



ORIGINAL RESEARCH PAPER

Paediatrics

CLINICO-ETIOLOGICAL PROFILE AND OUTCOME OF RESPIRATORY DISTRESS IN NEONATES: A PROSPECTIVE OBSERVATIONAL STUDY

KEY WORDS: Respiratory Distress, Preterm, SAS, CPAP

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ABSTRACT

Background: - Respiratory distress is one among the most common symptoms seen in neonates and accounting for half of all the neonatal deaths¹. Fifteen percent of term infants and 29% of late preterm infants admitted to the neonatal intensive care unit develop significant morbidity and higher for infants born before 34 weeks gestation. Other risk factors include prematurity, meconium-stained amniotic fluid (MSAF), gestational diabetes, maternal chorioamnionitis. If not identified early respiratory distress escalate to respiratory failure and cardiopulmonary arrest. **Aim:** - study of clinico-etiological profile of respiratory distress in neonates and its outcome. **Study Design:** Prospective observational study. **Participants:** The data was collected from 500 neonates at GIMS Hospital Kalaburagi. **Results:** There are 250 (50%) were between 33-37 weeks of GA, and 24% between 27-32 weeks of GA and 22% between 38-42 weeks of GA. Mean GA was 35 weeks +/- 2 weeks were 50 % were LBW and 5% were ELBW and the mean birth weight 2.125 +/- 126. there are 150(30%) subjects required resuscitation at the time of birth. Whereas 350(70%) subjects did not require resuscitation at the time of birth. And, 260(52%) cases had abnormal CXR and 240(48%) cases had normal CXR. In total of 500 cases 250 (50%) cases had RDS. Birth asphyxia in 180 (36%) cases TTNB in 20 (4%) cases MAS in 15 (3%) cases, sepsis in 25 (5%) cases and 10 (2%) cases with pneumonia. There are 60% cases were oxygenated by CPAP 30% cases were mechanically ventilated and 10 % cases were oxygenated by nasal prongs. Out of 500 cases 70 (14%) had mortality due to HMD 35 cases (50%), MAS 10 cases (14%), sepsis (11.4%), cardiac cases (5%) and others (20%). **CONCLUSION:** -The commonest cause for respiratory distress in neonates is RDS (50%) followed by, Birth Asphyxia (36%), TTN (4%), MAS and sepsis. Foetal risk factors were low birth weight and preterm period of gestation. Most of the patients have SAS Score 7 and DOWNE'S score-4 . The most common cause of death was found in present study HMD. The outcome of neonatal respiratory distress was found to be survival rate:- 86% and mortality rate:- 14%. Proper antenatal care, early diagnosis of the antenatal complication and avoiding preterm deliveries will aid in the better outcome of the newborns.

INTRODUCTION

Respiratory distress is one among the most common symptoms seen in neonates and accounting for half of all the neonatal deaths¹. Fifteen percent of term infants and 29% of late preterm infants admitted to the neonatal intensive care unit develop significant morbidity and higher for infants born before 34 weeks gestation. Other risk factors include prematurity, meconium-stained amniotic fluid (MSAF), gestational diabetes, maternal chorioamnionitis or prenatal ultrasonographic findings, such as oligohydramnios or structural lung abnormalities. If not identified early respiratory distress escalate to respiratory failure and cardiopulmonary arrest. Respiratory distress in the neonate present with one or more signs of increased work of breathing, such as tachypnoea, nasal flaring, chest retractions, or grunting.³ Normally, the newborn's respiratory rate is 40 to 60 breaths per minute. Tachypnoea is defined as a respiratory rate more than 60 breaths per minute.⁴ A variety of respiratory symptoms like TTNB, MAS, Hyaline membrane disease, pneumonia, PPHN and non-respiratory disorders like cardiac, neurological, and congenital anomalies and surgical causes like CDH also present with respiratory distress. Early identification and timely appropriate management will give impressive results. Treatment modalities include oxygenation, resuscitation, surfactant administration ventilation have revolutionised the outcome of respiratory distress in neonate. henceforth study was conducted to study clinico-etiological profile of respiratory distress in neonate admitted in NICU.

OBJECTIVE

Study of clinico-etiological profile of respiratory distress in neonates and its outcome.

MATERIALS AND METHODS

- Study Design:** Prospective observational study.
- Study Setting:** GIMS NICU, Gulbarga Institute of Medical Sciences, Kalaburagi

- Study Sample:** 500 cases
- Sampling Procedure:** Purposive Sampling.
- Study Duration:** 12 months (10 June 2025- 10 June 2026)
- Source of Data:** The data was collected from neonates admitted in GIMS NICU Gulbarga Institute of Medical Sciences n Kalaburagi, Karnataka.
- Inclusion Criteria:**
 - Neonates with clinically identified respiratory distress based on Downes score in term babies and SAS score in preterm babies
- Exclusion Criteria:**
 - Parents not willing to enrolled in the study

Data Analysis

Statistical analyses were performed using IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp. Results on continuous measurement are presented as Mean $\pm$ SD and categorical as frequency, percentage

RESULTS

This is a prospective observational study done in NICU, Department of Paediatrics', GIMS NICU, Gulbarga Institute of Medical Sciences, Kalaburagi among 500 newborns from 10 June 2025- 10 June 2026. Out of 500 newborns with respiratory distress, 300 (60%) was male, 200 (40%) were female.

Table 1: - Distribution of Neonates Based on Destational Age:-

Gestational Age	Frequency (%)
22-26week	20(4%)
27-32	120(24%)
33-37	250(50%)
38-42	110 (22%)
TOTAL	500(100%)

There are 250 (50%) were between 33-37 weeks of GA, and 24% between 27-32 weeks of GA and 22% between 38-42 weeks of GA. Mean GA was 35 weeks +/- 2 weeks were 50 %

were LBW and 5% were ELBW and the mean birth weight 2.125 $\pm$ 126. there are 150(30%) subjects required resuscitation at the time of birth. Whereas 350(70%) subjects did not require resuscitation at the time of birth.

Table 2: Maternal Age Among the Study

Maternal Age	Frequency	%
18-24 years	250	50
25-30 years	200	40
31-35 years	40	8
>35 years	10	2

Mean age was 25years

Table 3: Comorbid Illness Among Mothers

Comorbid Illness	Frequency	Percentage
Anemia	70	14
GDM	26	5.2
Hypothyroidism	18	3.6
Pre- Eclampsia	15	3
No any illness	371	74

Table 4: Silverman Anderson Score Among Preterm Neonates

Silverman Anderson Score	Frequency
SAS-2	2 (0.4%)
SAS-3	20(4%)
SAS-4	19(3.8%)
SAS-5	35(7%)
SAS-6	35(7%)
SAS-7	50(10%)
SAS-8	7((1.4%)
NA	332(66.4%)
TOTAL	500

Out of 500 subjects, 260(52%) cases had abnormal CXR and 240(48%) cases had normal CXR with 240 cases (48%). In total of 500 cases 250 (50%) cases had RDS. Birth asphyxia in 180 (36%) cases TTNB in 20 (4%) cases MAS in 15 (3%) cases sepsis in 25 (5%) cases and 10 (2%) cases with pneumonia. There are 60% cases were oxygenated by CPAP 30% cases were mechanically ventilated and 10 % cases were oxygenated by nasal prongs. Out of 500 cases 70 (14%) had mortality due to HMD 35 cases (50%), MAS 10 cases (14%), sepsis (11.4%), cardiac cases (5%) and others (20%)

DISCUSSION

In present study among neonates with respiratory distress majority 57.14% were male and 42.86% were females. Male neonates were two third (67.88%) with M:F ratio of 2.1:1. [13]. Gaurav et al 2023 56.30 % were male 43.70% were female Sahoo R et al 2015 and 56.66 % were male 43.34 % were female. In present study 60% were male and 40% were female. In present study mean gestational age of was 34.71 $\pm$ 3.72 weeks. Majority 49% were b/w 33-37 weeks of GA, followed by 25% b/w 27-32 weeks, 24% were b/w 38-41 weeks and 2% were b/w 22-26 weeks. Lamichhane A et al (2019) study the clinical Profile of Neonates with Respiratory Distress in a Tertiary Care Hospital. They reported that 40.54% were term neonates (>37 weeks) and 59.46% were preterm neonates. [12]. In present study mean gestational age of was 35 $\pm$ 2 weeks. Majority 50% were b/w 33-37 weeks of GA, followed by 24% b/w 27-32 weeks, 22% were b/w 38-41 weeks and 4% were b/w 22-26 weeks. Lamichhane A et al (2019) study the clinical Profile of Neonates with Respiratory Distress in a Tertiary Care Hospital. They reported that 40.54% were term neonates (>37 weeks) and 59.46% were preterm neonates. [8]

Gunasekhar RS et al (2019) did a study of neonatal morbidity and mortality in government general hospital, Srikakulam Andhra Pradesh. They reported that the minimum and maximum gestational age of the neonates was 25 and 43 weeks respectively. Majority (58.22%) of the neonates were born at full term of gestation, preterm 34-37 weeks were

(23.54%), less than 34 weeks were (18.23%). [9] In present study the mean birth weight of was 2.125 $\pm$ 649.82 grams. Majority 50% were LBW, followed by 16% were VLBW, 5% were ELBW and 26% were normal. Lamichhane A et al (2019) study the clinical Profile of Neonates with Respiratory Distress in a Tertiary Care Hospital. They reported that the mean weight of the babies was 2.25 $\pm$ 0.63 kg. Majority 50.45% were LBW, 10.81% were ELBW and 38.74% were normal weight. Respiratory distress was common (61.26%) in the low-birth-weight babies (<2.5Kg). [22] Chandini et al (2020) study the clinic-etiological profile and outcome of neonatal respiratory distress in tertiary care hospital, Guntur. The study showed There were (34%) babies with birth weight >2.5kg, (52%) babies with 2.5 -1.5 kg and (14%) babies with <1.5kg. [8] In Present study, 30% required resuscitation at the time of birth whereas 70(%) didn't required resuscitation at the time of birth. Kshirsagar VY et al (2019) study the clinical profile and outcome of respiratory distress in newborns admitted in rural tertiary health care centre of Maharashtra, India. In Present study, maternal age group of 25-30 years is of 50% in frequency which is maximum whereas >35 years of age group is 2% which is minimum. In present study comorbid illness among mothers of showed that 14% had anemia, 8.24% had GDM, 5.2% had hypothyroidism, 3.6% had pre- eclampsia. Barkiya SM et al (2016) study the clinico-etiological profile and outcome of neonatal respiratory distress. They reported the maternal risk factor PROM in 11%, hypertension in 5%, MASF in 5%, Maternal pyrexia in 5% and DM in 1% cases. [7]. In present study the Silverman Anderson Score among preterm showed that majority. 10% had SAS-7, followed by 7% each had SAS-5 and SAS-6, 3.8 % had SAS-4, 4% had SAS-3 and 1.4% had SAS-8. Mehta A et al (2017) study the causes of respiratory distress in neonates presenting within 72 hours. They reported that 35.76% of the had SAS score <3, 33.64% had SAS score b/w 4-6 and 30.61% had SAS score b/w 7-10. [10]

CONCLUSION

The commonest cause for respiratory distress in neonates is RDS (50%) followed by, Birth Asphyxia (36%), TTN (4%), MAS and sepsis. Foetal risk factors were low birth weight and preterm period of gestation. In our study we concluded that males (60%) are more affected. anaemia and GDM is most common associated co-morbidity. Most of the patients have SAS Score 7 and DOWNE'S score-4. The most common cause of death was found in present study HMD. The outcome of neonatal respiratory distress was found to be survival rate: - 86% and mortality rate: -14%. Proper antenatal care, early diagnosis of the antenatal complication and avoiding preterm deliveries will aid in the better outcome of the newborns.

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