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ORIGINAL RESEARCH

Clinico-Etiological Profile and Outcome of Neonatal Respiratory Distress in Tertiary Care Hospital, Raichur

[1]Dr. Ramya, [2]Dr. Meghashree, [3]Dr. Swetha, [4]Dr. Chandra Shekhara, [5]Dr. Meghavath Ankitha

[1]Assistant Professor, RIMS Raichur, Karnataka, India
[2]Senior Resident, [3,4,5]Resident, Department of Pediatric, RIMS Raichur, Karnataka, India

Corresponding author
Dr. Ramya
Assistant Professor, RIMS Raichur, Karnataka, India

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Abstract

Background: The present study will be conducted to assess Clinico-Etiological Profile and Outcome of Neonatal Respiratory Distress in Tertiary Care Hospital, Raichur.

Materials & methods: 220 neonates who were admitted in NICU in a Tertiary Care Hospital, Raichur were enrolled in the present study. This was a single center based prospective Study. Inclusion criteria for the present study included both in-born and out-born neonate admitted to NICU with RD.A detailed proforma including name, age, sex, and residence was obtained. The diagnosis of clinical conditions producing respiratory distress (RD) was based mainly on careful scrutiny of the history, clinical and radiological findings. Microsoft word and SPSS 20.0 version were used to analyze the data. P value of less than 0.05 was considered for statistical significance.

Results: A total of 220 neonates were enrolled. Prematurity, Hypertension, Oligohydramnios, Polyhydramnios, PROM, Maternal fever and Gestational diabetes were the risk factors seen in 34.55 percent, 17.27 percent, 16.82 percent, 1.82 percent, 9.55 percent, 5.91 percent and 10.45 percent of the patients respectively. Most common clinical presentation was tachypnea seen in 71.82 percent of the patients. Other clinical presentation included chest in drawing, cyanosis, poor perfusion, grunting and nasal flaring. Diagnosis included RDS found to be present in 40.45 percent of the patients. Other diagnosis included TTNB, MAS and sever birth asphyxia. Mortality rate was found to be 8.18 percent.

Conclusion: Approximately 8% of all live births were respiratory distress cases. It is recommended that we undertake appropriate and prompt neonatal resuscitation and identify the risk factors as early as feasible in order to reduce the morbidity and death of the newborns with respiratory distress.

Key words: Respiratory distress, Neonatal

Introduction

First breath is the most vital parameter in the beginning of a new life. Respiratory distress is among the most common symptom complexes seen in newborn infants and accounts for half of all the neonatal deaths.[1] The neonatal mortality rate varies by state but, overall, it is reported to be 39 a 1000 live births in India.[2]The common causes of RD in neonates includes transient tachypnea of the newborn (TTN), hyaline membrane disease (HMD), birth asphyxia, pneumonia, meconium aspiration syndrome (MAS), and other miscellaneous causes.[3,4] Clinical presentation of respiratory distress in newborn include one or more of the

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following features respiratory rate of ≥60/ min, apnea, retractions (sub costal, inter costal, xiphoid, suprasternal), grunting, nasal flaring, cyanosis. It occurs in 5-10% of live births and is responsible for about 20% of neonatal mortality.[5,6] In developed countries, improved diagnosis and treatment due to technical advancements and increased pediatric and neonatal specializations have led to an impressive fall in neonatal mortality. With the advancement of neonatal ventilation like HFO and ECMO, there is revolutionization in the field of neonatology for respiratory disorders.[7] In India, inspite of advancement in the field of neonatology, there is not much decline in the incidence of neonatal mortality and morbidity, with the incidence varying from 30% among pre-term, 20% in post- terms and 4% among term infants.[8] Hence, the present study was conducted to assess Clinico-Etiological Profile and Outcome of Neonatal Respiratory Distress in Tertiary Care Hospital, Raichur.

Material & methods

220 neonates who were admitted in NICU in a Tertiary Care Hospital, Raichur were enrolled in the present study. This was a single center based prospective Study. Inclusion criteria for the present study included both in-born and out-born neonate admitted to NICU with RD.A detailed proforma including name, age, sex, and residence was obtained. Neonatal data was recorded including weight of the baby, gestational age, mode of delivery, APGAR score, if available, the need for resuscitation after birth, onset of RD and resolution of RD. Factors related to labor and deliveries were assessed including type of delivery normal vaginal or Caesarean section, elective or emergency, place of delivery. Maternal information was recorded including age, parity and any systemic diseases. Other risk factors include delivery prior to 37 weeks of gestation, male sex, low birth weight and macrosomia[14,15] and maternal diseases such gestational diabetes and asthma. The cases were diagnosed clinically by the presence of at least 2 of the following criteria, namely RR of 60/min or more, subcostal in drawing, and supra sternal in drawing, flaring of alae nasi, expiratory grunt and cyanosis. The diagnosis of clinical conditions producing respiratory distress (RD) was based mainly on careful scrutiny of the history, clinical and radiological findings. The severity of distress was assessed by Silverman-Anderson scoring and Downe's scoring for neonates.[16,17]Microsoft word and SPSS 20.0 version were used to analyze the data. P value of less than 0.05 was considered for statistical significance.

Results

A total of 220 neonates were enrolled. Prematurity, Hypertension, Oligohydramnios, Polyhydramnios, PROM, Maternal fever and Gestational diabetes were the risk factors seen in 34.55 percent, 17.27 percent, 16.82 percent, 1.82 percent, 9.55 percent, 5.91 percent and 10.45 percent of the patients respectively. Most common clinical presentation was tachypnea seen in 71.82 percent of the patients. Other clinical presentation included chest in drawing, cyanosis, poor perfusion, grunting and nasal flaring. Diagnosis included RDS found to be present in 40.45 percent of the patients. Other diagnosis included TTNB, MAS and sever birth asphyxia. Mortality rate was found to be 8.18 percent.

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Graph 1: Risk factors for respiratory distress in newborn

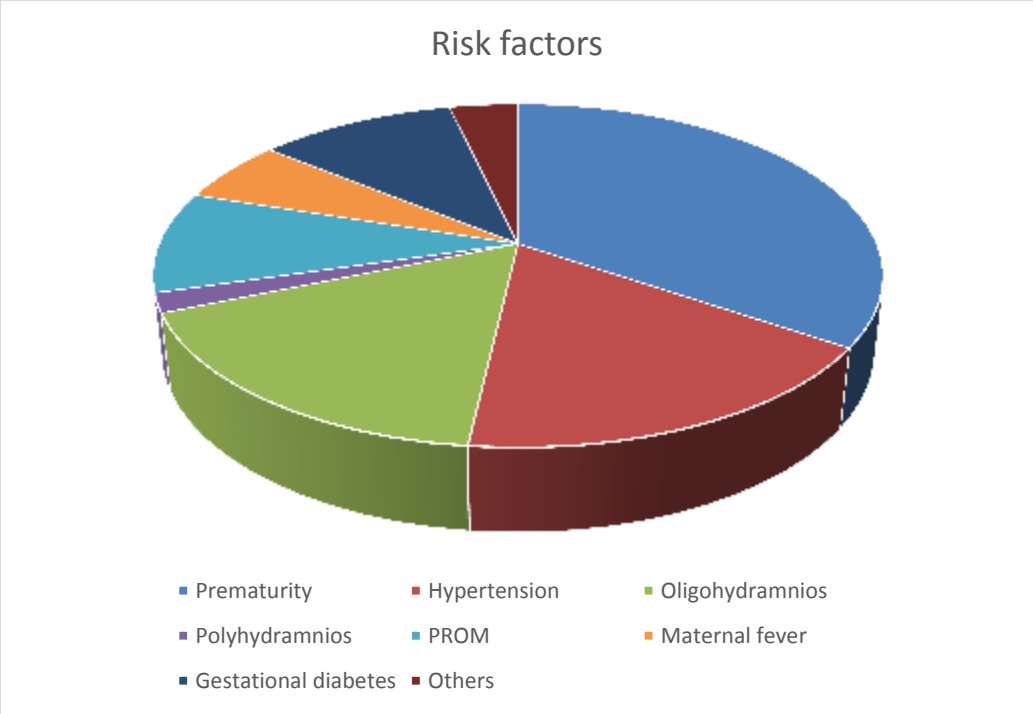

Table 1: Clinical presentation

Clinical presentation	Number	Percentage
Tachypnea	158	71.82
Chest in drawing	23	10.45
Cyanosis	8	3.64
Poor perfusion	10	4.55
Grunting	33	15.00
Nasal flaring	12	5.45
Other	12	5.45

Table 2: Diagnosis

Diagnosis	Number	Percentage
RDS	89	40.45
TTNB	49	22.27
MAS	31	14.09
Sever birth asphyxia	21	9.55
Congenital malformations	18	8.18
Others	12	5.45
Total	220	100

Table 3: Outcome

Outcome	Number	Percentage
Mortality	18	8.18
Survived	202	91.02
Total	220	100

Discussion

Neonatal respiratory distress syndrome, or RDS, is a common cause of respiratory distress in a newborn, presenting within hours after birth, most often immediately after delivery. RDS

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primarily affects preterm neonates, and infrequently, term infants. The incidence of RDS is inversely proportional to the gestational age of the infant, with more severe disease in the smaller and more premature neonates. While treatment modalities, including antenatal corticosteroids, surfactants, and advanced respiratory care of the neonate, have improved the outcomes for patients affected by RDS, it continues to be a leading cause of morbidity and mortality in the preterm infant.[12- 15]Hence, the present study was conducted to assess Clinico-Etiological Profile and Outcome of Neonatal Respiratory Distress in Tertiary Care Hospital, Raichur.

In the present study, A total of 220 neonates were enrolled. Prematurity, Hypertension, Oligohydramnios, Polyhydramnios, PROM, Maternal fever and Gestational diabetes were the risk factors seen in 34.55 percent, 17.27 percent, 16.82 percent, 1.82 percent, 9.55 percent, 5.91 percent and 10.45 percent of the patients respectively. Our results were in concordance with the results obtained by previous authors. In a study conducted by Ravindra BP et al, authors assessed the commonest causes for admission and outcome of neonates admitted to NICU. Commonest cause for mortality was prematurity (42.1%). Low birth weight and prematurity are the common causes for admission in the NICU. Respiratory distress syndrome, neonatal jaundice and meconium aspiration syndrome are some important and leading causes of morbidity in newborn babies.[9]Barkiya SM et al, in another study asseseed clinical profile of neonatal RD (NRD), to find out most common etiology of RD in newborn, and to assess the immediate clinical outcome of RD in our neonatal intensive care unit (NICU). A The RD resolved on the 4th day in majority of cases. The study concluded that increased respiratory rate along with chest in drawing or grunt was the presentation of RD in the majority of cases. The survival rate was 98% among RD cases admitted to NICU. TTN was the most common cause and was observed maximally in babies delivered vaginally (70%).[10]Lamichhane A et al, in a similar study evaluated clinical profile of neonates with respiratory distress in infants in a tertiary care hospital in western Nepal. Survival rate was 95.50% while mortality rate accounted for 4.50%. The study concluded that Perinatal asphyxia accounted for the commonest cause of respiratory distress.[11]

In the present study, most common clinical presentation was tachypnea seen in 71.82 percent of the patients. Other clinical presentation included chest in drawing, cyanosis, poor perfusion, grunting and nasal flaring. Diagnosis included RDS found to be present in 40.45 percent of the patients. Other diagnosis included TTNB, MAS and sever birth asphyxia. Mortality rate was found to be 8.18 percent. Kshirsagar VY et al, in another study evaluated various etiological factors, maternal and neonatal risk factors for development of respiratory distress along with need for CPAP, mechanical ventilation and surfactant to assess the immediate clinical outcome in newborns. The study concluded that transient tachypnoea of new-born is the most common cause among new-borns with respiratory distress. New-borns with low gestational age, low birth weight baby, low APGAR score is more prone to develop severe respiratory distress.[12]In another study conducted by P. Chandini et al, authors studied the clinical profile of neonatal respiratory distress (RD), to find out most common etiology of respiratory distress in newborn and to assess the immediate clinical outcome of RD in our neonatal intensive care unit (NICU). Transient tachypnea of the newborn is the most common cause of respiratory distress in term babies whereas Hyaline membrane disease is common in preterm babies. The survival rate was 90% among RD cases admitted to NICU.[13]

Conclusion

Approximately 8% of all live births were respiratory distress cases. It is recommended that we undertake appropriate and prompt neonatal resuscitation and identify the risk factors as

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early as feasible in order to reduce the morbidity and death of the newborns with respiratory distress.

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