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Research Article

STUDY TO DETERMINE THE PERINATAL MORTALITY AMONG TWIN BORN BABIES

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Abstract:

Objectives: To determine the frequency causes and perinatal mortality rate in twins.

To determine that 2nd born twins contribute more to perinatal mortality than 1st born twins.

Study design: A descriptive, analytical.

Place and duration: In the Obstetrics and Gynecology Unit I of Nishtar Hospital Multan for six months duration from September 2019 to February 2020.

Methodology: The study included twin pregnancy that resulted in perinatal death of both or one of them. Causes of mortality were described on the basis of the ICD-9 revision. Mortality was assessed on the basis of gestational age, body weight, fetal appearance and route of delivery. Collected data was analyzed on SPSS-18.

Results: In total, 1970 deliveries were made during the period under review, including 47 deliveries of twins. The incidence of twins was 23/1000 cases and perinatal mortality was 308/1000 cases of twin births. Deaths in the perinatal period caused 18 twin pregnancies in twins or both twins. There were 7 (38.8%) dead births in 2nd birth and 4 (22.2%) in 1st birth twins. Intra-labor anoxia resulted in 5 (27.7%) dead births in 2nd and 2 twins (11.1%) first twins. Birth hypoxia syndrome and respiratory distress syndrome were the main causes of neonatal mortality in 7 (38.8%), 2 (11%) of the first twins and 5 (27.7%), 4 (16.6%) of the second twins respectively. During pregnancy 5 (27.7%) miscarriages of dead twins 2 and 2 (11%) of the first weight of twins > 2.5 kg were found. Maximum neonatal mortality was 4 (22.2%) between 1.0-1.49 kg at first birth and 5 (27.7%) in second-year twins between 1.5-1.99 kg.

Caesarean section due to incorrect presentation was performed in 5 (27.7%) dead miscarriages 2 and 2 (11%) in the first twins. The fetuses with the head and castle presentation provided by the vagina caused the death of newborns 5 (27.7%), 3 (16.6%) of the first twin and 3 (16.6%), 4 (22.2%) of the second twin, respectively.

Conclusion: There was no significant difference in mortality in twins one and two years old. However, during pregnancy, stillbirths were more common in twins of the second century. In contrast, prematurity complications contributed to an equal number of neonatal deaths in both twins.

KEYWORDS: twin pregnancy, perinatal mortality, stillbirth, neonatal deaths

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INTRODUCTION:

Multiple births have fascinated humanity for centuries. From early pregnancy to childhood, a higher number of people have a much higher mortality rate, be it spontaneous abortion, vanishing twin syndrome, fetal death or infant. Compared with singletons, the twins experience perinatal mortality 4-10 times higher. The World Health Organization (WHO) I.C.D.-10 criteria for perinatal mortality include all births from twenty-two weeks of gestation (or birth weight > 500 g) to neonatal deaths within 7 days of birth. From the mid-twentieth century, stillbirths and early deaths of newborns were often combined into one category of "perinatal" deaths, due to the fact that suffocation was a frequent cause of death during childbirth (intra-labor abortions) and shortly after delivery. The study suggested that they should be reported separately. Perinatal mortality is strongly associated with birth weight, and in the absence of congenital malformations, the increased risk is mainly due to early delivery and fetal growth restriction. Several studies have shown that compared to the first-born twins, those who gave birth to a second child are at increased risk of perinatal death. In fact, increased perinatal mortality in the second birth compared to the first-born twins was evident at each birth weight category of 500 gm. There are several hypotheses explaining the increased mortality of the second twin compared to the first twin. These are: 1) the risk of oxygen deficiency in the twin's second birth due to premature separation of the placenta after delivery of the first twin; 2) Reduced blood circulation; 3) Increased delivery between two fetuses and therefore increased oxygen deficiency; 4) Tendency of macerated fetuses to delivery after giving birth to a live twin; and 5) More frequent delivery of breech between twins born again. Our study objectives were: 1) to determine prevalence and perinatal mortality in twins. 2) Assessing whether twins born in the second age contribute to greater perinatal mortality than twins born in the first century.

METHODOLOGY:

This descriptive analysis was performed at the Obstetrics and Gynecology Unit I of Nishtar Hospital Multan for six months duration from September 2019 to February 2020.

The inclusion criteria were twin pregnancy, which caused perinatal mortality:

1. At 28 weeks gestation or longer.
2. Retained second twin after home delivery of 1st twin.

Perinatal deaths in twin pregnancy were excluded due to birth defects, non-immunological hydrops (ICD code 9 778.0) and before 28 weeks of pregnancy. Perinatal mortality rate was calculated as the number of perinatal deaths (stillbirth + neonatal deaths) / 1000 total twin births. Mortality of born twins 1 and 2 was analyzed in two groups (stillbirths and deaths of newborns). Comparison of mortality also based on the International Classification of Diseases (ICD), ninth version. Birth asphyxiation was defined as an Apgar score of 3 or less after 5 minutes. Respiratory distress syndrome has been described as moderate to severe based on clinical and radiological parameters. Perinatal mortality was assessed on the basis of gestational age (in completed weeks), as well as birth weight (at 500 g intervals) of twins born 1 and 2. Gestational age was mainly based on the last menstrual period or clinical evaluation or on the basis of the first ultrasound report. The term was defined as >> 36 weeks of pregnancy for twin pregnancies. Fetal presentation, delivery route and booking status were also examined as variables.

The detailed history has been recorded and a general physical and system examination has been carried out. In the case of the detained second twin, a lie was found and the presence or absence of fetal heart sounds was documented. A pediatrician was present at delivery to record Apgar's result in the diagnosis of labor suffocation. Pregnancy age and birth weight were included. Early deaths of newborns in the period from birth to the first 7 days of life spent in a pediatric nursery were included in the assessment of perinatal mortality of twins. The collected data was computerized for analysis by SPSS-

11. Qualitative response variables, such as gestational age, fetal presentation and delivery route, newborn weight, causes and outcome are presented by frequency and percentage. A chi-square test was used to assess that twins born in the second century contribute more to perinatal death than twins born in the first century.

RESULTS:

The total number of deliveries was 1970, with 47 twin deliveries during the study period. The incidence of twins was 23/1000 births (2.3%). Perinatal deaths resulted in 18 twin pregnancies of one or the other twin. Perinatal mortality was 308/1000 total twin births. Of the 18 twin sets affected, only 3 (16.6%) were reserved and 15 (83.3%) were reserved.

Table I. Perinatal outcome in 18 affected twin sets

Perinatal outcome	1st Twin		2nd Twin	
	N (18)	%	N (18)	%
Stillbirth	4	22.2	7	38.8
Early neonatal deaths	9	50.0	9	50.0
Alive	5	27.7	2	11.1
p-value = Non-significant				

Table I shows that there is no significant difference between the mortality of 1 and 2 born twins. However, the number of stillbirths was 7 (38.8%) in the 2nd birth than in the 1st birth of the twin 4 (22.2%). Neonatal mortality was equal. Of the 18 affected sets of twins, only 2 (11.1%) twins born in the 2nd year and 5 (27.7%) twins born in the 1st century lived

Table II showed that intra-partum hypoxia resulted in more miscarriages in two 5 twins (27.7%) due to the arrest of the second twin. Misrepresentation of the 1st twins resulted in intra-partum hypoxia in 2 (15.3%) fetuses on time. In contrast, prematurity contributed to an equal number of stillborn births in both twins. Obstetric events, placental rupture and spinal prolapse caused labor asphyxiation in both twins. Overall, asphyxiation caused neonatal mortality in 7 (38.8%), 5 (27.7%) 1 and 2 twins respectively. Respiratory distress syndrome developed in 2 (11.1%) 1 twins and 4 (16.6%) 2 twins responsible for infant mortality.

Table II. Causes of Stillbirth & Neonatal deaths in 18 affected twin sets according to ICD 9th Revision classification

Causes	1st Twin		2nd Twin	
	N (13)	%	N (16)	%
A) Stillbirth				
Preterm infant (ICD-765.1)	2	11.1	2	11.1
Intra-partum anoxia (ICD-768)	2	11.1	5	31.3
B) Neonatal mortality				
1) Complications of preterm labor (ICD-765.1)				
Abruptio placentae (ICD-762.1)	1	5.5	1	6.3
Birth asphyxia (ICD-768)	5	27.7	3	18.8
RDS (ICD-769)	2	11.1	3	18.8
2) Complications of term neonates				
RDS (ICD-769)	-	--	1	6.3
Prolapsed cord (ICD-762.4)	1	5.5	1	6.3
(with malpresentation of 1st twin)				

This table shows that 2 (11.1%) dead miscarriages of the first twin and 2 (11.1%) of the second twin occurred between pregnancy at 28-29 weeks of age. At the time of the birth of the dead twins 2 were born 5 (27.7%) than 1 twin 2 (11.1%). In all age groups, neonatal mortality was equal for both twins, with maximum mortality between 30 and 31 weeks of gestation.

Regarding the weight of newborns, the above table showed that > 2.5 kg of weight 5 (27.7%) of dead births was in the second twin and 2 (11.1%) in the first twin. Between 0.5-0.9 kg, 2 (11.1%) of dead births were in the first twins and 2 (11.1%) in the second twins. The weight distribution showed that the maximum mortality in 4 born twins (22.2%) was between 1.0-1.49 kg and 5 (27.7%) in 2 born twins, between 1.5-1.99 kg. Although there was no neonatal mortality in both twins > 3 kg body weight.

The above table shows that the dead deliveries of 2 twins born with a transverse lie delivered by the abdominal route were 5 (27.7%). In contrast, caesarean section was performed in 2 (11.1%) miscarriages of the dead first twin due to incorrect presentation (zip and transverse). Births with the presentation of cephalopods were delivered vaginally.

Table III. Gestational age and Weight related Stillbirths & Neonatal deaths

	Stillbirths				Neonatal deaths			
	1st		2nd		1st		2nd	
Gestational Age (Weeks)								
28 - 29	2	11.1	2	11.1	2	11.1	2	11.1
30 - 31	-	--	-	--	3	16.6	3	16.6
32 - 33	-	--	-	--	1	5.50	1	5.50
34 < 36	-	--	-	--	1	5.50	1	5.50
> 36	2	11.1	5	27.7	2	11.1	2	11.1
Weight (Kg)								
0.5 - 0.9	2	11.1	2	11.1	1	5.50	1	5.50
1.0 - 1.49	-	--	-	--	4	22.2	1	5.50
1.5 - 1.99	-	--	-	--	2	11.1	5	27.7
2.0 - 2.49	-	--	-	--	2	11.1	1	5.50
2.5 - 2.99	1	5.50	3	16.6	-	--	1	5.50
> 3.0	1	5.50	2	11.1	-	--	-	--

However, the first twins with the head and castle representation delivered vaginally were 5 (27.7%) and 3 (16.6%), which resulted in infant mortality. Caesarean section was performed in 1 (5.5%) first twin for transverse lie, which resulted in the death of a newborn baby. Of 4 (22.2%) second twins with presentation in their heads, 3 (16.6%) born vaginally and 1 (5.5%) abdominally. While breech presentations were 5 (27.7%), assisted breech delivery was made in 4 (22.2%) and caesarean section in 1 (5.5%).

Table IV. Fetal Presentation and Route of Delivery

	Stillbirths				Neonatal deaths			
	1st		2nd		1st		2nd	
Fetal Presentation								
Cephalic	2	11.1	2	11.1	5	27.7	4	22.2
Breech	1	5.5	-	--	3	16.6	5	27.7
Transverse	1	5.5	5	27.7	1	5.5	-	--
Route of Delivery								
1) Vaginal route:								
Vertex delivery	2	11.1	2	11.1	5	27.7	3	16.6
ABD*	-	--	-	--	3	16.6	4	22.2
2) Abdominal route:								
C/S*	2	11.1	5	27.7	1	5.5	2	11.1

DISCUSSION:

Multiple pregnancy is a high-risk pregnancy that can be complicated by prematurity, low birth weight, intrauterine growth restriction, neonatal morbidity and high perinatal, neonatal and infant mortality. The current study showed that, unlike the Thai study (8.6 / 1000), the frequency of twins was 23/1000 births. However, the results of this

study were similar to those of the Nigerian study (28/1000). Perinatal mortality was 308/1000 total twin births compared to the study from Pakistan (108/1000) and a new study from Nigeria (91/1000). However, the results of this study contrasted with the Thai study (45/1000) and are similar to the Nigerian study (278.4 / 1000). The results of this study showed a higher mortality

compared to the study in Pakistan (83.7%) in informal cases (83.3%).

In the current study, it was assessed that there was no significant difference between first and second twin mortality. However, as in the Sheay study, the second born twins gave birth to dead children (38.2%) from the first twins (22.2%). These results reflect that fetal deaths in twins born in the second century are caused by the retention of the second twin 5 (27.7%) compared to other studies showing 28% and 47%. This study showed that the extended calving period resulted in 2.5 times more fetal deaths in the second period twins due to a lack of oxygen leading to intra-fetal hypoxia supported by other studies.

However, in this study, the neonatal mortality pattern was similar to another study in both twins. Spontaneous premature births leading to early complications have significantly contributed to study-like neonatal mortality. According to the ninth ICD study in this study, the claimants concluded that drowning at birth was responsible for more neonatal deaths in twins, especially in twins, as in another study. Although neonatal mortality in twins born in the second century is primarily due to respiratory distress syndrome, this can be compared to a study in which the twins did not show accelerated puberty during <36 weeks gestation. In this study, the other twins suffered from respiratory distress syndrome developing at any gestational age, as in other studies. Although the pathophysiological mechanism of the increased sensitivity of the second twin to respiratory failure is unknown, no exposure to the health effects of delivery, the effects of acute uterine and placental failure, and disturbance in surfactant production after the birth of the first twin. In this study, the order of births does not affect the risk of survival of prematurely born twins, leading to miscarriages or death of newborns. This is because the premature twins carry an extremely high risk of death during childbirth, which statistically cannot emphasize the order of delivery as an important cause of death, as demonstrated in another study. However, this study reflects the fact that gestational age at birth is an important factor, as in other studies, because premature delivery (55.5%) contributes to perinatal mortality. The risk of death is low, and the low risk of absolute complications will result in a much higher relative risk of death than early pregnancies where the risk of death is high in both cases.

This study showed that perinatal deaths due to premature pregnancies are not associated with fetal presentation and birth, as high neonatal mortality is similar to other studies, with delivery

and vaginal presentation. The 26 main factors are clearly the same for both twins as seen in another study.

In general, we can reduce the perinatal mortality of twins by increasing awareness of prenatal care for early diagnosis and detection of complications. Therefore, perinatal death can be avoided due to premature delivery. Female twins should be advised of birth complications and the risk of becoming a second twin during this period, and the theoretical probability of a planned imperial protective effect, taking into account the mode of delivery.

However, facilities for newborns should be developed to improve the performance of premature babies. Unrecognized twins pose an unnecessary risk. This is common in societies like our rural areas, where prenatal care is poor. Traditional midwives should be trained to diagnose twin pregnancies and be misled to refer to a doctor in a timely manner to prevent fetal deaths.

There was no statistically significant difference in the perinatal mortality of both twins. However, the increase in fetal deaths in the second twin compared to the first twin may be due to mortality comparisons. Future studies should provide separate analysis of dead prenatal and labor fetuses as suggested in previous studies.

CONCLUSION:

The study found that the term fetal death contributes to the increase in perinatal mortality of twins. There was essentially no significant difference in perinatal mortality because neonatal mortality due to maturity complications is the same for both twins.

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