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Original Research Article

Morbidity and mortality pattern of neonates admitted into a newly established special care baby unit at Asaba Specialist Hospital, Asaba, Nigeria

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ABSTRACT

Background: Neonatal morbidity and mortality has remained high in Nigerian and other low and middle-income countries (LMIC) despite numerous advances in newborn care. A periodic review of the common causes of morbidity and mortality will aid in evaluating the practices and improving service delivery. aimed at reducing neonatal morbidity and mortality pattern of neonates admitted into the special care baby unit (SCBU) of Asaba specialist hospital, Delta state, Nigeria.
Methods: This was a 3-year retrospective study, carried out at the SCBU of Asaba specialist Hospital, Asaba, between January 2021 and December 2023. Factors including age, sex, weight, diagnosis and outcome were studied.
Results: A total of 1,604 neonates were admitted and managed in the SCBU during the period under review with a female to male ratio of 1.3:1. The commonest cause of admission was perinatal asphyxia (23.0%), prematurity (21.4%) and neonatal sepsis (18.5%). The mortality rate was 13.2% were the commonest causes of death been prematurity (26.2%), perinatal asphyxia (17.8%) and neonatal sepsis (7.8%). Discharge against medical advice (DAMA) rate of is 6.7%.
Conclusions: The study showed that prematurity, perinatal asphyxia and neonatal sepsis remain the commonest cause of admissions and death in our SCBU.

Keywords: Asaba, Morbidity, Mortality, Neonatal

INTRODUCTION

The neonatal period (the first 28 days of life) is the most critical period in the life of many babies. This critical period is said to account for about 50-70% of infant mortality and 39% of under-5 deaths worldwide.[1] It is estimated that about 2.9 million neonates of 135 million babies born every year dies.[2] Regrettably, majority of these neonatal death occurs in Sub-Saharan African. Nigeria has the highest neonatal mortality rate in Africa and the second highest in the world with a neonatal mortality rate of 40/1,000 live births.[3] In Nigeria, neonatal mortality accounts for 30% of the under-five mortality.[4] Much work is still needed to attain the sustainable developmental goal (SDG) target of NMR of 12/1,000 live births in 2030. The pattern of neonatal diseases is an important indicator of the availability, utilization and effectiveness of maternal and child health care services.[5] Neonatal deaths in developing countries are mainly from preventable causes like prematurity, birth asphyxia and neonatal infection which is at variance with developed countries were unpreventable causes like

congenital abnormalities were the major cause of death.[6] Periodic evaluation of morbidity and mortality patterns is critical as pattern vary from place to place and it helps in developing and strengthening the health care policies. As a newly established special care baby unit (SCBU) in the state, receiving referrals from all over the Delta state and beyond, this (study) becomes essential. This study aims to determine the morbidity and mortality pattern among babies admitted into the SCBU of Asaba specialist hospital, Asaba over a three years period.

METHODS

Study design

This is a retrospective descriptive study of records of neonates admitted into the neonatal unit between January 2021 and December 2023.

Study place

Asaba specialist Hospital, is a newly established state government owned tertiary hospital that was established in 2021. It is a 350-bedded hospital that provides specialized care to the citizens of Delta state and it's environed with an estimated population of five million people.

Inclusion criteria

All neonates<28 days who were admitted into the SCBU during the study period.

Exclusion criteria

Still-birth neonates who were not admitted in SCBU were excluded from the study. Approval for the study was obtained from the hospital's ethical committee.

Data collection

Data on all neonates admitted into the neonatal unit were collected from the admission, discharge and death registers. Data extracted included: the age of neonates on admission, sex, gestational age at birth, weight on admission or at birth, duration of hospital stay, final diagnosis and outcomes (discharge, death or discharge/left against medical advice).

The SCBU is a 20-bed unit that provides 24 hours services. It has a staff strength of about 40, which comprises of two consultant Paediatrician (Neonatologist), resident doctors, nurses, pharmacy and other support staff. The unit is divided into two sections, the outborn and inborn sections. Babies born in the hospital are admitted into the inborn section while those referred from outside the hospital were admitted in the outborn section of the unit.

Data analysis

The relevant data was entered into SPSS version 22.0 and analyzed. These results were presented as tables in simple proportions.

RESULTS

Table 1 shows the characteristics of patients admitted into the SCBU. A total of 1604 patients were admitted with a female to male ratio of 1.3:1. Perinatal asphyxia (23.0%) was the commonest cause of admission; the mortality rate was 13.2%.

Table 2 shows the pattern of admission in both the inborn and outborn. Prematurity, perinatal asphyxia and neonatal sepsis were more in inborn section while the outborn section had more babies with neonatal jaundice.

Table 3 shows the outcome of babies that were managed in SCBU. The table showed that 26.2% of premature babies died while 4.6% of babies with neonatal jaundiced died.

Others comprise of children with inborn errors of metabolism, gross congenital abnormalities, surgical cases.

Table 1: The characteristics of patients admitted into the SCBU.

Variables	Frequency (%)	%
Gender		
Male	695	43.3
Female	909	56.7
Diagnosis		
Perinatal asphyxia	369	23.0
Prematurity	343	21.4
Neonatal sepsis	296	18.5
Neonatal jaundice	241	15.0
Others	355	22.1

Continued.

Variables	Frequency (%)	%
Outcome		
Discharge	1286	80.2
Died	211	13.2
Discharge against medical advice	107	6.7
Birth weight (kg)		
<2.5	584	36.4
>2.5	1020	63.6
Age on admission (days)		
1-3	1257	78.3
4-6	160	10.0
>7	187	11.7

Table 2: The distribution of admission variables into inborn and outborn section of SCBU.

Variables	Admission		Total (%)
	Inborn (%)	Outborn (%)	
Male	443 (63.7)	252 (36.3)	695 (100)
Female	535 (58.9)	374 (41.1)	909 (100)
Prematurity	259 (75.5)	84 (24.5)	343 (100)
Neonatal jaundice	73 (30.3)	168 (69.7)	241 (100)
Neonatal Sepsis	164 (55.4)	132 (44.6)	296 (100)
Perinatal asphyxia	247 (66.9)	122 (33.1)	369 (100)
Others	235 (66.2)	120 (35.5)	355 (100)
Discharged	814 (63.3)	472 (36.7)	1286 (100)
Died	112 (53.1)	99 (46.9)	211 (100)
DAMA	52 (48.6)	55 (51.4)	107 (100)

DAMA: Discharge against medical advice

Table 3: The outcomes of patients admitted into the SCBU.

	Outcome			
Variables	**Discharge (%)**	**Died (%)**	**DAMA (%)**	**Total (%)**
Male	555 (79.8)	93 (13.4)	47 (6.8)	695 (100)
Female	731 (80.4)	118 (13.0)	60 (6.6)	909 (100)
Diagnosis				
Prematurity	229 (66.8)	90 (26.2)	24 (7.0)	343 (100)
Neonatal jaundice	219 (90.8)	11 (4.6)	11 (4.6)	241 (100)
Neonatal Sepsis	248 (83.8)	23 (7.8)	25 (8.4)	296 (100)
Perinatal Asphyxia	275 (74.5)	65 (17.6)	29 (7.9)	369 (100)
Others	315 (88.7)	22 (6.2)	18 (5.1)	355 (100)
Total	1286 (80.2)	211 (13.1)	107 (6.5)	1604 (100)
Birth weight (kilogram)				
<2.5	424 (72.6)	119 (20.4)	41 (7.0)	584 (100)
>2.5	862 (84.5)	92 (9.0)	66 (6.7)	1020 (100)

DISCUSSION

The study showed the preponderance of inborn admission (61.0%) compared to outborn admission (39.0%). This trend is similar to what has been documented in other tertiary centers in Enugu and Benin City, both in Nigeria.[7,8] The reason for this trend is probably due to closer monitoring and identification of signs of diseases by the doctors and it is much easy for such babies to be referred to the SCBU for treatment.

However, a study done in Amino kano Teaching Hospital in Northern Nigeria documented a predominance of outborn babies compared to newborn babies which was

attributed to the fact that it was the only tertiary hospital in the area getting referrals from all over the state.[9] There were more female admissions compared to male admissions. This finding is at variance to what was reported by Ekwochi et al, in Enugu and Onazi et al, in Sokoto both in Nigeria who reported a male preponderance.[7,10] The demographic variables of the community could explain the difference observed.

Perinatal asphyxia, prematurity, neonatal sepsis and neonatal jaundice were the four leading causes of admission in our study and this finding is consistent with what has been reported in other studies in Nigeria.[7-11] Birth asphyxia (23.0%) is the commonest cause of admission in our center and this is in similar to what has been reported by Ekwochi et al, in Enugu and Muktar-yola et al, in Kano.[7,9] Majority of the perinatal asphyxiated babies who were admitted in the inborn section of the hospital never received antenatal care in the hospital, but were only refereed to the center following difficult or obstructed labour. This finding highlights the impact of perinatal asphyxia on the morbidity of newborns in our environment and the need for close monitoring of labour and presence of skilled birth attendants during delivery. The neonatal mortality rate in this study is 13.2%. This finding is comparable to what has been documented elsewhere with 14.8 % recorded in Zaria. However, a higher value of 20.4% and 19.3% has also been recorded in Benin City and Gusau respectively.[8,12] The difference could be attributed to a lot of factors ranging from the sample sizes, to the level of infrastructure and skilled personals at the hospital. The commonest cause of death in our study is number and availability of skilled personnel, prematurity as it accounted for 42.6% of neonatal death. This observation is similar to 43.2% reported by Toma et al in Jos in Nigeria.[13]

The birth asphyxia (30.8%) account for the second leading cause of death in our center this finding is higher than 18.0% that was reported in Jos, Nigeria.[13] Regrettably these causes of death are to a large extent preventable through good antenatal care and safe delivery under the supervisions of skilled birth attendant. Low birth weight (LBW) neonate's accounts for 36.4% of the total admission and 56.3% of neonatal death in our study. This finding further highlights what has been previously documented that LBW is an independent factor contributing significantly to neonatal morbidity and mortality especially in developing countries.[14] The study showed that 6.7% of the neonates left against medical advice. Preterm neonates accounts for 22.4% of all cases of DAMA. The reason for this observation is possibly due to the longer stay in the hospital by such babies, the attendant cost implication associated with care of such babies and the poor socio-economic status of the caregivers of such babies.

CONCLUSION

The neonatal mortality rate of 13.2% in this study is still high and worrisome. Birth asphyxia, prematurity and neonatal sepsis are the three leading cause of admission and death in the SCBU unit. Regrettably, these causes are preventable through health education, affective ante-natal and safe delivery practices, early referrals and effective health insurance scheme that covers newborn health services.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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