ORIGINAL RESEARCH PAPER

SHORT TERM OUTCOME OF VERY LOW BIRTH WEIGHT INFANTS IN A TERTIARY CARE HOSPITAL IN KUMAUN REGION

Neonatology

KEY WORDS: Morbidity profile, Maternal risk factors, Mortality profile of VLBW infants.

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ABSTRACT

Objectives: To Evaluate morbidity and mortality profile of Very Low Birth Weight Infants in our hospital and maternal risk factors associated with VLBW infants.

Methods: In this prospective observational study of 1 year, all the inborn VLBW babies were admitted in SNCU. Demographic data included maternal history, maternal age, parity, gestational age, birth weight, sex, mode of delivery, as well as need for resuscitation, mechanical ventilation, and surfactant administration was recorded. Complications of prematurity during NICU admission were recorded. Management of neonatal illness was performed as per the standard protocol.

Results: Out of 244 individuals 60(24.5%) expired. RDS is found to be the major cause of mortality i.e.172(70.49%) followed by MAS 80(32.78%), Sepsis 52(21.31%) and HIE 46(18.85%).Maternal risk facrtors causing maximum no. of VLBW babies is Antepartum hemorrhage 164(67.2%)(p value <0.001) followed by PROM 76(31.5%), Hypertension 50(20.49%) and Diabetes 8(3.28%).

Conclusion: significant predictors of neonatal morbidity and mortality were extremes of maternal age(15-20yr and 31-35yr) is associated with p value <0.05),increased parity(G3) (mean±SD 1.53±0.63 with p value<0.039),increased gestational age(>35wks)(mean±SD 2.0±0.7 with p value <0.009),antepartum hemorrhage (p value<0.001).

Introduction:

Very low birth weight (VLBW) babies constitute approximately 4%–7% of all live births but need a major share of effort, time and resources for their care. Despite this attention, the mortality in this subgroup is high, contributing to as much as 30% of early neonatal deaths[1].Survival is directly associated with their birth weights and inversely associated with illness severity and gestation[2]. Birth weight (BW) and gestational age (GA) are two of the most important factors that predict the short and long term quality of life of neonates.[3] Low BW and GA are linked to morbidity and mortality during the newborn period . Premature births result in newborn mortality and morbidity rates of 70% and 75%, respectively.[4] Very low birth weight (VLBW <1500 grams) infants are a unique group of patients in the neonatal intensive care unit (NICU). Our aim was to find out the morbidity and mortality profile of neonatal among the neonates admitted to a tertiary care center in GMC Haldwani.

Methods: Subjects have been selected consecutively from those fulfilling the inclusion criteria and admitted in Sick Neonatal care unit under the Department of Pediatrics. Demographic data included maternal history, maternal age, parity, gestational age, birth weight, sex, mode of delivery, need for resuscitation, mechanical ventilation, and surfactant administration was recorded.

Complications of prematurity included intraventricular hemorrhage (IVH), respiratory distress syndrome (RDS), pneumothorax, patent ductus arteriosus (PDA),necrotizing enterocolitis (NEC), spontaneous intestinal perforation, retinopathy of prematurity (ROP), bronchopulmonary dysplasia (BPD), sepsis, and surgical intervention during NICU admission was recorded. Gestational age was determined from the date of the mother's last menstrual period and/or from details of earliest available ultrasound scans (at least before 20 weeks) or Ballard Score.

The birth weight and the gestational age were expressed in mean ± SD. The data were analyzed by using the Open Epi statistical software, version 2.3.1. The mean, standard deviation, odds ratio and the relative risk were calculated by using appropriate statistical methods. P value of < 0.05 was considered to be statistically significant for any given measures.

Results: In our study maternal morbidity causing maximum no. of VLBW babies is Antepartum hemorrhage 164(67.2%) followed by PROM 76(31.5%), Hypertension 50(20.49%) and Diabetes 8(3.28%).

Table I Percentage distribution of maternal morbidity

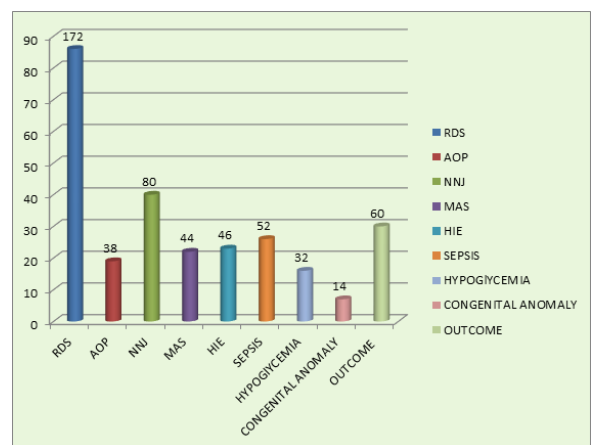| APH	Number	Percentage
Yes	164	67.21
No	80	32.79
Total	244	100
PROM		
Yes	76	31.15
No.	168	68.85
Total	244	100
HTN		
Yes	50	20.49
No.	194	79.51
Total	244	100
DM		
Yes	8	3.28
No.	236	96.72

Fig,1 percentage distribution Morbidities of VLBW babies

Comparison of antenatal risk factors with variables in expired and living-It is found that extremes of maternal age(15-20yr and 31-35yr) is associated with increased mortality and morbidity and the result is statistically significant with p value <0.05).

Increased parity(G3) was associated with increased mortality which was statistically significant(mean±SD 1.53±0.63 with p value<0.039).

Increased gestational age(>35wks) is associated with reduced morbidity and mortality and the result was found to be statistically significant(mean±SD 2.0±0.7 with p value <0.009).

Antepartum Haemorrhage is associated with increased morbidity and it is statistically significant (p value<0.001).

Discussions: Neonatal death is a serious concern, both in the developing and the developed world. Prognosis depends not only on birth weight and gestational age, but also on other perinatal factors and physiological conditions of the individual infants, in particular, disease severity in the first hours of life[5]

In our study, the admissions of female babies were more than those of males. These may be related to that there is no preference for the male child in our setup and the SNCU services are free of cost in our setup. The male preponderance for admissions has been documented in previous studies [9]. Increased parity (G3) was also associated with increased mortality which was statistically significant (mean±SD 1.53±0.63 with p value<0.039) due to increase birth order, lack of spacing was found to be associated with lack of adequate care and nutrition of the infant.

Comparison of antenatal risk factors in expired and living-It is found in our study that extremes of maternal age (15-20yr and 31-35yr) is associated with increased mortality and morbidity and the result is statistically significant (p value <0.05). Early pregnancy (15-20yr) is found to be associated with increase incidence of low birth weight babies and inadequate knowledge about childbearing, feeding and proper care of the infant. Increase maternal age(31-35yr) is also been found to associated with increase incidence of congenital anomalies and other morbidities related to low birth weight.

Increased gestational age (>35wks) is associated with reduced morbidity and mortality and the result was found to be statistically significant (mean±SD 2.0±0.7 with p value <0.009),because with increase in gestational age there is decrease chances of morbidities like hypoglycemia, RDS,ROP etc. Antepartum Hemorrhage is associated with increased morbidity and it is statistically significant(p value<0.001). Many of the mothers with APH came in serious condition with already compromised fetus resulting in increased morbidity and mortality due to perinatal asphyxia

The present study was undertaken to assess the predictors of morbidity and mortality of VLBW infants and identify those neonates who require early referral and higher level care. In our set-up, we documented a mortality rate of 24.5%. Other studies have documented a mortality rate varying from 23% to 29%.[6-8] A number of antenatal and intrapartum factors have been reported in the literature to be significantly associated with perinatal and neonatal deaths.

Table II Comparison of mortality profiles of previous studies with the present study

STUDY	TOTAL (%)	HIE (%)	SEPSIS (%)	MAS (%)	RDS (%)	IVH (%)
Ravi Sachan	28.3	44.4	35.6	4.4	2.4	-
Manikant	23	31	34.4	14.2	25.3	-
Shikha Malik	26	15.9	29.3	8.7	52	5
Sayyed Abuffazl	28	12.4	26.8	18.2	46.5	15.8
Sunil B.	24.4	15.2	34	-	19.2	-
Basu S.	36.9	31	15	-	23.9	-
Present Study	24.5	13.3	20	16.6	73.3	-

Limitations of our study was small sample size,long term outcomes were not evaluated,outborn infants were not included.

Conclusion: Mortality among VLBW is significantly high(24.5%) of admitted VLBW babies. This must be curtailed if India hopes to achieve the MDG 2015 of Neonatal Mortality Rate <10 by 2050.The results of the present study suggest extremes of maternal age, increased parity(≥3), APH and failure of administration of antenatal steroids were antenatal risk factors for increased mortality among VLBW babies.We recommend measures to increase public awareness so that teenage pregnancy may be avoided and proper timing to prevent late pregnancy if possible.

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