

A REVIEW OF PRETERM ADMISSIONS INTO SPECIAL CARE BABY UNIT, IN UNIVERSITY OF MAIDUGURI TEACHING HOSPITAL: A FOUR YEAR EXPERIENCE

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SUMMARY

There is little or no report of preterm (babies born less than 37 completed weeks of gestation) admission from this part of Sahel Savannah of Nigeria. This study of four-year period is presented to identify areas that require improvement, such as in the Labour ward and neonatal care. The case files of the 428 preterm newborns admitted into Special Care Baby Unit (SCBU) of the University of Maiduguri Teaching Hospital were reviewed. Preterms constituted 54.9% of the overall admissions, 53.4% being Low birth weight newborns (≤ 2500 gm).

Premature rupture of membrane, previous preterm deliveries, twin gestation and pregnancy induced hypertension were some of the common maternal factors that were associated with preterm deliveries.

Birth asphyxia, Apnoea, Small for gestation age (weight less than 10th centile), respiratory distress were the main problem observed among the preterm newborns.

Neonatal mortality rate was 349/1000 live birth; 62.1% of the death were preterm infants. Mortalities were common among babies weighing 1000 gm or less and also of babies of lower gestational age.

We can improve on this, by implementing simple common measures such as educating our mothers on the need for good antenatal care and hospital deliveries, so that those with pregnancy induced hypertension, premature rupture of membrane, previous preterm delivery can be detected early and institute proper management.

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INTRODUCTION

Preterm delivery is one of the leading causes of prenatal mortality in the developing countries.^{1,3} Excluding deaths from lethal malformations, extreme prematurity has accounted for 84% of neonatal deaths among infants of all gestational ages.⁴ Prevention of preterm birth is the main theme today in prenatal care.⁵ Some of the conditions like previous preterm birth, previous preterm labour, regular uterine activity and uterine distensions are factors most often present in mothers treated for preterm labour or in infants delivered prematurely.⁵ These factors are easily identified and an appropriate management plan can be implemented to decrease the incidence of preterm deliveries.⁵ With recent advances in neonatal intensive care, there has been a reduction in prenatal morbidity and mortality, especially among infants of low birth weights (LBW) in the developed countries.^{6,9} There is paucity of information about preterm infants admissions in North-Eastern Nigeria. Both facilities and trained personnel are not available in most Hospital to cope with the new challenges of the

management of preterm babies. Information's available from Nigeria Hospital reveal that prematurity is a major cause of prenatal mortality.¹⁰⁻¹²

There has been no proper evaluation of preterm admission into Special Care Baby Unit (SCBU) of the University of Maiduguri Teaching Hospital (UMTH). Thus, the present review study of admissions into SCBU was carried out with the primary objective of evaluating preterm admissions and their outcome.

PATIENTS AND METHODS

The medical records of all infants admitted into SCBU of the UMTH, over the period of four years (January 1995-December 1998) were reviewed. UMTH offers services to both inborn and outborn infants from the catchment's areas of North-eastern Nigeria and neighbouring countries. Information's of the preterm infants were extracted from these medical records, which included sex, small for gestational age (SGA), neonatal jaundice (NNJ), neonatal sepsis (NNS), intraventricular haemorrhage (IVH), necrotizing enterocolitis (NEC), gestation age, admitting birth weight, diagnosis in addition to the prematurity, parity and ages of the mothers. Maternal obstetric problem such as presence and

absence of pregnancy-induced hypertension (PIH), cervical incompetence, antepartum haemorrhage (APH), previous preterm delivery (PPD) and prolonged rupture of membrane (PROM) were obtained. Duration of hospitalization and outcome of hospitalization of the newborn were also abstracted.

RESULTS

A total of 779 newborns were admitted into SCBU during the four year period, of which, 428(54.9%) were preterm, male 210(49.1%) and female 218(50.9%), giving the ration of M: F, 1:1.04. Birth weight (BW) ranges from 500 gm to 300gm, with a mean of 1750gm as seen in Table 1. Low birth weight (LBW) Infants (= 2500 gm) comprised of 416 (53.4%) of the total admissions. Very low birth weight (VLBW) infants (BW= 1500 gm) comprises of 151 (19.4%) of the total admissions. Of the total preterm admitted, 252(58.8%) were outborn Gestational ages (table II) of the 428 preterm infants admitted, has a mean of 32.8 ± 3.5 weeks. Maternal age of the preterm as shown in Table III indicates that, the highest number 112 (26.2%) of the infants were born to mothers in the age group 20-24. There were 267 (62.4%) infants born to mothers of parity 1-4 .Nulliparous mothers came next with 114 (26.6%), followed by mothers of parity 5-9 with 42 (9.8%) infants. The lowest numbers of 5 (1.2%) infants were born to mothers of parity 10 and above.

Some of the conditions seen in the mothers that may have contributed to the preterm delivery were antepartum haemorrhage, pregnancy induced hypertension and others as shown in Table IV. Other disease conditions seen in some of the preterm are shown in table VI.

Table IV: Various conditions seen in the mothers of the preterm infants

Condition *	Number(%)
Premature rupture of membrane (PROM)	130(30.0)
Previous Preterm delivery (PPD)	121(28.3)
Twin delivery	110 (25.7)
Pregnancy induced hypertension(PIH)	90(21.0)
Antepartum haemorrhage (APH)	57(13.3)
Intrapartum Pyrexia	53(12.4)
Anaemia in pregnancy	21(4.9)
Cervical incompetence	19(4.4)

*These conditions occurred more than once in some of the mothers as shown in Table

Maternal age, sex of infant and parity did not have any significance with outcome of the infants admitted ($P>0.05$)> Overall neonatal mortality rate during the four-year period of review was 349/1000 live birth, of these 169 (62.1%) were preterm.

Table 1: Frequency distribution of the birth weight

Weight in grams	Number (%)
=1000	47(11.0)
1001-1500	104(24.3)
1501-2000	139(32.5)
2001-2500	126(29.4)
>2501	12(2.8)
Total	428(100)

Table II: The gestational age of the Preterm admissions

Gestational age In weeks	Number
< 26	8(1.9)
26-28	50(11.7)
29 -32	107 (25.0)
33 -35	130(30.3)
36 -<37	133(31.1)
Total	428(100)

Table III: Mothers' age distribution.

Ages in years	Number (%)
<15	1 (0.2)
15-19	97 (22.7)
20 -24	112 (26.2)
25-29	106(24.8)
30-34	85(19.9)
35-39	21(4.9)
40 +	6(1.4)
Total	428(100)

Table V: The various multiple conditions occurring together in some mothers.

Multiple Conditions* (%)	Number
PROM with PPD	51(11.9)
PROM with Twin delivery	36(8.4)
PPD with Twin delivery	26(6.1)
PROM with Intrapartum Pyrexia	21(4.9)
PIH with Twin delivery	21 (4.9)
PROM with PIH	15(3.7)
PPD with Intrapartum Pyrexia	14 (3.3)
PROM with APH	14(3.3)
PPD with Cervical Incompetence	14(3.3)
PPD with APH	11(2.7)
PROM,PPD with Cervical Incompetence	8(1.9)
PROM, PPD with Twin Delivery	8(1.9)
PROM, PPD with Intrapartum Pyrexia	6(1.4)
PIH with Intrapartum Pyrexia	6(1.4)

*List not exhaustive, above are the common multiple conditions occurring together.

Table VI: Other conditions of the preterm admitted

Conditions	Number (%)
Birth asphyxia	158 (36.9)
Apnoea	95 (22.2)
Small for Gestational Age	94 (22.0)
Respiratory distress	88 (20.6)
Intraventricular haemorrhage	25 (5.8)
Anaemia	23 (5.4)
Congenital abnormalities	16 (3.7)
Necrotizing enterocolities	13(3.0)

Table VII: Gestational age, Birth weight, NNJ, NNS, PROM, Birth asphyxia and the outcome of the preterm.

Conditions	Outcome**		Total	X2	P Value
Gest.Age	Survived	Dead (%)			
< 26 weeks	0	8(100)	8		
26-28 wks	10	39(79.6)	49		
29-32wks	43	63(59.4)	106	97.86	0.0000*
33-35 wks	91	37(28.9)	128		
36 weeks +	111	22(16.5)	133		
	255	169	424		
Birth weight in gm					
= 1000	5	42(89.4)	47		
1001-1500	30	74(71.2)	104		
1501 -2000	93	42(31.1)	13	153.38	0.0000*
2001-2500	116	10(7.9)	126		
2500+	11	1(8.3)	12		
	255	169	424		
NNJ	54	65(54.6)	119	14.20	0.00016*
NNS	122	113(48.1)	235	14.18	0.00017*
PROM	61	67(52.3)	128	11.19	0.0008*
Birth Asphyxia	82	75(47.8)	157	6.00	0.014*

** 4 Left against medical advice

DISCUSSION

The 54.9% incidence of Preterm admissions in our study is very high compared to other studies in Nigeria¹⁰⁻¹³. In this study, some of the factors, such as PIH, PROM may have contributed to the preterm deliveries. Some of these conditions do not occur alone as it is shown in Table V and may have been prevented if detected early. Previous study done in this hospital have shown that the high incidence (53.4%) of LBW infants has not changed,¹² and is very high compared to studies in other parts of Nigeria.¹⁰⁻¹³

The incidence of preterm infants with gestational age 28 weeks and below is 13.6% that is similar to the report from Benin,¹¹ but we had a lesser mortality rate of 82.5%. When put together, the mortality rate was significantly higher compared to those of gestational age of 33-35 weeks. This is also in agreement with other report.^{13,11,14} It is a known fact that with increasing gestational age, the chances of survival of these preterm infants is improved, where by some of the factors that contribute to preterm delivery, such as PIH, PROM, occurring in the mothers can be prevented or reduced.

It is expected that, with regard to BW, there is an increasing mortality with decreasing BW from 2500 gm down ward, as was seen in this study. Infants with birth weight of 1000 gm or less has a mortality rate of 89.4% as seen in other studies.¹⁴ Some the possible contributing factors as seen in tables VI and VII, such as NNS, PROM, Birth asphyxia may have played a role in the outcome of these new born. These factors can be prevented or reduced if mothers had proper antenatal care and good neonatal facilities care, such as good resuscitative measures and apnoea monitors. Early detection of mothers with PROM as seen in a study,⁹ when mothers were treated with appropriate antibiotic, the risk of early neonatal infection was reduced. The high mortality in this age group might have been that they had severe birth asphyxia and were outborn, thus coming in, in a very critical conditions. Previous study¹² from this hospital shows that birth asphyxia was the commonest cause of prenatal death. Mothers aged 20-24 years have the highest number of infants; unlike the report from the southern part of Nigeria.^{2,11} It is an indication of early marriage, which is still being practiced in this part of the country (22.9% are under 20 years old). There was however no significant relationship between maternal age and outcome in this study. Neonatal infections, jaundice, birth asphyxia still play a role in the admission of these newborn. It can be seen that PPD, PIH, PROM, APH and twin pregnancy are contributing factors to the premature deliveries in this environment. These conditions, which is also

noted in some areas,^{4,6,9} could be greatly reduced, if mothers could avail themselves to prenatal care services and adequate facilities put in place for intrapartum and postnatal care. This has become necessary in view of the increasing number of women who deliver at home rather than in hospital environment.¹⁵

The high level of mortality rate in our study can be improved on, not by introducing advanced medical technology, but by implementing simple common measures such as early detection and treatment of those with PIH, early starting of antibiotic in the mothers with PROM, proper hand washing, and wearing of mask. The stem from an assessment of the factors that contribute to high risk of mortality for the mother and her infant, obstetric, medical complications, social and cultural factors, and biological determinants such as age, and parity. No one factor can be taken in isolation, as can be seen from the result of this study.

Since most of the mothers delivered outside the hospital, there is the need to lay more emphasis on good antenatal care and encourage hospital delivery if pregnancy is complicated with problems. Our mothers need to know about antenatal care, more enlightenment campaign is needed for our communities; these will reduce the contributing factors to premature delivery.

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