Predictors of Mortality in Neonates with Respiratory Distress in A Tertiary Care Centre

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Abstract
Objective*: to identify risk factors of mortality in neonates with respiratory distress*
Design*-a prospective study*
Setting*-neonatal intensive care unit in a tertiary level care (Hi-Tech Medical College, hospital in Bhubaneswar)*
Participants*: Neonates admitted with respiratory distress over a period of 12 months(may 2015-April 2016)*
Outcome measures*: risk factors for death analysed were antenatal factors i.e,per vaginal bleed,maternal fever,meconium stained liquor,foul smelling liquor,and prolonged rupture of membranes.Natal factors such as gestational age,birth weight and in post natal factors,neonatal factors such as presenting complaints,vitals-heart failure ,respiratory ,CRT,SpO2(pre ductal and post ductal)and complications like apneic attacks,sepsis,shock.*
Methods*: all neonates with respiratory distress,irrespective of gestational age were included.Risk factors were compared between those died and those who survived.Risk factors significantly associated with death were analysed.*
Results*: out of 100 included neonates,40(40%) diedon univariate analysis,Antenatal history of per vaginal bleed,meconium stained liquor,prolonged rupture of membrane, birth weight <1.5 gestational age <37 weeks,preductal SpO2 of <80%,shock,apneic attacks,positive sepsis screen were found to be significantly associated with death.*
Conclusion*: PV bleed,shock,and apneic attacks were independent predictors of mortality in a neonate with respiratory distress and can be used as referral criteria for early referral to a tertiary level newborn unit from special care newborn units.(SNCU)*
Keywords:*death,neonate,respiratory distress,SNCU.*

I. Introduction

Respiratory distress is one of the commonest causes of admissionof a neonate to the neonatal intensive care unit (NICU). It is achallenging problem and accounts for significant morbidity andmortality. In various Indian studies, it occurred in up to four toseven percent of the neonates. There are various factors whichdetermine the progress and outcome in neonatal respiratory distress. The birthweight, gestational age and the degree ofrespiratory compromise are the key factorswhich decide the level of care the neonatewould require. Clinical monitoring is mostimportant as sophisticated equipments maynot always be available in resource limited settings. Clinical scores such as Downe's score, Silvermanscore, APGAR score and ACoRN respiratory scoreare being used for assessing the severity of respiratorydistress while CRIB (Clinical risk index for babies) andSNAPPE (Score for neonatal acute physiology-perinatalextension) are being used for determining illnessseverity. Calculation of some of the above mentionedscores need estimation of fractional inspired oxygen,arterial blood gas analysis and monitoring of vitalsincluding blood pressure. However, invasive monitoringand ventilator facilities are not available in all theneonatal care units. There is a dearth of studies onrole of simple clinical parameters like Downe's scoreand pulse oximetry early on during the course ofrespiratory distress in predicting which neonates mayhave a higher mortality, need mechanical ventilation and need higher duration of respiratory support.

Simple clinical scores if meticulously documentedcould be useful to determine the progression of therespiratory distress. This would then enable timelytransfer of these neonates to higher centres from theprimary neonatal care facility available in most of thedeveloping countries.This study was therefore conducted to assess the suitability of simple parameters like birth weight,gestation age, baseline oxygen saturation, APGAR score at five minutes and Downe's score as predictorsof certain short term outcomes like requirement ofrespiratory support and mortality.

II. Methods

all neonates with respiratory distress,irrespective of gestational age were included.Risk factors were compared between those died and those who survived.Risk factors significantly associated with death were analysed.

Results

Out of 100 included neonates,40(40%) died on univariate analysis ,Antenatal history of per vaginal bleed,meconium stained liquor ,prolonged rupture of membrane, birth weight <1.5 gestational age <37 weeks ,preductal SpO2 of <80%,shock,apneic attacks,positive sepsis screen were found to be significantly associated with death.
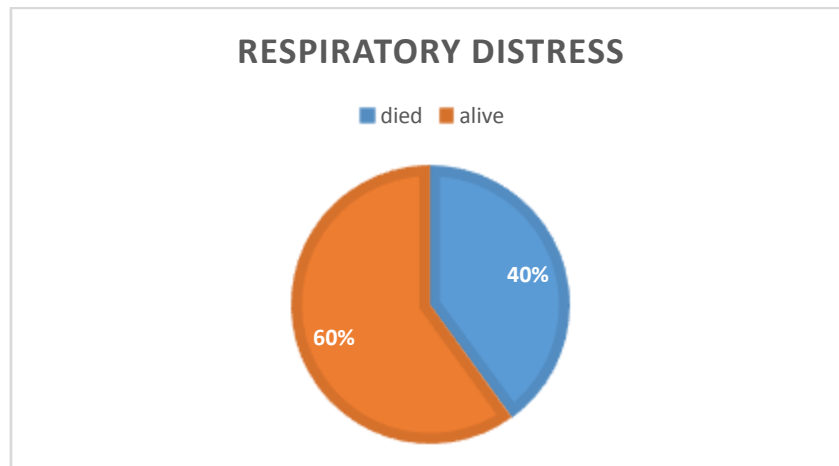
III. Conclusion

PV bleed,shock,and apneic attacks were independent predictors of mortality in a neonate with respiratory distress and can be used as referral criteria for early referral to a tertiary level newborn unit from special care newborn units.(SNCU)

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