

Clinical profile and outcome of newborn babies admitted to SNCU a level 2 neonatal intensive care unit

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Abstract

The neonatal period is the most vulnerable period for child as they are high risk for mortality. Data regarding a total of 877 neonates were admitted to SNCU during the study period of one year between January 2017- December 2017 was analysed. Results showed more inborn neonate admission (89.5%, number of male babies admitted to SNCU was more than female. The incidence of LBW was 38.2 %. The commonest cause for admission was neonatal jaundice 31.5%. The percentage of preterm babies admitted was 20.6%. The incidence of Respiratory distress syndrome 15.6%, birth asphyxia 12.8%, neonatal sepsis 7.42%, meconium aspiration was 6.6% and hypoglycaemia was 2.2% respectively. The mortality rate in our SNCU was 0.9%.

Key Words: SNCU, new born.

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out the common clinical conditions leading to newborn admission, and the new born outcome in our hospital.

MATERIAL AND METHODS

The present study is a retrospective descriptive study. The study was conducted at SNCU district hospital, Chamarajanagar Institute Of Medical Sciences, Chamarajanagar. The data was taken from the SNCU records over a period of one year January 2017 to December 2017 all newborn admitted during the study period were included. Data regarding the place of delivery, inborn delivery or out born, gender, gestational age, weight on admission, Indication for admission, mode of delivery, final diagnosis, duration of stay and treatment outcome were collected.

Definitions Used in Our Study: Term baby is defined as babies born 37- 42 weeks of gestational age. Preterm baby is defined as born before 37 weeks of pregnancy are completed.⁴ Low birth weight (LBW) is defined as birth weight of less than 2500 g (up to and including 2499 g), as per the World Health Organization (WHO).⁴ Low birth weight is further categorized into very low birth weight (VLBW, <1500 g) and extremely low birth weight (ELBW, <1000 g) Meconium aspiration syndrome is

INTRODUCTION

The neonatal period is the most vulnerable time for a child's survival. There is a high risk of mortality in their first month of life at a global rate of 18 deaths per 1,000 live births in 2017¹. 47% of deaths among children under five were newborns in 2017¹. In 2016, 1 million children died from preterm birth complications². The neonatal mortality rate in India is 28 per 1000 live birth and in Karnataka it is 22 per 1000 live birth³. SNCU special newborn care units were set up in district hospitals to provide level II neonatal intensive care in India to reduce the neonatal mortality. Our study hence was aimed to find

diagnosed based on basis of history, clinical examination and chest X ray⁵. Birth Asphyxia was diagnosed APGAR <7 at 1 min.⁵ Neonatal infections were diagnosed based on clinical findings together with necessary tests like sepsis screening, blood culture, chest X ray, and cerebrospinal fluid biochemical analysis and culture. Congenital malformations-These were diagnosed on clinical features and diagnostic facilities like Ultrasound, Echocardiography, X rays, and Electrocardiography (ECG).⁵ Neonatal jaundice-This was diagnosed based on serum bilirubin level and which was found to be high and in phototherapy zone or exchange transfusion zone as per the weight age and gestation specific range taking into the account risk factors as per AAP protocol⁵ Primary disease was considered as final diagnosis even if the baby developed complications of primary disease or having more than one disease. Data was entered in Microsoft excel and analysed. A total of 877 neonates were admitted to SNCU during the study period of one year between January 2017- December 2017.

Table 1: Showing data Inborn Versus out born admissions

	Number	Percentage
Inborn	785	89.5
Outborn	92	10.5

There was high admission in inborn group as compared to out born group.

Table 2: Showing the admission classification based on gender, gestational age, maturity and birth weight.

		Number	Percentage
Gender	Male	507	57.8
	Female	370	42.2
Gestational age	Less than 28 weeks	2	0.2
	28-32 week	17	1.9
	32-34 week	42	4.8
	34-37 week	120	13.7
	37 week and above	698	79.6
Maturity	Preterm	179	20.3
	Term	697	79.6
	Post term	1	0.1
Weight on admission	>2500 gm	542	61.8
	1500-2499 gm	318	36.3
	100-1499 gm	15	1.7
	<1000 gm	2	0.2

Study showed the number of male babies were more than female babies. 79.6% of babies were term babies and 20.3% of babies were preterm among them 2.1% of babies were below 32 weeks. 61.8% of babies were more than 2500 gm, 36.3 % babies were in low birth weight, 1.7% were in very low birth weight and 0.2 % were in extremely low birth weight.

Table 3: Showing mode of delivery

	Number	Percentage
Vaginal delivery	460	52.8
LSCS	401	46.2

The percentage of normal delivery (52.8%) was higher than the LSCS delivery (46%).

Table 4: Showing the final diagnosis

	Number	Percentage
Neonatal convulsions	18	2.0
Environmental hyperthermia of newborn	65	7.4
Hypothermia	27	3.0
Hypoglycaemia	20	2.2
Neonatal jaundice	277	31.5
Other lbw	48	5.4
Preterm	66	7.5
Birth asphyxia	113	12.8
RDS	119	15.4
Transient tachypnea of newborn	11	1.2
Meconium aspiration syndrome	58	6.6
Neonatal sepsis	37	4.2
Others	20	2.2

The highest admissions were found due to neonatal jaundice (31.5%) followed by RDS (15.4%), Birth asphyxia (12.5%) and prematurity (7.5%) respectively.

Table 5: Showing duration of stay

	Number	Percentage
<1 day	71	8.1
1-3 days	418	47.4
4-7 days	32	36.5
>7 days	67	7.6

The average duration of stay was highest in between 1 to 3 days 47.4 % babies.

Table 6: Showing the outcome

	Number	Percentage
Discharged	715	81.6
Left against medical advice	35	4.0
Referred	118	13.5
Expired	8	0.9

The above table shows 81.6% of babies admitted were discharged, 13.5 % were referred and 0.9 % of babies expired. Out of the 8 babies that expired. 2 babies died due to RDS, 2 babies due to other causes, 1 each due to extreme prematurity, extremely low birth weight, sepsis and major malformation (trachea-esophageal fistula).

DISCUSSION

Our study showed a high proportion of inborn admissions (89.5%). This may be due to the referred mothers from periphery with fetal compromise and also the geography of the district being situated in border of state and is being considered backward and all the outborn babies may not be referred to district hospital, may be sent to closer hospitals. Our study correlates with study of Shazia etal⁶,

who also had higher incidence of inborn admissions. Our study correlates with other studies where male babies predominate the admissions at SNCU.⁷ The incidence of LBW in Asia as a whole is 19.7%. According to UNICEF LBW incidence in India is 28% and in our study it was 38.2% which was higher than the national statistics which may be because of the poor socio economic status and malnutrition among mothers. The overall rate of caesarean section delivery in 2015–16 is around 17.2% in India⁸ and in our study it was found to be higher 46.2% because our hospital catered for referral from large area. 20.6% of babies in the present study were preterm, similar to the incidence reported by national neonatal perinatal database⁹ similar incidence is reported from other study by Hoque M et al.¹⁰ In our study the most common cause of morbidity was due to neonatal jaundice, it was 31.5%. A similar incidence of 35% was also observed in a study by Simiyu¹¹. The incidence of RDS was 15.4% were as in the study by shazia et al in similar settings was 20 percent⁶. The National Neonatal Perinatal Database shows sepsis (36%) as the most common morbidity responsible for admission followed by prematurity (26.5%) and perinatal asphyxia (10%)⁹. In the present study the incidence of birth asphyxia was 12.8 % similar to national neonatal perinatal database. Neonatal sepsis was the cause of morbidity in 19.27% of admitted neonates. Different hospital-based studies have found the incidence of neonatal sepsis ranging from 17.7% to 70%^{12,13}. In the present study, we observed an incidence of 7.42% Neonatal sepsis admissions. Various other studies reported incidence ranging from 12.7% to 38.7%^{14,15}. Meconium aspiration Syndrome incidence in the present study was 6.6% lesser than the studies done by Gauchan et al and Swain et al in which the incidence of meconium aspiration syndrome was 8.4% and 8.5% respectively^{16,17}. The incidence of neonatal hypoglycaemia in the present study was 2.2% lower than studies done by Dias E et al and Jonas D et al who reported incidence of 17% and 11.7% respectively. But they considered a lower cut off blood glucose < 40mg/dl, in the present we considered <45 mg/dl.^{18,19} In this study we observed 0.9% mortality. The mortality in various other studies range from 1.4% to 20.5%^{11,20,21}. The lower mortality rate may be due to the early referral, which is showing as a 13.5% referral rate. High referral rate is due to lack of mechanical ventilation, laboratory support and infrastructure.

CONCLUSION

The present study showed high proportions of inborn infants (89.5%). There were more number of male infants admitted to SNCU. The commonest cause for admission was neonatal jaundice 31.5%. The incidence of LBW was 38.2 % higher than the national average. The percentage

of preterm babies admitted was 20.6%. The mode of delivery by caesarean section was 46.2%. The incidence of Respiratory distress syndrome 15.6%, birth asphyxia 12.8%, Neonatal sepsis 7.42%, Meconium aspiration was 6.6% and hypoglycaemia was 2.2% respectively. The mortality rate in our SNCU was 0.9%. The referral rate was 13.5% in the present study.

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