatal mortality has been achieved through advances in neonatal care. Intervention to decrease the neonatal mortality rates in multiple gestations should be directed towards reducing the incidence of low-birth weight infants.

Therefore, the efforts should centre on improved antenatal care (Including prophylactic bed rest), prevention, early detection and delivery in appropriate perinatal setting. Objectives of our study were early detection of multiple pregnancies in antenatal OPD to avoid hazards of multiple pregnancies, Evaluation of different clinical aspects of multiple pregnancy and their outcome both in a) planned and emergency cases b) twin pregnancy, Evaluation of problems of multiple pregnancy in relation to maternal age, parity, gestational age, foetal presentation and position, birth weight, method of delivery, interval of births between first and second twins, and to plan for optimal method of delivery when the patient goes into labour.

### Materials and Methods

The present study was conducted in the department of Obstetrics and Gynaecology in the Katihar Medical College, Katihar, Bihar during a period from January 2016 to June 2017. The attendants of entire subject/patients signed an

informed consent approved by institutional ethical committee of Katihar Medical College, Katihar, Bihar, India was sought.

Maternal and foetal outcome in 75 cases of twin were studied. Records of all twin deliveries were collected, details and type of delivery, indications for such delivery, birth weight of two fetuses, APGAR scores and the still birth rates were analysed and presented here.

Most of the cases were diagnosed as twins either during antenatal period (by clinical examination, ultrasonography) or at the time of admission.

Out of emergency admission of twin pregnancy in five cases diagnosis of the second twin was made after delivery of the first baby.

### Methods

All Mothers were interrogated and detailed history taken regarding last menstrual period, period of amenorrhoea, history of hypertension anemia, APH, twin pregnancy and other factors.

All primigravida were enquired about the duration of their marriage and whether she had taken any medicine for infertility.

Previous obstetric history was rewarded Socio economic status was determined. Besides general examination, recording of blood pressure, haemoglobin percentage, blood sugar, and urine examination, X-ray of lower abdomen and pelvis and ultrasonography of lower half of abdomen were done. These patients were enquired about the mode of previous deliveries, if it was lower segment Caesarean section or forceps delivery, then what the indications were. Examination of the placenta was done with special reference to the number of arteries and veins in the umbilical cord, number, membranes covering the placenta, shape of and size.

Postnatal examination of the baby was done with special reference to APGAR scores weight of the baby, maturity, soft tissue wasting, measurement of head circumference, chest circumference, crown rump length, femur length and any congenital abnormalities.

Gestational age of the baby was assessed by clinical examination with the help of Dubowitz's Chart. Birth weight was expressed in grams.

Infants weighing less than 1 S.D for the period of gestation were grouped as intrauterine growth retarded. Head circumference below the 10<sup>th</sup> percentile was termed a microcephaly (e.g. symmetrical IUGR). In asymmetrical IUGR head circumference was relatively large than the body. Crown rump length was affected in symmetrical IUGR. IUGR, preterm babies, congenitally malformed babies were handed over to neonatologists for expert care. Any complication during neonatal period was noted. Total number of still births and infants dying in the first week of neonatal life were taken into account to calculate the perinatal mortality.

### Statistical Analysis

Data was analyzed by using simple statistical methods with the help of MS-Office software.

### Results

A total of 75 twins were selected for this study at department of Obstetrics and Gynaecology, Katihar Medical College Katihar, Bihar during a period from January 2016 to September 2017.

In this study majority of twins were with multigravida (86.66%) as compared to primigravida (13.33%).

In this present study 6.66% patients with twin gestation conceived after ovulation induction with clomiphene or HOG. And 93.30% were conceived naturally.

**Table.1.** Maternal age and perinatal mortality in twins.

Maternal age	No. of study cases	No. of babies	No. of perinatal deaths
≤ 20 years	8	16	11 (68.75%)
21-25 years	42	84	14 (16.6%)
≥ 31 years	5	10	8 (80%)
26-30 years	20	40	13 (32.5%)
Total :	75	150	45 (30%)

Perinatal mortality in twins was higher in women below age of 20 years and above the age of 31 years.

**Table.2.** Birth weight and perinatal mortality in twins.

Weight in Kg.	Twin pregnancy				Total	
	1 <sup>st</sup> Baby		2 <sup>nd</sup> Baby		No.	PNM
	No.	PNM	No.	PNM		
< 1	02	2 (100%)	03	3 (100%)	05	5 (100%)
1 – 1.49	05	4 (80%)	06	5 (83.3%)	11	9 (81.8%)
1.5 – 1.99	26	1 (3.84%)	25	7 (28%)	51	8 (17.6%)
2 – 2.49	30	8 (26.6%)	32	9 (28%)	62	17 (25.8%)
2.5 – 2.99	11	4 (36.3%)	09	2 (22.2%)	20	6 (30%)
3 – 3.49	01	0	0	0	01	0
> 3.5	0	0	0	0	0	0
Total :	75	19 (25.33%)	75	26 (34.66%)	150	45 (30%)

Most of the babies who were lost were LBW (<2.5 Kg) irrespective of gestational age.

In this present study, period of gestation at onset of labour varied between 26-40 weeks but no any patient had postdatism with twins. The mean

gestational in twins was 32 weeks ( ± 2 weeks).

This study, shown that, 65.33% babies were born prematurely.

**Table.3.** Factors leading to preterm delivery in twins

Preterm Cases	Spontaneous labour	Prom	Indicated Deliveries Due To			
			Maternal	Fetal	Placental	Fetal
Twins (49)	29	12	4	2	1	1
	(59.18%)	(24.48%)	(8.16%)	(4.08%)	(2.04%)	(2.04%)

Total of 49 preterm babies, majority of babies 29(59.18%) were associated with spontaneous labour.

In our study, I.U.G.R. was a very common complication of twin pregnancy accounting for 55% of twin pregnancies.

**Table.4.** Apgar score at 5 minutes and perinatal mortality in twins.

Cases	Apgar 7 or more	Apgar < 7	Apgar < 5	Still births	Earth neonatal deaths	Total perinatal deaths
Twin I (75)	50	11	5	9	10	19 (25.33%)
Twin II (75)	43	15	6	11	15	26 (34.66%)

Findings of our study shows, majority of twins were higher incidence of moderate and severe asphyxia.

**Table.6.** Mode of delivery and perinatal mortality in twins.

Mode of delivery	Twin pregnancy				Total	
	1 <sup>st</sup> Baby		2 <sup>nd</sup> Baby		No.	PNM
	No.	PNM	No.	PNM		
Normal by vertex	48	7 (14.58%)	28	10 (35.71%)	76	17 (22.3%)
Breech	14(18.66%)	8 (57.14%)	31(41.33%)	11 (35.48%)	45	19 (45.2%)
Face	-	-	1	-	1	-
Forceps	2	1 (50%)	1	-	3	1 (33.33%)
Ventouse	-	-	-	-	-	-
L. S. C. S.	11	3 (27.2%)	14(18.66%)	5 (35.71%)	25	8 (32%)
Total :	75	19 (25.33%)	75	26 (34.66%)	150	45 (30%)

Out of 75 cases, first twin was delivered by breech 18.66%, second was delivered by breech 41.33%. out of 31 breech, L.S.C. S. was done in 11 cases

for first twin and 14 cases for second twin. Out of these, 3 were for the retained second twin after the first had delivered vaginally at home.

**Table.7.** Presentation of twin pregnancy

Presentation	Twin Pregnancy				Total	
	1 <sup>st</sup> Baby		2 <sup>nd</sup> Baby		No.	PNM
	No.	PNM	No.	PNM		
Vertex	60	9 (15%)	40	11 (27.5%)	100	20 (20%)
Breech	15	10 (66.66%)	30	14 (46.66%)	45	24 (53.33%)
Face	-	-	1	-	1	-
Transverse	-	-	4	1 (25%)	4	1 (25%)
Total :	75	19 (25.33%)	75	26 (34.66%)	150	45 (30%)

With first baby by vertex presentation, perinatal loss was 15% and with malpresentation 66.66%

with second baby by vertex presentation it was 27.5% and with malpresentation. It was 46.66%.

**Table.8.** Outcome Of Twin Pregnancies: Natural Vs. Induced

Twin Pregnancies	No. of babies (150)	Gestational age >32 wks.	Birth weight > 2 kg.
Conceived naturally	140	98 (65.3%)	77 (55%)
Conceived after induction of ovulation	10	7 (70%)	6 (60%)

Previously infertile women who conceived twins after treatment with clomiphene or HCG had a better reproductive outcome than women who conceived naturally.

In this study, majority of patients 34(47.2%) were in age group of 21-25 years.

**Table.9.** Showing distribution of parity among the cases

Parity	0	1	2	3	4	5	6	7	8
Number of cases	28	18	9	4	5	3	2	3	Nil
Percentage	38.8	25.0	12.5	5.5	6.9	4.1	2.7	4.1	0.0

**Table.10.** Duration of pregnancy at the time of confinement

Duration of pregnancy	No. of booked cases	Percentage of booked cases	No. of unbooked cases	% of unbooked cases	Total no. of cases	% of total no. of cases
Upto 33 weeks	2	2.7	1	1.3	3	4.1
34 - 36 weeks	7	9.7	7	9.7	14	19.4
37 - 38 weeks	21	29.1	10	16.6	31	43.05
39 - 40 weeks	13	18.05	7	9.7	20	27.7
Above 40 weeks	3	4.1	1	1.3	4	5.5

Majority of booked cases 29.1%, which had duration of pregnancy 37-38 weeks.

**Table.11.** Showing different types of presentation in twins.

First Baby	Second Baby	No. of Cases	Percentage
Vertex	Vertex	37	51.3
Vertex	Breech	16	22.2
Breech	Vertex	9	12.2
Breech	Breech	5	6.9
Breech	Shoulder	2	2.7
Vertex	Shoulder	3	4.1

In this study, Majority of babies (51.3%) were with vertex-vertex presentation.

**Table.12.** Showing complications during pregnancy

Complications during pregnancy	Total no. of cases	% to multiple pregnancy	Booked cases	%	Unbooked cases	%
1. Anaemia	48	66.5	28	38.8	20	27.7
a. Mild	32	44.3	22	30.5	10	13.8
b. Moderate	12	17.1	6	8.3	6	8.8
c. Severe	4	5.5			4	5.5
2. Preeclamptic Toxaemia	11	15.2	5	6.9	6	8.3
3. Hydramnios	10	13.8	4	5.5	6	8.3
a. Acute	1	1.3	0	0.0	1	1.3
b. Chronic	9	12.4	4	5.5	5	6.9
4. Antepartum Haemorrhage	3	4.1	1	1.3	2	2.7
a. Placenta praevia	2	2.7	1	1.3	1	1.3
b. Accidental Haemorrhage	1	1.3	NIL	0.0	1	1.3
5. Hypertension	6	8.3	2	2.7	4	5.5
6. Eclampsia	2	2.7	NIL	0.0	2	2.7
7. Cord prolapsed	2	2.7	NIL	0.0	2	2.7

In this present study, anaemia was the major complication.

**Table.13.** Showing comparison between the complications of multiple pregnancy in booked and unbooked cases

Complications during pregnancy	Percentage in multiple pregnancy	Percentage in Booked cases	Percentage in unbooked cases
Anaemia	66.6	38.8	27.7
Preeclamptic toxemia	15.2	6.9	8.3
Hydramnios	13.8	5.5	8.3
Antepartum haemorrhage	4.1	1.3	2.7
Hypertension	8.3	2.7	5.5

Among 66.6% multiple pregnancy cases were with anaemia, booked cases were 38.8% and unbooked cases were 27.7%.

**Table.14.** Complications in twin pregnancy

Complications	No. of cases	Percentage in multiple pregnancy.
Postpartum haemorrhage	6	8.3
Prolapse of the cord after the confinement of first baby	2	2.7
Retained placenta	2	2.7
Vulval haematoma	1	1.3

In cases of multiple pregnancy, 8.3% cases were with postpartum haemorrhage.

**Table.15.** Showing birth weight of first and second babies

Birth weight	Total No. of first baby	%	Total No. of second baby	%
Upto 1.5 Kg	28	38.8	26	36.1
Above 1.5 kg to 2.0 kg	29	40.3	22	30.5
Above 2.0 kg to 2.5 kg	8	11.1	21	29.1
More than 2.5 kg	7	9.7	3	4.1

Majority of first babies 29(40.3%) had birth weight between 1.5 kilograms to 2 kilograms and majority of second babies 26(36.1%) had birth weight upto 1.5 kilograms.

**Table.16.** Showing relation between birth weight and duration of pregnancy.

Birth weight	28 to 33 weeks	%	34 to 36 weeks	%	37 to 38 weeks	%	39 to 40 weeks	%	More than 40 weeks	%
Upto 1.5 kg	2	1.3	12	8.3	20	13.8	20	13.8	NIL	0.0
Above 1.5 kg to 2.0 kg	4	2.7	9	6.2	30	20.8	8	5.5	NIL	0.0
Above 2.0 kg to 2.5 kg	NIL	0.0	7	4.8	8	5.5	10	6.9	4	2.7
More than 2.5 kg	NIL	0.0	NIL	0.0	4	2.7	2	1.3	4	2.7

Majorities of babies 4(2.7%) who were duration of pregnancy 28-33 weeks had birth weight 1.5 kgs to 2.0 kgs. 12(8.3%) babies who were duration of Pregnancy 34-36 weeks had birth weight upto 1.5 kgs. 30(20.8%) babies Who were

duration of pregnancy 37-38 weeks had birth weight 1.5 kgs-2.0 kgs. 20(13.8%) babies who were duration of pregnancy 39-40 weeks had birth weight upto 1.5 kgs.

**Table.17.** Showing perinatal mortality in relation to complication during multiple pregnancy

Complications during pregnancy	No. of cases	Perinatal mortality	Percentage
Anaemia	48	8	8.3
Preeclamptic toxemia	1	3	13.6
Acute hydramnios	1	3	100.00
Chronic hydramnios	9	3	16.6
APH due to placenta praevia	2	2	50.0
APH due to accidental haemorrhage	1	2	100.00
Hypertension	6	3	25.0
Eclampsia	2	2	50.0

Perinatal mortality of babies was more associated with acute hydramnios and APH due to accidental haemorrhage than other complications.

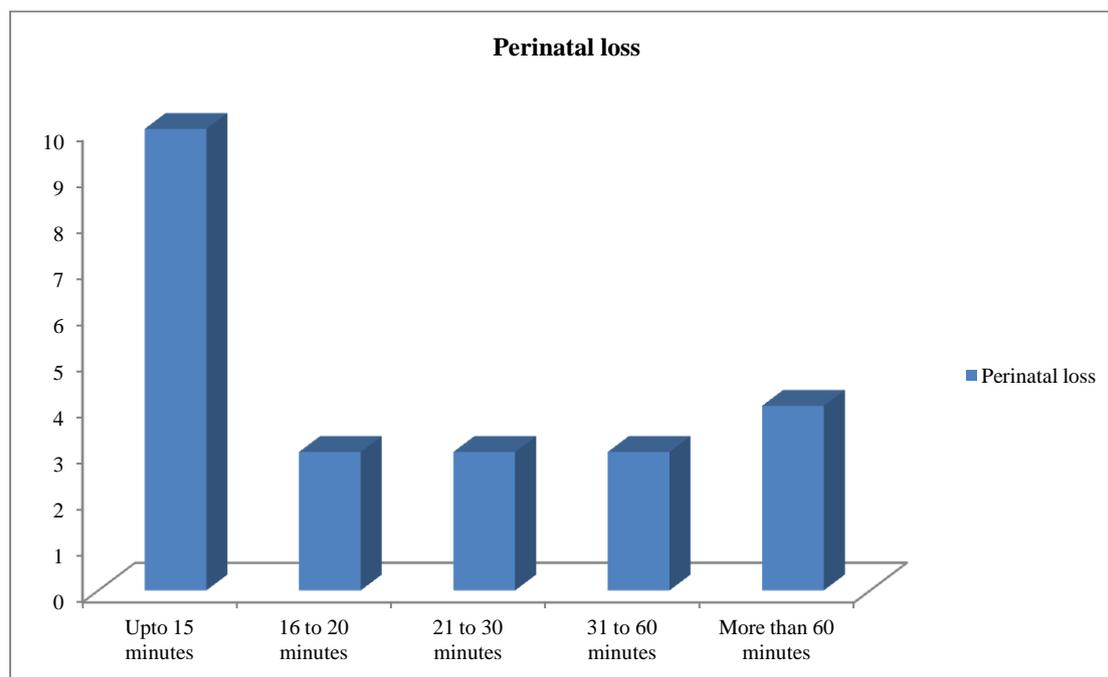
**Table.18.** Indication of caesarean section in twins

Cases	Indications
No. 1	Post Caesarean section.
	Preeclamptic toxemia.
No. 2	Cord prolapse of the first baby.
No. 3	Prolonged labour.
	Long period of infertility.
No. 4	Primigravida with dribbling with foetal distress.
No. 5	Primigravida with postdated pregnancy with less foetal movement.
No. 6	i. Post Caesarean section.
No. 7	Caesarean section of the second baby due to nonprogress of labour.
No. 8	Caesarean section of the second baby due to transverse lie.
	(First baby delivered outside and membrane of the second sac ruptured)

**Table.19.** Perinatal loss of the second twin in relation to the delivery interval between first and second twin.

Delivery interval between 1 <sup>st</sup> and 2 <sup>nd</sup> twin	No. of second twins	%	Still birth	%	Death within 1 <sup>st</sup> week of birth	Perinatal loss	%
Upto 15 minutes	44	61.1	4	9.1	6	10	22.7
16 to 20 minutes	9	12.2	2	22.2	1	3	33.3
21 to 30 minutes	7	9.7	2	28.5	1	3	42.8
31 to 60 minutes	6	8.3	1	16.6	2	3	50.0
More than 60 minutes	6	8.3	2	33.3	2	4	66.6

Greater than 60 minutes of delivery interval between first and second twin, majority of second twins (66.6%) were lost.



**Figure.1.** Perinatal loss of the second twin in relation to the delivery interval between first and second twin.

**Table.20.** Interference and its nature after the birth of the first baby

Type of interference	No. of cases	Percentage
Artificial rupture of membranes only	36	50.0
Artificial rupture of membrane with syntocinon drip	10	13.8
Syntocinon drip only	3	4.1
Operative delivery	13	18.05

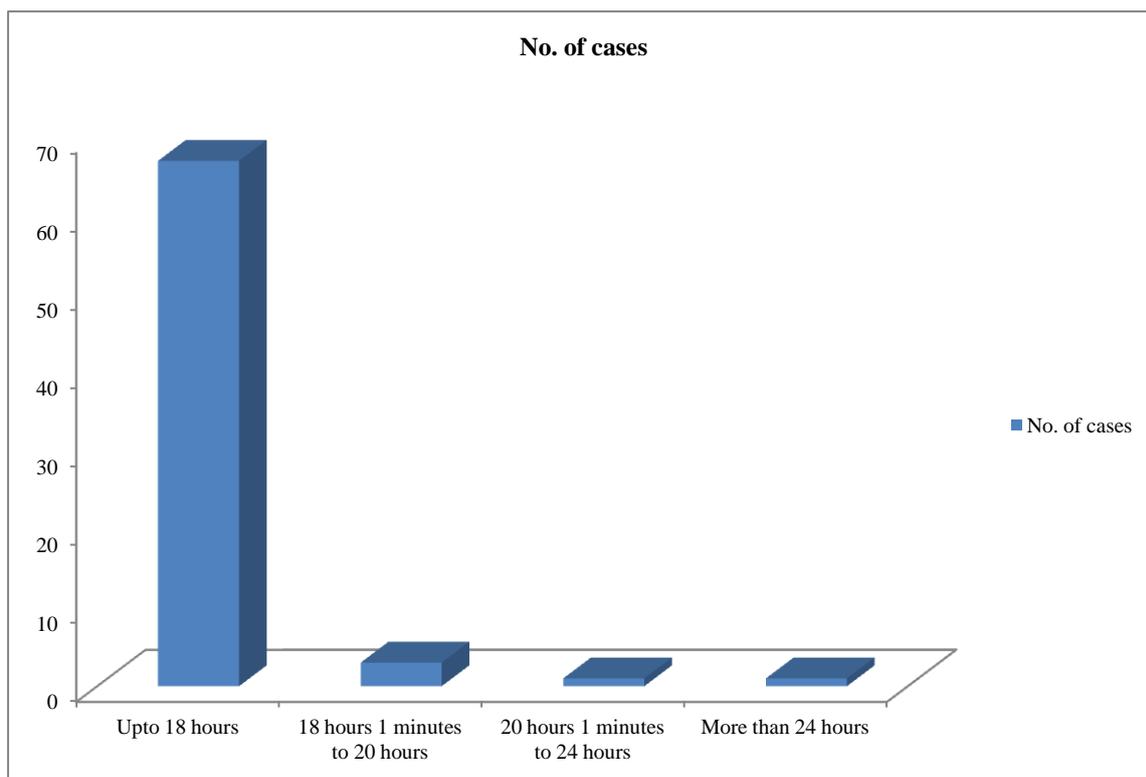
**Table.21.** Foetal loss in relation to interference and non-interference of the cases were delivered.

	No. of cases	(%)	Foetal loss	(%)
Total number of non-interference	10	13.9	3	30.0
Artificial rupture of membranes	36	50.0	9	25.0
Artificial rupture of membrane with syntocinon drip	10	13.8	3	33.3
Syntocinon drips only	3	4.1	2	66.6
Operative delivery	13	18.05	6	46.1
Total number of interference	62	86.1	20	32.2

**Table.22.** Showing the total duration of labour.

Duration of labour	No. of cases	Percentage
Upto 18 hours	67	93.05
18 hours 1 minutes to 20 hours	3	4.1
20 hours 1 minutes to 24 hours	1	1.4
More than 24 hours	1	1.4

In this present study maximum number of cases 67(93.05%) were duration of labour up to 18 hours.



**Figure.2.** Showing the number of cases with total duration of labour.

**Discussion**

Inspite of advances in obstetrics and Gynaecology perinatal mortality in twin pregnancy is alarmingly high.

With the development of ultrasonic techniques for the evaluation of pregnancy, it has become apparent that the incidence of multiple gestations in humans may be more common than previously indicated.

Maternal morbidity has also increased 3 to 7 times in multiple gestations.

In the past two decades physicians and researchers have emphasized the importance of twin and higher order multiple births to infant morbidity and mortality.

Several workers have tried their best to evaluate the various causes of perinatal loss in twin gestation.

This present study was done in the department of Obstetrics and Gynaecology, of Katihar Medical College, Katihar, Bihar. We were studied on perinatal outcome in 75 cases of twin pregnancy.

Our study shown that incidence of twin gestation was higher multigravida. Out of 75 cases of twins, 64 had multigravida (85.33%), out of them, 24 had grand multigravida.

Naushaba Rizwan, Razia Mustafa Abbasi, Razia Mughal (2010)<sup>[17]</sup> were demonstrated that Frequency of twin gestation was 15.6% in primigravida 34.4% in multigravida and 50.0 % in Grand multigravida.

The positive effects of increasing parity on the incidence of twinning were demonstrated by Waterhouse (1950).<sup>[18]</sup> For any increase in parity upto 7, the frequency of twinning increased.

In Nigeria, Azubuike (1982)<sup>[19]</sup> identified the frequency of twinning to increase from 1 in 50 (2%) pregnancies among women pregnant for the first time to 1 in 15 (6.6%) for women pregnant six or more times.

Our study shown that out of 75 cases of twin gestation, 70 (93.3%) patients were conceived naturally and 5 (6.66%) patients were conceived after ovulation induction with clomiphene citrate or human chronic gonadotrophins.

Schenker, J. G et al, (1981)<sup>[20]</sup> concluded that the incidence of multifoetal pregnancies after induction of ovulation with clomiphene was between 6.8% and 17%. Following induction of ovulation with gonadotrophines, the incidence of multifoetal gestation was between 18% and 53%.

There is a narrow margin between the amount of gonadotrophine that is necessary to achieve ovulation in the infertile patient and the amount that will cause multiple follicle development and multifoetal pregnancies.

Sofia Andrade de Oliveira et al. (2017)<sup>[21]</sup> concluded, women who have B-HCG >139.5 mUI/ml has 52 times more likely to have the outcome single or twin compared to women who have B-HCG ≤139.5 mUI/ml. And said that B-HCG values above 139.5 mIU / ml were associated with a good prognosis gestational.

Lata Singh, Kiran Trivedi (2017)<sup>[22]</sup> were studied on twin pregnancy and said that most of twins (65%) were diamniotic dichorionic. There was one case of monoamniotic monochorionic

pregnancy and one case of conjoined twin. Perinatal mortality rate of monchorionic pregnancy was 30% and it was 10.2% for dichorionic pregnancy.

### **Incidence of perinatal mortality in twin pregnancies**

In our series shown that out of 150 babies there were 45 perinatal deaths giving an incidence of perinatal mortality of 30% out of them 15 were fresh stillbirths, 5 were macerated still births and 25 were neonatal deaths. The perinatal mortality in first twin baby was 19 out of 75 (25.33%) and that in the second baby was 26 out of 75 (34.64%), mainly because of malpresentation and delay in the delivery of the second twin.

Spellacy (1987)<sup>[23]</sup> and co-authors reported the perinatal mortality rate was 54/1000 births for twins versus 10.4/1000 births in singleton. The perinatal mortality of twin B was 64/1000 births compared with 49/1000 births for first born twins. As in our study neonatal mortality clearly exceeded the stillbirth rates, thus implicating preterm birth as a relatively large cause of twin mortality.

In India perinatal mortality incidence was 21.7% (Arun and Asha, 1991).<sup>[24]</sup> In our study, perinatal mortality rate was 30%. The higher perinatal mortality rate in our institution was due to small proportion of patients coming for regular antenatal examination in our patient department. Mostly the patients were emergency admissions and they usually come with preterm labour. We do not have equipments for the intrapartum surveillance of the foetal well-being. Most of the cases were under nourished; they had anaemia, hypoproteinaemia and hypertension. The twin preterm babies born could not receive adequate neonatal care in our institution.

Perinatal mortality was higher in emergency admissions as compared to registered cases.

Various others studies have also confirmed that perinatal mortality in twin gestation is higher than singleton pregnancy. This is mainly because of prematurity, malpresentation, operative interferences and delay in the delivery of second twin.

### Maternal age and perinatal mortality

Our study shown that perinatal mortality was higher in woman below 20 years of age and above 25 years of age. The number of perinatal deaths was 11 out of 16 twins (68.75%) in women 20 years, while the women of age group between 20 and 25 years the perinatal deaths were only 16.6%. In the women of age group 26 to 30 years, the perinatal mortality was 32.5% and of >31 years, it was 80%.

McLennan AS et al. (2017) <sup>[28]</sup> were found that risk for foetal death was 39.9 per 1000 live births for women 15-17 years old, 24.2 for women 18-24 years old, 17.8 for women 25-29 years old, 16.4 for women 30-34 years old, 17.2 for women 35-39 years old, and 15.8 for women  $\geq 40$  years old. Risk for neonatal death at <28 days was highest for neonates born to women 15-17 years old (10.0 per 1,000 live births), decreased to 7.3 for women 18-24 years old and 5.5 for women 25-29 years old and ranged from 4.3-4.6 for all subsequent maternal age categories. In adjusted models, risk for preterm birth at <34-<37 weeks gestation was not elevated for women in their mid-to-late 30s; however, risk was elevated for women <20 years old and increased progressively with age for women in their 40s.

In a study by Arun and Asha in 1991 <sup>[24]</sup> there was not much difference in perinatal mortality in different age groups after the age of 21 years. Perinatal loss was higher among teenagers.

Joseph (1964) <sup>[29]</sup> found that perinatal mortality increases after 31 years of age.

### Birth weight and perinatal mortality in twins

Prematurity and low birth weight is the most common cause of high perinatal mortality in twin pregnancy. Table V shows that perinatal mortality was more in babies of low birth weight (<2.5 Kgs. Irrespective of gestational age). 129 out of 150 (86%) cases had low birth weight. Most of the low birth weight babies were of less than 36 weeks gestation. The perinatal loss was 100% of babies of less than 1 Kilogram. And 81.8% of babies weighing between 1-1.499 Kilograms.

Vidyadhar B Bangal et al. (2012)<sup>[30]</sup> studied on twin pregnancy and said that 17.5% perinatal deaths in 100 twin pregnancies. Most of the deaths were in babies weighing less than 1.5 Kg (58.06%) and higher survival rates were seen as the birth weight increased. Perinatal loss was 6.52 % in birth weight 2.01-2.5 kg and there were no deaths above 2.5 kgs.

Similarly, Reddy MA et al.(2016)<sup>[31]</sup> found highest perinatal mortality in birth weight of 1-1.5 kilogram and highest survival in >2.5 kg weight.

JT Mutihir, VC Pam (2007) <sup>[32]</sup> concluded that perinatal mortality was higher in twin pregnancy.

In our study, the mean birth weight of first twin was 1.99 kilograms. And that of second twin was 1.89 kilograms.

In our study, out of 16 babies weighing less than 1.5 kilograms. There were 14 perinatal deaths which accounted for 87.5% of total perinatal loss. Whereas out of 83 babies weighing more than 2 kilograms. Only 22 expired accounting for 26.5% of total perinatal deaths. Retarded foetal growth and preterm deliveries are both important aetiologies of low birth weight.

Arun and Asha (1991)<sup>[24]</sup> reported that total perinatal loss was 74.6% of babies weighing less than 1.5 Kg. While it was 2.77% in babies weighing more than 2 Kilograms.

Morales et al. (1989) <sup>[33]</sup> found that 12% of twin gestations result in very low birth weight (150 grams) infants.

### Length of gestation in twins

This study shows that preterm delivery occurred in 49 out 75 cases of twins accounting for 65.33% cases, mean gestational age being 32 weeks (+ 1.5 weeks). In our study no any patient had postdatism with twins and period of ggestation at onset of labor varied between 26-40 weeks.

Menard MKet al (1996)<sup>[34]</sup> were the first to examine the recurrence rate after preterm birth of a twin gestation. The authors reported the outcomes of 144 women who first delivered twins, followed by a subsequent singleton gestation. Preterm delivery (before 37 weeks of gestation), occurred in 59.7% of twin gestations

and in 14.6% of the subsequent singleton pregnancies. Among women who delivered preterm twins, 19.6% delivered preterm in the subsequent singleton pregnancy. Preterm birth in twin gestations was associated with a significantly increased risk of preterm delivery in a subsequent singleton pregnancy (RR 2.87, 95% CI 1.02–8.09). Among the subset of patients that delivered twins before 30 weeks, 42% of the subsequent singleton pregnancies delivered preterm (RR 6.11, 95% CI 2.07–18.02). The RR of preterm birth of a singleton after delivery of twins between 30 and 34 weeks of gestation was 3.63 (95% CI 1.02–12.92). However, women who delivered twins between 34 and 37 weeks of gestation did not have an increased risk for recurrent preterm birth.

**Incidence of preterm delivery in twins:**

Our study, incidence of preterm delivery was (65.33%) 49 in out of 75 twins.

Shugufta Yasmeen Rather et al. (2014)<sup>[35]</sup> reported that Preterm labor was the most frequently complication seen in 68% twin.

#### **Factors leadings to preterm delivery in twins**

This study shows that spontaneous labour occurred in 29 out of 49 (59.18%) of preterm twin births. Premature rupture of membrane was contributed significantly less in twin births (24.48%) it Indicated preterm births were due to maternal hypertension (8.16%), due to foetal distress or IUGR (4.08%), due to placental abruption (2.04%) and due to foetal death (2.04%).

Gardner et al. (1994)<sup>[36]</sup> reported that spontaneous labour accounted for 54% preterm twin births, as compared to 44% in singletons, PROM contributed 22% to twin preterm births and 31% to singleton preterm births. Of the indicated preterm births in twins, 44% were associated with maternal hypertension, 33% with foetal distress or foetal distress retardation, and 9% and 7% respectively with placental abruption foetal death.

Our study shows that (55%) 85 babies out of 150 twins were IUGR and there was higher incidence of moderate and severe asphyxia in twins 2 than twin 1.

Our study supports the study done by Lata S, Kiran T (2017)<sup>[22]</sup> There was higher incidence of moderate to severe asphyxia in twin pregnancy among other pregnancy.

**Mode of delivery and perinatal mortality in twins:**

Our study shows that out of 75 cases of twin pregnancy, first twin was delivered by breech in 14 cases (18.66%), while second twin was delivered by breech in 31 cases (41.33%). Caesarean section was done in 11 cases of first twin and in 14 cases for the second twin. Out of these 3 were for the retained second twin after had delivered vaginally at home. And 2 were delivered by breech.

The perinatal mortality for first twin was 25.33% and that of the second twin was 34.66%.

Arun and Asha (1991)<sup>[24]</sup> reported that 17.36% of first twin were delivered by breech and 38.6% of second baby was delivered by breech.

#### **Presentation and perinatal mortality**

This present study shown that with the first twin presenting by vertex the perinatal loss was 15% while the malpresentation in the first twin the loss of 66.66% (highly significant difference). In cases of second twin perinatal mortality with vertex presentation was 27.5% and with malpresentation it was 46.6%. In the control group the perinatal mortality was 5.63% with vertex presentation and 33.33% with malpresentation.

Mean interval between delivery of the first and second baby was 14 minutes (minimum 2 minute and maximum 6 hours) but the perinatal mortality was not affected significantly even with increased interval.

S Nnatu (1985)<sup>[37]</sup> studied on twin pregnancy and said that Vertex/breech presentation occurred in 27 per cent, while breeches and breech/vertex occurred in 13 per cent each. The overall perinatal mortality was 121 per 1000. The perinatal mortality rate for those that presented by the vertex was 80 and for those that presented by the breech, 193 per 1000.

Godwin Otuodichinma Akaba et al. (2013)<sup>[25]</sup> reported that the Cephalic presentation of both the

babies occurred in 47.0% of the cases while breech-breech presentation was seen in 9.3%. Cephalic-breech presentation was seen in 19.3% while breech-cephalic presentation occurred in 18.7% of twin deliveries. Other presentations (cephalic-transverse, breech transverse, transverse-breech, transverse-cephalic) accounted for the remaining 5.7%.

Second twin has consistently higher intrapartum neonatal mortality than first twin irrespective of caesarean section rate (Rydhstrom and Ingemarsson, 1991).<sup>[26]</sup> The time interval between the deliveries of each twin is no longer a critical factor in obtaining a successful outcome (Rayburn et al, 1984).<sup>[38]</sup>

#### **Outcome of twin pregnancies: natural versus induced**

70% of infants of mothers who conceived after ovulation induction with clomiphene or HCG have gestational age 32 weeks while 65.3% of infant of mothers who conceive naturally had gestational age 32 weeks. 60% of infants of treated mothers had birth weights more than 2 kilograms. While 55% of infants mothers conceived naturally and birth weight more than 2 kilograms.

Luke, B. et al. (1993)<sup>[27]</sup> reported that infants of treated mothers had birth weights 9.5% heavier than the infants of mothers who conceived naturally. They also had a higher proportion of gestations more than 32 weeks (91.7% versus 74.1%) and longer mean gestations (36.5 weeks versus 35.5 weeks) compared to naturally conceiving mothers of twins.

The difference was because the infertile women were significantly older more educated and they usually came for regular antenatal check-ups.

#### **Anaemia**

Patients are considered anaemic when the haemoglobin percentage is below 10.0 gm. Percent and 32 percent packed cell volume. Anaemia was found in 48 cases i.e. 66.5 percent. Among the 48 cases 32 were mild, 12 were moderate and 4 were severe, 28 out of 48 anaemic patients were in the booked group i.e. an

incidence of 38.8 percent and 20 in the unbooked group i.e. an incidence of 27.7 percent.

Vidyadhar B. Bengal et al (2012)<sup>[30]</sup> studied on woman with twin gestation and said that 84 % females were suffered from anaemia.

#### **Pre-eclamptic Toxaemia**

Cases are considered preeclamptic toxaemia when the blood pressure is 140/90 mm of mercury or above with oedema or albuminuria or both. 11 cases of preeclampsia have been observed in multiple pregnancies, an incidence of 15.2 percent. Among 11 cases of preeclampsia, 5 were booked cases i.e. an incidence of 6.9 percent and 6 were unbooked cases i.e. an incidence of 8.3 percent.

#### **Hydramnios**

Hydramnios was recorded in 10 cases i.e. incidence of 13.8 percent. Among them one case (1.3 percent) was acute hydramnios which was an unbooked case. Of the 9 chronic hydramnios cases 4 were booked cases and 5 were unbooked cases.

#### **Antepartum haemorrhage**

Present study was appeared that there were 3 antepartum haemorrhage cases, i.e. an incidence of 4.1 percent of which 1 case (1.3 percent) being accidental haemorrhage and 2 cases (2.7 percent) being placenta praevia. Incidence of antepartum haemorrhage in booked cases was 1.3 percent and in unbooked cases 2.7 percent.

#### **Hypertension**

Cases are considered hypertensive when systolic blood pressure is 140 mm. Of mercury or more and diastolic blood pressure is 90 mm of mercury or more without any oedema of albuminuria. There were 6 cases of hypertension, i.e. an incidence of 8.3 percent. Two out of 6 were booked cases i.e an incidence of 2.7 percent and four were unbooked cases i.e. an incidence of 5.5 percent.

Sarojini, S. Radhamani, Radhika (2014)<sup>[39]</sup> were found on their study, there was increased incidence of anemia (45.3%), hypertensive disorders of pregnancy (17.9%), antepartum hemorrhage (2.6%), hydramnios (8.5%), preterm labour (97.9%) and PPH (6.8%).

Vidyadhar B. Bengal et al (2012)<sup>[30]</sup> studied on women with twin gestation and they were seen 18% women with Pregnancy induced hypertension.

### Eclampsia

Our study observed that there were 2 cases of eclampsia in unbooked group of multiple pregnancies, i.e. an incidence of 2.7 percent.

Prolapse of the cord:

In this study, it was observed that the incidence of prolapse of the cord was 2.7 percent in multiple pregnancy cases. These were unbooked cases.

Godwin Otuodichinma Akaba et al. (2013)<sup>[25]</sup> studied on twin pregnancy and said that Preterm delivery was the commonest complication occurring in 39.7% of the cases. This was followed by hypertensive disorders in pregnancy (pregnancy induced hypertension, pre eclampsia, and eclampsia), malpositions, and prolonged labour occurring in 9.3%, 8.0%, and 4.0% respectively. Cord prolapsed was in 3.0% of the cases.

In the present work, it has been observed from a series of 72 cases of multiple pregnancy that incidence of multiple pregnancy was 1 in 93 which agrees with the findings of Aaron and Halperin (1955).

C. Manju Yadav et al (2015)<sup>[40]</sup> studied on 22,752 delivery of which the number of multiple pregnancy was 242(1.06%). In this, there were 235 twin cases, 6 cases of triplets and 1 case of quadruplet pregnancy.

The majority of reports regarding the distribution of multiple pregnancy in relation to maternal age are based on twins. Only a few have reported overall incidence of multiple pregnancy consisting of twins triplets etc

### Summary and Conclusion

In this present study 75 cases of twin pregnancies were taken for study from labour ward. The incidence of twin pregnancy in this series was 1 in 93. Incidence of twins was higher in multigravida (86.66%) than in primigravida (13.33%) Out of 64 multigravida having twin pregnancies 24 were

grand multipara. 6.66% of patients with twin gestation conceived after ovulation induction with Clomiphene or HCG compared to 93.3% of these who were conceived naturally. Maternal hazards like anaemia, preclampsia, hydramnios, antepartum haemorrhage and hypertension were most frequent at the time of pregnancy. Postpartum haemorrhage was a more common hazard in twin pregnancy. Perinatal mortality of twin was (30%). Perinatal mortality was more in the second baby mainly because of malpresentation and delay in the delivery of the second twin. Prematurity was the main factor responsible for high perinatal mortality. Perinatal mortality in twin was higher in women below 20 years of age and above 25 years of age. Most of the twin babies were low birth weight LBW (2.5 Kg) irrespective of gestational age. 86% of twin babies were low birth weight. Perinatal loss was 99% of babies less than 1 kg and 81.8 weighing between 1 to 1.495 kg. Period of gestation in twins at this onset of labour varied between 26 and 40 weeks but no patient had postdatism with twins. The mean gestational age was 32 weeks ( $\pm 1.5$  wks). Majority of babies (65.33%) were born prematurely. Incidence of IVGR was 55% in twin pregnancies. There was higher incidence of moderate and severe asphyxia in twins. The first twin was delivered by breech in 18.66% and second was delivered by breech in 41.33%. Caesarean section was done in 14.6% for the first twin. Previously infertile women who conceived twins after treatment with clomiphene or HCG had a better reproductive outcome than women who conceived twin naturally. This was mainly because the infertile patients very older, more educated and they came for regular antenatal checkups.

### Conclusions

Multiple pregnancies bear additional hazards both for the mother and the baby. Though these hazards are partly preventable, difficulty in timely recognition of multiple pregnancies at an early date is a main obstacle. Once diagnosed proper antenatal care with increased rest and nutritional

supplement together with thorough intranatal and postnatal vigilance has much to its credit in lowering both maternal and foetal dangers.

Preterm labour and intra uterine growth retardation were the two single most important factors responsible for the neonatal deaths.

The perinatal mortality could be reduced considerably if we can achieve birth weight of more than 1.5 kilograms in twins. Thus proper antenatal care, planned delivery with shorter interval between deliveries of two babies and better facilities for care of premature babies can bring about a reduction in perinatal mortality of twin pregnancies.

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