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Original Research Paper

Clinical Profile and Outcome of Babies Admitted to Special Newborn Care Unit (Sncu): Retrospective Observational Study

Medical Science

KEYWORDS : Special Newborn Care Unit, Low Birth Weight,clinical profile,outcome

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ABSTRACT

The objectives of the study were to assess the commonest causes for admission and outcome of neonates admitted to SNCU. It was a descriptive retrospective record based study from April 2015 to March 2016 for a period of 1 year with 2270 neonates admitted during the study period. The data on inborn or outborn admission, sex, gestational age, weight for gestation, indications for admission, duration of hospitalization, complications encountered, procedures done during hospitalization and outcome was extracted and analysed. The total neonates were 2270.Low birth weight was seen in 1562 babies (68.8%). Almost every second baby admitted in SNCU was a pre-term baby 1086(47.8%). The commonest morbid reason for admission was others 1335(58.8%) followed by asphyxia 317(13.9%), neonatal jaundice (n=171; 7.5%), meconium aspiration syndrome (n=140; 6.1%), sepsis 108(4.7%),major congenital anomalies 95(4.1%) and respiratory distress syndrome (n=87; 3.8%) . It was found that maximum (n=1737, 76.5%) number of babies were discharged after improvement, 224 (9.8%) left against medical advice, only 39(1.7%) babies were referred to higher centre and there were 270 (11.8%) mortalities. Commonest cause for mortality was birth asphyxia 96(35.5%) followed by respiratory distress syndrome 68(25.5%) and sepsis 48(17.7%)

INTRODUCTION

Of the 130 million babies born every year, about 4 million die in the first 4 weeks of life—the neonatal period.1 Most of the neonatal deaths (99 %) occur in the lower to middle income countries and half of them occur at home.1 The risk of a newborn dying is 24 per 1,000 live births in the first week of life, 3 per 1,000 per week during the rest of the first month, and 0.12 per 1,000 per week after the first year of life.2

Neonatal period is a very vulnerable period of life due to many problems which can occur, more so in babies born preterm or low-birth weight. 3

The neonatal disease pattern changes between different places and from time to time even at the same place.4Yearly child mortality rates in India have fallen between 1·7%1 and 2·3% in the past two decades.5 Of the 4 million neonatal deaths that occur every year, 98% are in the poorest countries of the world. In India, as many as 1.72 million children die annually before reaching their first birthday and, of these, 72% die during their first month of life, the neonatal period. The neonatal mortality rate varies by state but, overall, it is reported to be 39 per 1,000 live births in India6 . The major causes of neonatal deaths globally were estimated to be infections (35%), pre-term births (28%) and asphyxia (23%).7Most of the causes of neonatal morbidity and mortality can be prevented by good obstetric and perinatal management.8 For applying the preventive strategies we have to have the data on morbidties which claiming the neonatal life.9 So, this study was undertaken to assess the commonest causes for admission and outcome of neonates admitted to the Special Newborn Care Unit (SNCU).

METHODOLOGY

The study was a descriptive –retrospective record based study carried out in the Special Newborn Care Unit (SNCU of the Department of Pediatrics, Government Medical College and Hospital, Chandrapur, Maharshtra.The data between April 2015 to March 2016 (1 year) was analysed. All neonates admitted to the SNCU during the study period were included in the study. After obtaining permission of Head of the Institute data on inborn or outborn admission, sex, gestational age, weight for gestation, indications for admission, duration of hospitalization, complications encountered, procedures done during hospitalization and outcome was extracted and analyzed using excel spread sheet.

RESULTS

During the study period, there were a total of 2270 neonates admitted to the SNCU; 1558 babies(69%) were inborn; rest (712 , 31%) were outborn(referred from the other hospitals).Amongst the admitted neonates there were 1256(55.3%) males and 1011(44.5%) females and 3(0.1%) of the inborn neonates had ambigous sex . (table 1).Low birth weight and associate complications was seen in 1562 babies (68.8%), remaining babies had normal birth weight Almost every second baby admitted in our SNCU was a pre-term baby 1086(47.8%). The commonest specific morbid reason for admission was others 1335(58.8%) followed by asphyxia 317(13.9%), neonatal jaundice (n=171; 7.5%) meconium aspiration syndrome (n=140; 6.1%), sepsis 108(4.7%), major congenital anomalies 95(4.1%) and respiratory distress syndrome (n=87; 3.8%). Sepsis was found more in out born babies (54 ,7.5% of total outborn babies) compared to inborn ones (54, 3.4% of total inborns), while birth asphyxia , meconium aspiration syndrome and jaundice was found more in inborn babies (Table 2).Antibiotics (1311) and oxygen (671) were the common interventions used for the management, while phototherapy was used only for 404 babies (Most of the time multiple therapies were used to manage life threatening morbid conditions) (Fig. 1).It was found that maximum (n=1737, 76.5%) number of babies were discharged after improvement, 224 (9.8%) left against medical advice, only 39(1.7%) babies were referred to higher centre and there were 270 (11.8%) mortalities. . 57% babies (n=1303) were discharged within 1-3 days of admission (Fig 2) Commonest cause for mortality was birth asphyxia 96(35.5%) followed by respiratory distress syndrome68(25.5%) and sepsis 48(17.7%)

Table 1:
Gender-wise distribution

Admission to SNCU	Inborn		Outborn		Total	
	Number	Percent	Number	Percent	Number	Percent
Male	850	54.5	406	57.1	1256	55.4

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Female	705	45.3	306	42.9	1011	44.5
Ambiguos	3	0.2	0	0	3	0.1
Total	1558	100	712	100	2270	100

Table 2:
Distribution of neonates according to birth weight, period of gestation, morbidity profile and outcome of admission

Admission to SNCU	Inborn		Outborn		Total	
	Number	Percent	Number	Percent	Number	Percent
Birth weight						
>2500	553	35.6	155	21.8	708	31.2
1500-2499	857	55.0	401	56.3	1258	55.4
1000-1499	136	8.7	129	18.1	265	11.7
<1000	12	0.8	27	3.8	39	1.7
Period of gestation						
>37	868	55.7	316	44.4	1184	52.2
34-37	462	29.7	218	30.6	680	29.9
<34	228	14.6	178	25	406	17.9
Morbidity profile						
Respiratory distress syndrome	55	3.5	32	4.5	87	3.8
Meconium aspiration syndrome	132	8.5	8	1.1	140	6.2
Mod/severebirth asphyxia	243	15.6	74	10.4	317	13.9
Sepsis	54	3.5	54	7.6	108	4.8
Pneumonia	5	0.3	4	0.6	9	0.4
Meningitis	0	0	2	0.3	2	0.1
Major congenital malformation	63	4.0	32	4.5	95	4.2
Jaundice	130	8.3	41	5.8	171	7.5
Hypothermia	0	0	5	0.7	5	0.2
Hypoglycemia	11	0.7	8	1.1	19	0.8
Others	885	56.8	450	63.2	1335	58.8
Outcome						
Discharge	1232	79.1	505	70.9	1737	76.5
Referal	22	1.4	17	2.4	39	1.7
Lama	135	8.7	89	12.5	224	9.9
Died	169	10.8	101	14.2	270	11.9

Fig 1.Management of neonates.

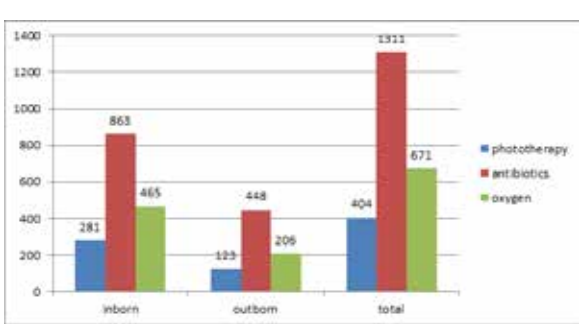

Fig 2.Duration of hospitalisation

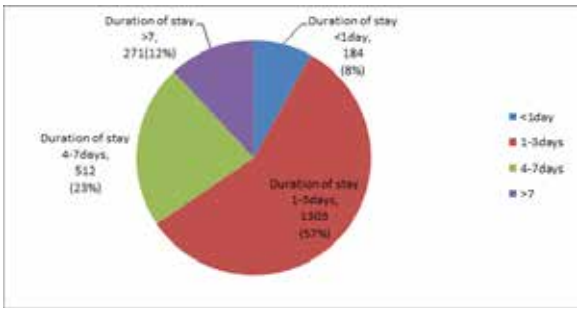

Table 3: Distribution of Neonatal deaths

Admission to SNCU	Inborn		Outborn		Total	
	Number	Percent	Number	Percent	Number	Percent
Cause of death						
Respiratory distresssyndrome	37	21.9	31	30.7	68	25.2
Meconium aspiration syndrome	6	3.6	4	3.9	10	3.7
Moderate-severebirth asphyxia	72	42.6	24	23.8	96	35.6
Sepsis/ pneumonia/meningitis	24	14.2	24	23.8	48	17.8
Majorcongenital malformation	12	7.1	3	2.9	15	5.6
Prematurity	3	1.8	7	6.9	10	3.7
Others	15	8.9	8	7.9	23	8.5
Duration between timeof admission and death inborn outborn total						
<1	37	21.9	17	16.8	54	20
1-3days	101	59.8	65	64.	166	61.5
4-7days	27	15.9	13	12.9	40	14.8
>7	4	2.4	6	5.9	10	3.7
Birthweight						
>2500	36	21.3	18	17.8	54	20
1500-2499	79	46.7	35	34.7	114	42.3
1000-1499	44	26.1	30	29.7	74	27.4
<1000	10	5.9	18	17.8	28	10.3
Gestation						
Term	82	48.5	38	37.6	120	44.4
Preterm	87	51.5	63	62.4	150	55.6

DISCUSSION

Neonatal period is the most vulnerable period of life due to different diseases, which in most causes are preventable. It is clear from NFHS-3 that neonatal mortality (39/1000 live births) is very high in India,which accounting for 25% of the all neonatal mortality in the world. So , it is essential to strenghthen neonatal services to reduce neonatal morbidities and mortalities, which in turn helps reduce the infant mortality , for which the neonatal mortality is the great contributor (75% of total infant mortalities) 10. During the study period, 2270 neonates were admitted, among them 69% were inborn; rest (31%) were outborn, who were referred from different private hospitals in the city and gov-

ernment and private hospitals in the sub-district level of Chandrapur and other surrounding districts. Similar findings are reported from study conducted by Patil Ravindra B et al in Shivamogga,Karnataka 9and Veena Prasad and Nuthan Singh in Uttarkhand 10. In our study 68.8% (1562) of babies had low-birth weight. In total admitted cases every second baby was a pr-eterm baby (47.8%). It indicates that neonatal low birth weight and pre-term deliveries are the important contributors for NICU admission. Similar findings are noted in other studies where the incidence of low birth weight ranges from 41.2% to 53% 8. Our study results on low birth rate and premature admission is consistent with the results of study conducted by Patil Ravindra B et al in Shivamogga,Karnataka9 and Garg P et al. in New Delhi11 In another study conducted by Gauri Shankar et al. reported that the proportion rate of premature admission was 23.2 % 12. The commonest specific morbid reason for admission was others 1335(58.8%) followed by asphyxia 317(13.9%), neonatal jaundice (n=171; 7.5%) meconium aspiration syndrome (n=140; 6.1%)sepsis 108(4.7%),major congenital anomalies95(4.1%) and respiratory distress syndrome (n=87; 3.8%) Sepsis was found more in out born babies (54 ,7.5% of total outborn babies) compared to inborn ones (54, 3.4% of total inborns) This may be due to deliveries conducted in septic surroundings or by unskilled person or babies got exposed to infections while transport during referral. . Birth asphyxia, meconium aspiration syndrome and jaundice was found more in inborn babies. Being a tertiary-care centre, we get many women in advanced stage of the labor or pregnancy complication thus adversely affecting the neonatal outcome. This may be the reason for such finding. .Thus strengthening of antenatal, intrapartum and post partum care are of utmost importance so that above morbidities can be prevented. Simple interventions like partograph plotting and prompt and timely referral would reduce many such morbidities.In the study conducted by Patil Ravindra B et al in Shivamogga,Karnataka9the commonest specific morbid reason for admission was respiratory distress syndrome(n=389; 37.3%) followed by neonatal jaundice (n=143;13.7%) and meconium aspiration syndrome (n=143; 13.7%). Another study done in New Delhi has commented on sepsis as being the commonest reason for admission followed by birth asphyxia and pneumonia13. A study conducted by Gauchan E in Nepal highlighted that jaundice, sepsis and perinatal asphyxia as being the commonest indication for admission in the neonatal intensive care unit 8.11.8% of neonatal mortality was observed in this study during study period, the mortality was more in outborn babies(14.2% of total outborn admissions) which is similar to studies in Nepal 8 ,Karnataka9 , Pakistan 14 and South Africa 15The rate of mortality was lower than the report of study conducted by Veena Prasad et al10 in Uttarkhand. Commonest cause for mortality was birth asphyxia 96(35.5%) followed by respiratory distress syndrome 68(25.5%) and sepsis 48(17.7%) . Similar results reported in studies conducted in Nepal8 ,Karnataka9 , and New delhi13 .

CONCLUSION

Low birth weight and preterm births are the common causes for admission in the SNCU. Respiratory distress syndrome, neonatal jaundice and meconium aspiration syndrome are some important and leading causes of morbidity in newborn babies. Commonest causes for mortality were Birth asphyxia ,Respiratory distress syndrome, and Sepsis.. Most of the morbidities and subsequently the mortalities can be prevented by improving and effective implementation of important preventive services like maternal antenatal care and IMNCI. Maintenance of the line listing of Expected place of delivary of all the pregnant mothers and continuos follow up specially in cases of high risk pregnancies would assure that all high risk deliveries would be conducted at tertiary care level only . Multicentric studies including all the government and private hospitals at district and sub district level to know the exact magnitude of problems are needed.

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