

Outcome of Twin Deliveries at a Tertiary Care Centre of Eastern Nepal

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ABSTRACT

Background: Twins, compared to singletons, have higher perinatal mortality and morbidity. The aim of this study was to describe the twinning rate, epidemiological variables and hospital outcome of twin deliveries and to find out ways of better management of twins in our part.

Methods: A retrospective evaluation of the outcome of 92 twin pregnancies during one year study period (1st January 2014 to 31st December 2014) was conducted at BPKIHS. Twins delivered within the institution were included but cases less than 28 weeks gestation were excluded. Maternal and neonatal data were retrieved and analysed.

Results: The twinning rate was 9.2/1000 (92/10,031). The mean birth weight was 1636.30 ± 339.21 grams and mean gestational age 34.31 ± 2.67 weeks (28 – 40 weeks). One hundred eighty-two babies (98.9%) were low birth weight (LBW) while 32.1% were small for gestational age (SGA). There was mild, moderate and severe growth discordance in 63 (68.5%), 22 (23.9%) and 7 (7.6%) respectively. Three (3.26%) of 92 pairs had twin-to-twin transfusion syndrome. The hospital mortality rate was 10.87% (20/184) and 69 (37.5%) babies had complications. The clinical causes of death were hyaline membrane disease in 7 (3.3%), severe birth asphyxia in 5 (2.7%), congenital malformations in 3 (1.6%) and sepsis in 3 (1.6%) babies.

Conclusions: Twin deliveries are common in this hospital and have poor hospital outcome with more complications and mortality. Hence there is a need for further studies with long term follow-ups to plan for better management of twins in our part.

Keywords: Low birth weight (LBW); preterm; small for gestational age (SGA); twins.

INTRODUCTION

Twins have been a topic of interest and fascination since ancient times.¹ The incidence of twins varies with geographical distribution, ethnicity and various other factors.^{2,3} Family history of twinning, high maternal age and parity predispose for twinning.² Maternal and perinatal morbidity and mortality and healthcare costs rise in twin pregnancy because of associated prematurity, low birth weight (LBW) and growth abnormalities.^{1,2,4} Various complications keep twins in high vulnerable zone till later life. So a better understanding of prevalence, predisposing factors, complications and perinatal outcome is required to improve quality of perinatal care and thereby decrease morbidity and mortality.

Although relatively common, very few data regarding epidemiology and outcome of twins are available from Nepal. Hence, we present this retrospective study of twins from a tertiary care center of Nepal.

METHODS

This was a retrospective study done in Department of Pediatrics, B P Koirala Institute of Health Sciences (BPKIHS), Nepal. All twins delivered within the institution between 1st January 2014 to 31st December 2014 were included in the study. Maternal and neonatal data were extracted. Cases delivered outside BPKIHS and <28 weeks gestation were excluded. Gestational age (GA) was assessed using last menstrual period (LMP) and confirmed by new Ballard score in preterm (<37

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weeks).⁵ Birth weight <2500 gm was classified as LBW and < 10th percentile for GA as small for gestational age (SGA).⁵ Growth discordance was graded as mild (<15%), moderate (15-30%) and severe (>30%).⁵ Birth asphyxia was diagnosed according to WHO criteria and sepsis with septic screening.^{5,6} Twin to twin transfusion syndrome (TTTS) was diagnosed as per neonatal criteria.⁷ Ethical clearance was obtained from institutional ethical committee. Data were analyzed using SPSS 17.0. Chi-square, independent sample t-test, Mann Whitney U tests were used with significance level set at 5%.

RESULTS

There were 92 twin births amongst 10,031 hospital deliveries giving a rate of 9.17/1000 live births during the study period. The postnatal details could be analysed in 181 babies only as there were 3 still births. Age distribution of mothers is shown in Table 1. Majority (55.4%) were primigravidas with median parity 0 (0-1). Family history of twinning was found in 17 (18.5%).

Table 1. Age distribution of mothers with twin pregnancy (n=92)

Maternal age (years)	Number (%)	Mean ± SD
<20	10 (10.87)	
20-30	76 (82.61)	23.71 ± 4.05
>30	6 (6.52)	

Majority (97.82%) had spontaneous conception and 67.4% had cesarean section. There were 2(1.09%) and 1(0.54%) stillbirths among first and second baby respectively. The median inter-baby delivery interval was 9.52(2.63-10) minutes.

Mean gestational age was 34.31±2.67 weeks and 150 (81.5%) babies were preterm. Mean birth weight was 1636.30±339.21 (650-2500) gm. One hundred eighty-two (98.9%) babies were of LBW. Thirty-two percent were SGA while mild, moderate and severe growth discordance was found in 63 (68.5%), 22 (23.9%) and 7(7.6%) babies respectively. Majority were diamniotic dichorionic in (46.7%) and female-female gender (39.1%) pairs.

Six babies (3.3%) required active resuscitation. Mean APGAR score at 5 mins was 8.3 (0.99).

Complications were recorded in 69 (37.5%) babies as shown in Table 2.

Table 2. Complications observed in twins (n=69)

Complications	No. (%)
prematurity/low birth weight	58 (32.04%)
respiratory distress syndrome	18 (9.94%)
neonatal hyperbilirubinemia	12 (6.6%)
sepsis	9 (4.9%)
birth asphyxia	6 (3.3%)
congenital malformations	3 (1.63%)
birth injury	2 (1.1%)

Seven babies (3.9%) received neonatal intensive care and 1(0.54%) mechanical ventilation. Three (3.3%) of the 92 pairs had twin-to-twin transfusion syndrome (TTTS), all of which were monochorionic diamniotic.

Hospital mortality rate of twins was 10.87% (20/184). Clinical causes of death were hyaline membrane disease in 6 (3.3%), severe birth asphyxia in 5 (2.7%), sepsis in 3 (1.6%) and congenital malformations in 3 (1.6%).

On comparing the twin pairs, second twins had significantly lower birth weights with $t(182)=170.87$, $p=0.001$, and 5 minute APGAR scores $t(179)=1.97$, $p=0.04$ while the rate of complications wasn't statistically significant ($p=0.137$). However, more deaths were observed in second twin (15) vs first twin (5) ($p=0.06$).

DISCUSSION

Twinning rates vary with geography, ethnicity, age, parity, and so on.¹⁻³ In USA, birth rate of twins rose by 76% from 1980 through 2009.⁸ The prevalence of twins is highest among Negroes, lowest in Asians and intermediate in Caucasians.¹

A study from rural area outside Bombay showed twinning rate of 9/1000 while a population-based study from Nepal showed 16.1/1000.³ The prevalence in our study was 9.2/1000. This small difference could be due to socio-environmental factors, ethnicity and dietary differences.

Incidence of twins increases with increasing maternal age, parity and use of assisted reproductive technique (ART).²⁻⁴ In contrast, we found more twins in primi and 20-30 years which may be because of overall higher admission of such groups. The prevalence is likely to increase in future with increasing advanced maternal age and use of ART in pregnancy in developing countries.

Dizygotic (DZ) twinning has some genetic predisposition but only 18.5% of our patients had family history of twinning. The stillbirth rate was 16.3/1000, albeit lower

than 102/1000 in Nigeria, is still higher than 9.73/1000 quoted in singletons in Nepal.^{2,9}In Nigeria, twins had 6.5 times and over 9 times higher chance of prematurity and LBW respectively.¹⁰ We found 81.5% preterm deliveries, 98.9% LBW and 32.1% growth restriction. Mean birth weight was 1636.30 (339.21) gm with significant difference in weight between twin pairs in contrast to study from Nigeria.¹ Mean APGAR score at 5 mins was low and significantly related to poor outcome ($p < 0.05$) as in studies from Iran.¹¹ In our study, 34.78% had various complications which correlates with study by Radhakrishnan.¹² A complication specifically found in twins is TTTS (4-35% of monochorionic twins) and accounts for about 17% of perinatal mortality.⁷ Similarly, we found TTTS in 8.33% of monochorionic dizygotic twins.

Previous studies have shown that twins have 5-10 fold increased risk of perinatal death and twelve-fold increased risk of cerebral palsy.¹³ Overall hospital mortality rate of twins in our study was 10.87% ($n=20$), which is more than thrice of singletons and comparable to Nigerian teaching hospital.¹⁴ Being retrospective study, long term outcome of twins could not be studied but long term neurodevelopmental morbidity in survivors of twin pregnancy has been reported to be high.^{13,15} This further emphasizes the need for proper antenatal and perinatal care and longterm follow-up in twins.

CONCLUSIONS

Twin deliveries are relatively common in our hospital, and associated with low birth weight, prematurity and various morbidity/mortality related complications including twin to twin transfusion syndrome. Hence further studies with long term follow-ups are recommended for outlining interventional strategies to improve outcome of twin infants in our part.

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