

OUTCOME OF PRETERM BABIES WITH RESPIRATORY DISTRESS SYNDROME

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Abstract

Background: To study outcome of preterm babies with RDS in babies admitted in NICU.

Methods: This study was hospital based prospective study of preterm neonates with respiratory distress syndrome admitted in NICU of MBGH RNT medical college Udaipur, from February 2017 to January 2018.

Results: Among 200 preterm neonates included in the study 31 neonates expired. Mortality was 15.5%. The mortality was 10.17% among the preterm neonates with RDS and hospitalized within 6 hrs. It was 31.81% among neonates hospitalized between 6-12 hrs and 62.5% and 66.66% among neonates hospitalized between 12-24 hrs and after 24 hrs of birth respectively.

Conclusion: Mortality rate is inversely related to birth weight and gestational age and directly related to age at admission and severity of respiratory distress (Silverman-Anderson score).

Keywords: Preterm, Neonates, Birth weight.

Introduction

Respiratory distress syndrome (RDS), also called neonatal respiratory distress syndrome,¹ or increasingly surfactant deficiency disorder (SDD),² and previously called hyaline membrane disease (HMD), is a syndrome in premature infants caused by developmental insufficiency of pulmonary surfactant production and structural immaturity in the lungs. It can also be a consequence of neonatal infection.^{3,4} It can also result from a genetic problem with the production of surfactant associated proteins. RDS affects about 1% of newborn infants and is the leading cause of death in preterm infants.⁵ There has been a tremendous advance in the management of respiratory distress syndrome such as ventilator therapy with different modes such as CPAP, conventional mechanical ventilation, ultra high frequency jet ventilation, surfactant replacement therapy, all have improved the outcome among the babies with respiratory distress syndrome.

Materials and Methods

Study design and setting: Single center tertiary hospital based prospective study.

Study period: February 2017 to January 2018

Study place: NICU, Balchikitsalahya MB Govt. Hospital, RNT Medical College Udaipur. All newborn babies admitted to MB Hospital NICU during a period of 1 year from February 2017 to January 2018 who developed respiratory distress syndrome were studied.

Inclusion Criteria

- Neonates admitted to NICU with respiratory distress.

Exclusion Criteria

- Babies more than 37 weeks.
- Major congenital malformation.
- Unwillingness in giving informed consent.
- Patient who left against medical advice (before completion of workup)

Study Procedure

The cases were diagnosed clinically by the presence of at least 2 of the following criteria, namely RR of 60/min or more, sub costal indrawing, xiphoid retraction, suprasternal indrawing, flaring of alae nasi, expiratory grunt and cyanosis at room temperature. These infants are examined in detail with particular emphasis on gestational age, sex, weight, cyanosis; they are also assessed by scoring systems using Silverman Anderson scoring system. Respiratory, Cardiovascular and Nervous system are examined in detail. They are kept under constant supervision till discharge or death and treatment is carried out for the specific indication. Retrospective study of the mother's significant antenatal history is taken. The diagnosis of clinical conditions producing respiratory distress is based mainly on careful scrutiny of the history, clinical and radiological findings. Continuous monitoring of oxygen saturation is done using pulse oxymeter.

Observations

A total of 200 preterm babies with diagnosis of RDS were admitted in NICU of Maharana Bhupal Government

Hospital of RNT Medical College Udaipur during study period. Most of the neonates 167 (83.5%) were hospitalized within 6 hr of birth. 22(11%) were admitted between 6-12 hr, 8(4%) were admitted between 12-24 hr, 2(1%) were admitted between 24-48 hr, 1(0.5%) were admitted between

48-72 hr of life. Out of 200 preterm neonates most of the neonates 108(54%) were 1-1.5 kg (VLBW). 32(16%) were <1 kg (ELBW), 43(21.5%) were 1.5-2 kg & 17(8.5%) were 2-2.5 kg.

Table 1: Outcome of preterm neonates with RDS and age at hospitalization in NICU

Neonatal age	Total neonates	Expired	% of mortality
<6 hr	167	17	10.17%
6-12 hr	22	7	31.81%
12-24 hr	8	5	62.5%
>24 hr	3	2	66.66%

Among 200 preterm neonates included in the study 31 neonates expired. Mortality was 15.5%. The mortality was 10.17% among the preterm neonates with RDS and hospitalized within 6 hrs. It was 31.81% among neonates hospitalized between 6-12 hrs and 62.5% and 66.66% among neonates hospitalized between 12-24 hrs and after 24 hrs of birth respectively.

Table 2: Birth Weight and Outcome

Birth weight	Total	No. of death
<1 kg	32	17 (53.12%)
1-1.5 kg	108	10 (9.26%)
1.5-2 kg	43	3 (6.97%)
2-2.5 kg	17	1 (5.88%)
Total	200	31

Among ELBW (<1 kg) 17 (53.12%) expired. 10 (9.26%) expired in VLBW category. 3 (6.97%) expired in birth weight group of 1.5-2 kg and 1 (5.88%) neonates expired in birth weight group 2-2.5 kg.

Discussion

This study was hospital based prospective study of preterm neonates with respiratory distress syndrome admitted in NICU of MBGH RNT medical college Udaipur, from February 2017 to January 2018. Total 200 preterm neonates with respiratory distress who fulfilled the inclusion criteria were enrolled in the study.

In this study we noted a decreasing trend in mortality with increasing weight of the preterm neonates. Bhutta *et al*⁶ also reported similar trend in mortality. In their study the overall mortality was 34% with highest mortality 68% among newborn infant <1 kg birth weight. Jayachandra *et al*⁷ also reported similar trend in mortality. In their study mortality was higher 54.5% among babies with birth weight 1000-1249 grams.

Silverman Anderson score was done in all preterm neonates. 2(2.74%) neonates expired in the group of neonates with mild respiratory distress, 15 (13.89%) neonates expired in the group of neonates with moderate respiratory distress and 14 (70%) expired in the group of neonates with severe respiratory distress. Mortality rate was directly related to severity of respiratory distress (Silverman Anderson score).

Conclusion

Mortality rate is inversely related to birth weight and gestational age and directly related to age at admission and severity of respiratory distress (Silverman-Anderson score).

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