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STUDY OF THE MORBIDITY PATTERN IN THE SPECIAL NEW BORN CARE UNIT (SNCU) AT A TERTIARY CARE TEACHING HOSPITAL IN KURNOOL DISTRICT, ANDHRA PRADESH, INDIA

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ABSTRACT: OBJECTIVE: To Study the Morbidity Pattern in NICU at a Tertiary Care teaching Hospital Kurnool medical college Kurnool. **METHODS:** Retrospective study of medical records during the period of July 2014 to Dec. 2014 of all neonates who were admitted to the SNCU were reviewed Data regarding the place of birth, gestational age, birth weight and diagnosis were recorded. **SETTINGS:** SNCU of Tertiary Care teaching Hospital located in Kurnool District of Andhra Pradesh. Study carried out over 6 months-during July 2014 to Dec. 2014. **PARTICIPANTS:** Study sample 1418 neonates. With some illness who were admitted to NICU. **OUTCOME:** Study of Pattern of Morbidity among neonates admitted in SNCU during 6 months period. **RESULTS:** A total of 1418 babies in SNCU were included for data analysis excluding babies who left the hospital against medical advice. Ratio of inborn (28.91%) and out born (71.09%) neonates was 0.41%. Majority of admissions constitute Term (54.8%) followed by preterm 25.79% followed by IUGR 19.46%. Major causes of Morbidity were birth Asphyxia with HIE (32.07%), pre maturity 25.74%. IUGR (23.98%) Sepsis (23.41%) followed by, HMD in premature (11.92%). The most common cause of referral from outside were birth Asphyxia with HIE (29.76%) Neonatal sepsis (25.5%), prematurity with RDS (11.51%), IUGR (7.74%). **CONCLUSION:** Study identified HIE prematurity (25.74%) IUGR (23.98%) Sepsis (23.41%) as the major cause of morbidity. Adequate antenatal care to the at risk mothers and advances in the neonatal intensive care will improve the neonatal outcome.

KEYWORDS: HIE morbidity pattern, Prematurity.

INTRODUCTION: About 0.76 million neonates die every year in India, the highest for any country in the world. The neonatal mortality rate (NMR) of the country did decline from 52 per 1000 live births in 1990 to 29 per 1000 live births in 2012 (SRS 2012) but the rate of decline has been slow, and lags behind that of infant and under-five child mortality rates The three major causes of neonatal deaths are preterm, birth complications, infections, and intrapartum related complications; together, they contribute to nearly 90% of total neonatal deaths. While almost all of intrapartum-related deaths and majority of prematurity-related deaths occur in the first week of life, more than half of infection related deaths occur after the first week of life. This has implications for the home/community-based postnatal care of neonates.⁽¹⁾

Purpose of this study is to know the pattern of illnesses of babies born out of institutional deliveries and non-institutional deliveries, referred to SNCU (Tertiary Care Unit), to implement the strategies of New born and antenatal care, to reduce the neonatal morbidity, as most of the causes of neonatal morbidity and mortality are preventable.⁽²⁾

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Neonatal period is very vulnerable period of life due to many problems which can occur, more so in babies born preterm or low birth weight. For applying preventive strategies we have to have the data on morbidities which claiming the neonatal life so we under took the study to assess the commonest causes for admission.

MATERIALS AND METHODS: This hospital based retrospective study carried out in the SNCU department of pediatrics Kurnool medical college Kurnool for a period of 6 months July 2014 to Dec. 2014. Our hospital caters mainly to urban, semi urban and rural patients. All admitted neonates were enrolled on structured protocol which included data on mode and place of delivery, weight at admission, gestational age, diagnosis, and relevant investigation.

Inclusion Criteria: All the neonates who were admitted to the SNCU. Morbidities at the time of admission were taken into consideration for data analysis.

Exclusion Criteria: Babies who left the hospital against the medical advice.

As the definite data of illness on admission not available it is excluded from the study.

Statistical Analysis:

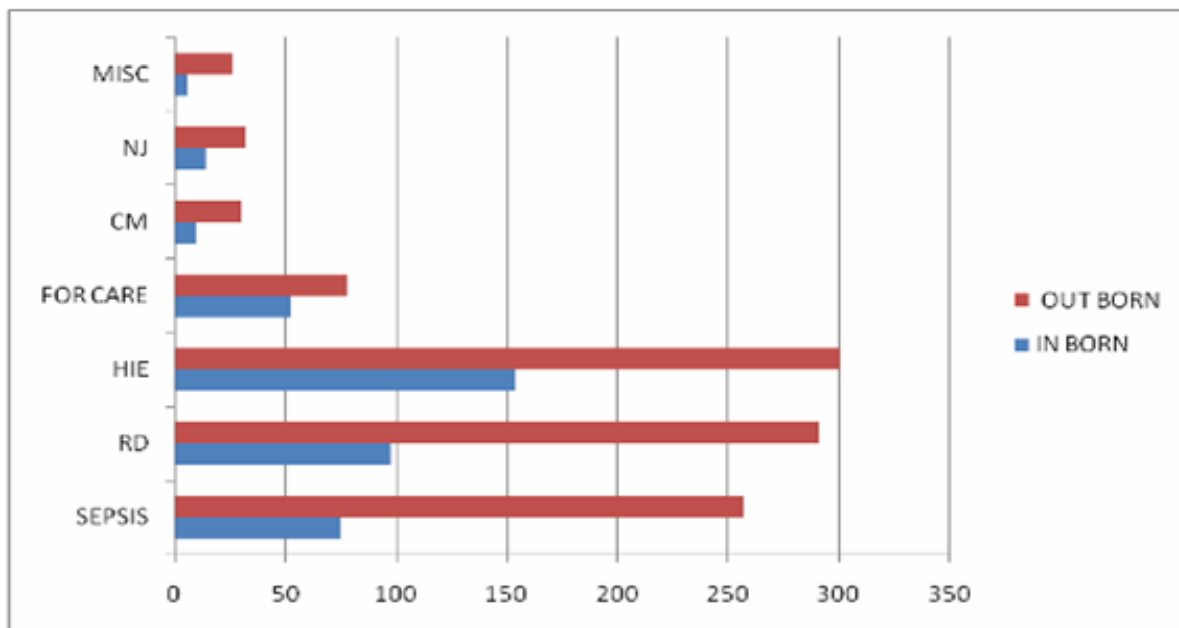


Chart-1

Morbidity Proportions for Inborn Out born patients and with respect to birth weight were analyzed using chi-square test statistics were applied to find out P value in variables. P value of <0.05 was considered to be statistically significant for any given measure.

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Morbidity	In born	Out born	X ²	P
Respiratory distress	98	299	3.61	0.05
SEPSIS	75	257	8.43	0.0036
Birth asphyxia with HIE	154	300	8.14	0.0042
Neonatal jaundice	14	32	0.05	0.8
Congenital malformations	10	30	0.3	0.5
Miscellaneous	6	20	0.43	0.5
For care	53	78	9.3	0.002

Table 1

Morbidity	Term (> 2500 gms)	Lbw (< 2500)	X ²	P
Respiratory distress	132	254	54.89	< 0.001
SEPSIS	146	186	6.89	0.0085
Birth asphyxia with HIE	387	67	326.50	< 0.001
Neonatal jaundice	24	22	0.06	0.79
Congenital malformations	14	26	3.84	< 0.05
miscellaneous	10	16	1.48	0.223

Table 2

Guidelines followed in the NICU: Both inborn as well as out born neonates were admitted, diagnosis of neonatal conditions was made as per guidelines given by NNF.⁽³⁾

RESULTS: A total of 1418 neonates were included for the data analysis. Of these babies 410(28.91%) are inborn and 1008(71.09%) are out born, ratio of the in born to out born neonates was 0.41%. There are 365 (25.4%) premature deliveries with mean gestational age of 34.4±3.6wks and 340 (23.98%) IUGR neonates with mean birth weight of 2280±754 grams. The major cause of morbidity was birth asphyxia with HIE (32.07%), respiratory distress (27.43%) sepsis (23.41%) HMD in preterm (11.92%) LBW for care (9.24%). The most common cause of referral from outside (PHC and Private nursing homes) for the out born neonates are birth asphyxia (29.76%), sepsis (25.5%) respiratory distress prematurity with respiratory distress (28.87%), LBW for care (7.74%).

Causes for referral for out born	Proportion of referral N = 1008
Birth asphyxia + HIE	300(29.76%)
Neonatal sepsis	25 (25.5%)
Respiratory distress	291(28.87%)
LBW for care	78(7.74%)

Table 3

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Characteristics of study population:

Total Number	(1418)	% of
In born	410	28.9 %
Out born	1008	71.09 %

Table 4

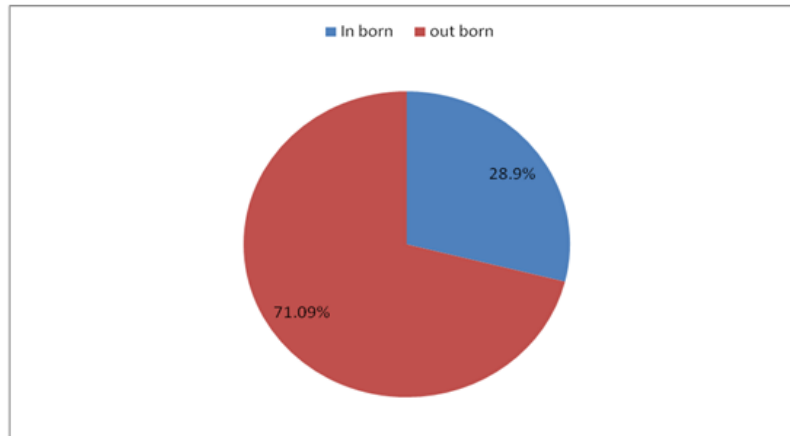


Chart- 2

Term	713	50.28%
Preterm	365	25.74%
IUGR	340	23.98%

Table 5

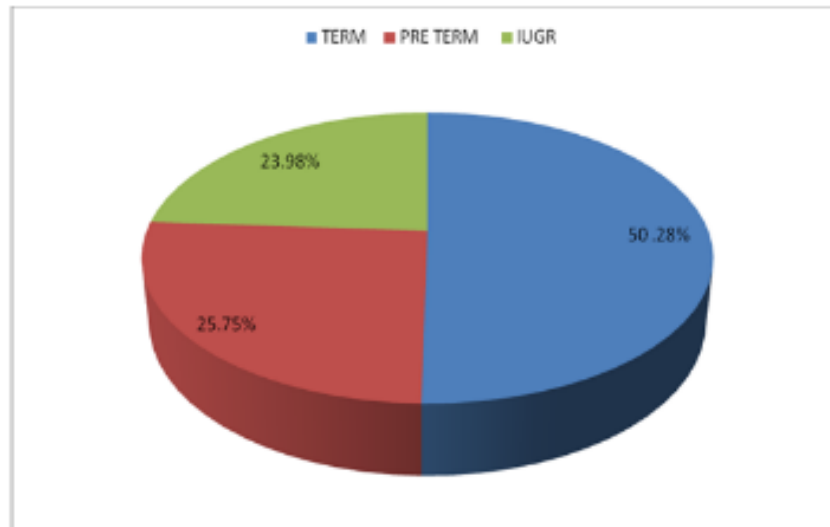


Chart-3

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Clinical Profile of Neonates			
Diagnosis	Inborn (%)	Outborn (%)	Total Number (%)
Pematurity(PT)			
PT with HMD	53(3.74%)	116(8.18%)	169(11.92%)
PT with Sepsis	21(1.48%)	59(4.16%)	80(5.64%)
PT with Other Morbidities	46(3.24%)	70(4.94%)	116(8.18%)
TERM			
Birth asphyxia	131(9.24%)	256(18.05%)	387(27.29%)
Sepsis	27(1.90%)	119(8.39%)	146(10.3%)
Respiratory Distress	27(1.90%)	105(7.40%)	132(9.31%)
Hyperbilirubinemia	7(0.49%)	17(1.2%)	24(1.69%)
Congenital Malformation	2(0.14%)	12(0.85%)	14(0.99%)
Miscellaneous	2(0.14%)	8(0.56%)	10(0.70%)
IUGR			
Birth asphyxia	23(1.62%)	44(3.10%)	67(4.72%)
Sepsis	27(1.90%)	79(5.57%)	106(7.48%)
Respiratory Distress	18(1.27%)	70(4.94%)	88(6.21%)
For care	7(0.49%)	8(0.56%)	15(1.05%)
Hyperbilirubinemia	7(0.49%)	15(1.05%)	22(1.55%)
Congenital Malformation	8(0.56%)	18(1.27%)	26(1.83%)
Miscellaneous	4(0.28%)	12(0.85%)	16(1.13%)

Table 6

DISCUSSION: Accurate data on the morbidity and mortality are useful for many reason. It is important for the providers of primary care, investigators, and local and national health administrators and for the decision makers to design interventions for prevention and treatment and to implement and evaluate health care programs.

In our study outborns 1008(71.09%) which caters rural, semi urban and urban population. Maximum number of admissions in inborn were birth asphyxia with HIE constituting 37.56% (154/410) followed by respiratory distress all causes 23.90% (98/410), sepsis 18.29% (75/410) followed by prematurity with other morbidities. Incidence of sepsis in both term and IUGR were same 6.59% (27/410)). Pattern of admissions in out born babies also the same, maximum number because of birth asphyxia 29.67% (300/1008), second common cause for admission was respiratory distress 28.87% (291/1008) followed by sepsis 25.5% (257/1008), Apparent less number of cases of sepsis in prematures due to (5-6%) as the morbidity on admission is taken into consideration, as prematures subsequently develop sepsis following admission. Because of lack of good antenatal care, good intrapartum monitoring at community based hospital, also lack of SNCU" with adequate neonatal care facilities referred to our tertiary care hospital.

In our study morbidity pattern of out born babies admitted in SNCU is similar to the study conducted in Uttarakhand.⁽⁴⁾

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In our study 365(25.74%) are delivered prematurely, 340(23.98%) were IUGR. This may be due to poor maternal health status, poor antenatal checkup and poor socio – economic status of families.

In this study among all the neonates common morbidities are birth asphyxia with HIE 454 / 1418(32.07%) , Respiratory distress 389(27.43%) , neonatal sepsis 332(23.41%) , HMD in preterm constitutes 169/389(43.44%) of respiratory distress. Birth asphyxia with HIE was the most important cause of the morbidity among term babies more than 2.5 kg. Stage II asphyxia constituted the maximum number 281/454 (61.89 %) followed by stage I - 136/454(29.96%). Stage III 37/454 (8.15%) Maximum number of babies affected with HIE born through vaginal delivery 374/454(82.38 %), LSCS were 80/454 (17.62%) This high incidence of asphyxia in vaginal deliveries can be reduced to a great extent by ensuring strict intra partum monitoring judicious and timely intervention may help to reduce the incidence of asphyxia related morbidity.

There is broad agreement that infants >2.5 kg the death is influenced by obstetric management and those who are LBW it is quality of neonatal care that has an important bearing on the outcome. The incidence of moderate to severe asphyxia was observed in 318/454 (70.04 %). Our study is correlating with study of neonatal morbidity profile in a district teaching hospital, Mysore, India in a three years study. It appears that HIE Moderate to severe birth asphyxia is the major contributing factor for neonatal morbidity.⁽⁵⁾ Second most common cause of admission was respiratory distress 389/1418 (27.43 %) amongst which HMD in preterm constitute 43.45% rest of the cases due to MAS/TTN and others in term and IUGR babies 56.56 %. Neonatal sepsis next common cause of morbidity 23.41% more number of cases reported from term 43.96% (146/332) and 31.93 % (106/332) from IUGR. Incidence of sepsis in premature was 80/332(24.1%) may be this is due to premature most often present with respiratory distress, difficulty in accepting feeds in due course of time develop sepsis. In our study diagnosis on admission is taken into consideration. More number of cases noted in out born babies 77.41% (257/332) (in contrast to sepsis in inborn babies 22.59% (75/332) out of which maximum number of cases were LOS 60.54% (201/332). According to data from national neonatal, perinatal data base (NNPD) 2002 – 2003, 30/1000 live births. NNPD network comprising of 18 tertiary care neonatal units across India found sepsis to be one of the commonest cause of morbidity.⁽⁶⁾ In our study 25.74% (365/1418) babies delivered prematurely, lack of prenatal care or irregular prenatal care has been found to be associated with high incidence of premature deliveries, prematurity and related morbidity and mortality.^{(7),(8)}

The incidence of neonatal jaundice is low in our study that is in terms 1.69%, IUGR 1.55% as the cases presented with jaundice are included in this study and neonates developed jaundice following admission are not included.

Present study having identified LBW, HIE, neonatal sepsis as major causes of morbidity, there is need for the developments in obstetric and neonatal units for better antenatal, obstetric and neonatal intensive care services, with the use of most sophisticated technology.

In our study major causes for admission are birth asphyxia, sepsis and low birth weight, which is almost similar to the study of Nepal.⁽⁹⁾

CONCLUSION: This study identified, out of 1418 babies, LBW (prematurity & IUGR), 49.72% (705/1418), birth asphyxia with HIE (32.02%), respiratory distress (27.43%), and sepsis (23.41%), as major causes of morbidity. All these etiologies are preventable up to some extent and if detected earlier it can be effectively treated in order to reduce morbidity and mortality. Adequate antenatal

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care to the at risk mothers and advances in the neonatal intensive care will improve the neonatal outcome. In case of prematurity attempts to prolong the pregnancy each week, along with antenatal steroids might improve the neonatal outcome considerably.

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