Research Paper

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A Study of Low Birth Weight, Morbidity, Mortality And Their Causes Among Neonates of Jodhpur, A Desert District 0f Rajasthan

Medical Science

KEYWORDS : Morbidity, mortality, LBW, neonates

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ABSTRACT

Objective: Estimation of types of morbidity, mortality, their causes, low birth weight in neonates

Method: Sample size calculated considering birth rate of Jodhpur. 300 neonates (0 - 7 days) were clinically examined for morbidity, mortality, immunization and nutritional status

Results: 63.0% neonates belong to joint families and 79.7% deliveries occurred at hospital. Only 17.3% neonates received BCG vaccine at the time of birth. 83.7% neonates had normal weight at the time of birth (>=2.5 Kg) whereas LBW babies were 16.3%. Analysis revealed that 10% were sick at the time of survey. Main morbidities observed at time of birth were fever (3.79%), skin infection (Boils), umbilical infection (2.7%) and congenital abnormalities (1%). Perinatal mortality was 10 per thousand. Main causes of mortality were fever (viral), stops suckling and premature delivery.

Conclusion: Results helpful in formulation of simple interventional plans for neonates for reduction of LBW, morbidities and mortality among neonates

Introduction

Due to the desert environment the area is prominently characterized by high temperature during almost eight months of the year. The newly born children while in the process of strengthening their acquired immunity are suddenly exposed to atmosphere. Presence of infectious dormant forms, plant, animal or chemical allergies and transmitting active infections present in the atmosphere will be specific to each system which a newly born baby is exposed to. It is presumed that whether a house delivery or an ANM supervised delivery or a PHC or hospital delivery, surrounding of a newly born will have a direct bearing on possibility of its acquiring respiratory infections and for allergies. The socio-cultural causes of morbidity and mortality are breastfeeding which prevents infant mortality. It is a life-saving measure in developing countries. A mother should be psychologically prepared to breastfed her newborn infant. It can save many infants lives by preventing malnutrition and infections. Growth is well sustained as sufficient protein, calories and vitamins are supplied by breast milk. It is essentially maternal malnutrition "transmitted" to the suckling by the mother's thiamine-deficient breast-milk [1].

The challenge of preventing this high toll of lives has been the focus of major initiatives by the Government of India and the Health Profession in the recent years. Neonatal Jaundice is a fairly common cause of morbidity in Pakistan and accounts for almost 25% of all newborn admissions [2]. Birth Asphyxia alone accounts for one/fifth of the total 5 million neonatal deaths occurring worldwide each year [3]. Resuscitation of the newly born infant presents a different set of challenges than resuscitation of the adult or even the older infant or child. Approximately 5% to 10% of the newly born population require some degree of active resuscitation at birth and approximately 1% to 10% born in the hospital are reported to require assisted ventilation. Other studies also reported that nutritional status of under five children is poor and needs attention and feeding practices are also traditional [4-5]. The main aim of the study is to assess the morbidity, the mortality pattern and their causes in neonates and their nutritional status in desert population of Rajasthan.

Material and Methods

Study design: The study carried out among neonates in the rural areas of Jodhpur district. One PHC from Jodhpur district namely Luni PHC selected randomly and villages in that PHC were selected systematically. The details of the baby were obtained from the mother who was respondent for filling up the schedule.

Sample size: The sample size has been calculated by considering the birth rate of Jodhpur which is 34 per 1000 population and 32 for Rajasthan state, with precision 30%, power α =0.05 and confidence internal of 95%. The minimum sample size of 300 in PHC has been computed. This has been calculated by standard formula for calculation of sample size ($4\ pq/L^2$). 300 newborns have been registered from 28 villages belonging to Salawas Community Health Centre of Jodhpur District

A total of 300 newborns (0-7 days) were examined clinically for morbidity, mortality and nutritional status. Information regarding mortality of neonates along with clinical (such as general infection (septicaemia) or tetanus of the newborn, birth injury form unskilled midwifery, lower birth weight and congenital abnormalities in neonates and Malaria, respiratory tract infection especially pneumonia, diarrhoea and nutritional marasmus in infants) and socio- cultural / economic causes responsible for mortality have been recorded.

Weight has been taken on each child following standard techniques of WHO [6] for estimation of the prevalence of Low Birth Weight babies. The feeding practice of newborn was also collected for nutritional assessment along with immunization at birth. The socio demographic / economic information have also been recorded from mother of each child registered in the study.

Results

Analysis of 300 neonates (0-7 days) have been given in the Ta-

bles 1 to 5. Table 1 showed that neonates belonging to nuclear families were 28.7% whereas 63.0% to joint families. 48.7% neonates were males and 52.0% females. Majority of mothers of neonates were illiterate i.e. 58.0% whereas higher education was low (0.7%). It was observed that 41.6% mother were married before the legal age of marriage i.e. less than 18 years and 37% mothers had cohabitation before 18 years of age. Regarding the antenatal care, 95% mothers received the antenatal care during pregnancy in which 92% mothers received two doses of Tetanus toxoid and 66.3% mothers received Iron Folic acid tablets.

It was observed that 98.7 percent neonates were delivered full term with normal mode of delivery (98.7%) and 49.7% neonates received timely first suckling whereas 8.7 percent discarded colustrum at the time of birth either due to custom or given honey and jaggery (Gud) to new born. Majority of deliveries occurred at hospital (79.7%). Most of the deliveries were done by paramedical staff (75.7%) followed by TBA (13.3%) and UBA (3.7%). Only 17.3% neonates received BCG vaccine at the time of birth (Tables 2).

Table 3 revealed that 83.7% neonates had normal weight at the time of birth (>=2.5 Kg) whereas the percentage of low birth weight babies was 16.3%. It was observed that 10 percent neonates were sick at the time of survey. Main morbidities observed at the time of birth were fever (3.79%) followed skin infection (Boils) and umbilical infection (2.7%) and congenital abnormalities (1%) (Table 4). Perinatal Mortality (0-7 days) was 10.0 per thousand and Neonatal Mortality was 13.3 per thousand. Main causes of mortality reported were fever (viral), stop suckling and premature delivery.

Discussion

With over 25 million births every year India has the difficult task of caring for the highest number of new born of infants than any other country in the world. At present 1.3 million of them die before completing four weeks of life [1]. The challenge of preventing this high toll of lives has been the focus of major initiatives by the Government of India and the Health Profession in the recent years.

The study revealed that new borns babies suffered more from fever, skin infection and congenital abnormalities followed by respiratory and gastrointestinal ailments. Low birth weight is another burning issue which may be due to early child marriage existing in this area along with other factors such as high illiteracy, traditional feeding practices, lower prevalence of immunization in pregnant mothers and babies, which in turn, have intergenerational consequence on new borns outcome as reported earlier [1,4]. Earlier work conducted in desert area on working women belonging to different socio-economic strata showed that breast feeding and other food supplementation pattern was different in different categories of subjects i.e. 64.5 % of high income group women started food supplementation within 6 months of the birth of a child where as in low income group, only 12 % of women started food supplementation within 6 months [4]. Another study reported low birth weight, mechanical ventilation and hypotensive shock predicted mortality in ELBW neonates while low birth weight, lack of antenatal steroids, birth asphyxia, ventilation and duration of oxygen therapy were predictors for major morbidity [7].

Conclusion

Owing to different socio-cultural, ecological and economic conditions of desert population the morbidity, mortality and nutritional status of the neonates get influenced. Detailed pattern and causes of morbidity and mortality pattern will help in formulation of simple interventional plan for neonates, and parents especially mother of newly born can reduce the health problems. This will help in developing package of essential new born care (E.N.C) which will be useful to State Health Department Functionaries.

Table 1. Distribution of neonates according to different demographic parameters

Demographic parameters		N	%
Gender of Neonates			
Males		146	48.7
Females		154	51.3
Type of family			
Nuclear		86	28.7
Extended Nuclear		25	8.3
Joint		189	63.0
Mother's Education			
Illiterate		174	58.0
Literate		31	10.2
Primary		68	22.7
Middle		20	6.7
Secondary		5	1.7
College		2	0.7
Mother's Age at marriage (years)			
<=12		27	9.0
12-15		7	2.3
15-18		91	30.3
>=18		175	58.4
Mother's Age at Cohabitation (years)			
12-15		6	2.0
15-18		105	35.0
>=18		189	63.0
Mothers- Antenatal received during last pregnancy			
Yes		285	95.0
No		15	5.0
Mothers- Tetanus Toxoid received or not			
Yes	One dose Received	13	4.3
	Two dose Received	276	92.0
No		11	3.7
Mothers- Iron F.A Tab received or not			
Yes		199	66.3
No		101	33.7
Pooled		300	100

Table 2. Distribution of neonates according to delivery and immunization

Neonates	N	%
Birth terms		
Full Term	296	98.7
Pre Term	4	1.3
Mode of Delivery		
Normal	296	98.7
Caesarian	4	1.3
Place of delivery		
Home	61	20.3
Hospital	239	79.7
Delivery Agency		
UBA	11	3.7
TBA	40	13.3
Relative	6	2.0
Paramedical Staff	227	75.7
Doctors	16	5.3
BCG vaccine		
Yes	52	17.3
No	248	82.7
Timely first sucking received or not		
Yes	149	49.7
No	151	50.3
Pooled	300	100

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Table 3. Distribution of neonates according to weight for age

New Born (0-7 days) (N=300)	Nutritional Grades		
	Normal >=2.5 Kg	Mild < 2.5 – 2.0 Kg	Severe < 2 Kg
No. Examined	251	42	7
Percent	83.7	14.0	2.3

Table 4. Distribution of neonates according to Morbidity Profile (30 cases)

Morbidity (N = 300)	Newborns (0-7 days)	Percent
NAD	270	90.0
Fever	11	3.7
Vomiting	2	0.7
Diarrhea	1	0.3
Constipation	2	0.7
Stomach Ache (Colicky)	1	0.3
Respiratory (Common Cold & Cough)	2	0.7
Skin Infection (Boils) & Umbilical Infection	8	2.7
Congenital Abnormality (Bilateral Cleft Lip & Hard Palate) & Urine Problem	3	1.0
Ophthalmic Neonatorum	1	0.3

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