



DOES NEWBORN CARE, FEEDING PRACTICES AND IMMUNIZATION STATUS HAVE AN EFFECT ON ANTHROPOMETRIC MEASUREMENTS OF INFANTS?

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ABSTRACT

Introduction: Immediate proper care of newborn is vitally important for survival, growth and development of a baby. In the home, a number of simple strategies have been shown to prevent infant and childhood illness and malnutrition, including breastfeeding, appropriate complementary feeding practices and seeking a complete course of vaccines for infants in their first year of life. The present study has been undertaken to assess the effect of newborn care, infant feeding practices and immunization status on nutritional status of infants in Jasra Block of Allahabad district.

Method: A cohort study conducted in a community among newborns born during the period of November 2011 to April 2012. IEC (Information, Education and Counselling) was given to their mothers from last three months of pregnancy till the newborns completed one year of age. The effect of newborn care, infant feeding practices and immunization status was assessed in terms of anthropometric measurements.

Results: More than half of the infants i.e. 47 (60.26 %) gained weight to reach within the normal range and weight of 33 (42.31%) infants was below 2 standard deviation.

Conclusion: Newborn care, infant feeding practices, immunization status and lesser episodes of illnesses have a positive effect on nutritional status of infants in terms of weight and length.

Key words: essential, newborn care, IEC, nutritional status

INTRODUCTION

Immediate proper care of newborn is vitally important for survival, growth and development of a baby.¹ The provision of essential newborn care through integrated packages is essential to im-

proving survival.² It is recognized that practice of cleanliness, that is, hand washing, clean delivery surface, and care of the umbilical cord, is associated with a reduction in perinatal morbidity and mortality.³ Although cost-effective interventions to prevent neonatal deaths are available, in

many developing countries, these interventions are not implemented on a wide scale, are poorly implemented, or fail to reach populations with the greatest need.³

The Lancet series on child survival identified breastfeeding interventions to have the potential to prevent 13% of all under-5 deaths in developing areas of the world, ranking it as the most important preventive approach for saving child lives.⁴ Exclusive breastfeeding, that is, administering only breast milk and no other liquids or foods for the first 6 months of life confers important benefits to the infant and the mother – it protects infants against many common childhood diseases, including repeated gastrointestinal infections and pneumonia, and thereby against some of the major causes of childhood mortality.⁵ Complementary feeding is extremely essential from six months of age, while continuing breastfeeding, to meet the growing needs of the growing baby. Infants grow at a very rapid rate. The rate of growth at this stage is incomparable to that in later period of life.⁶

Immunization has been one of the most significant and cost-effective public-health interventions to decrease childhood morbidity and mortality. Approximately three million children die each year of vaccine-preventable diseases.⁷

Growth assessment is used to promote child health and survival worldwide. This is because disturbances in health and nutrition, regardless of their etiology, almost always affect growth.⁸ Growth monitoring strives to improve nutrition, reduce the risk of inadequate nutrition, educate caregivers, and produce early detection and referral for conditions manifested by growth disorders. At the population health level, cross-sectional surveys of anthropometric data help define health and the nutritional status for purposes of program planning, implementation and evaluation.⁸ Growth monitoring is also used in all settings to assess the response to intervention. The present study has been undertaken with the view to assess the effect of newborn care, infant feeding practices, immunization status and episodes of illnesses on anthropometric measurements upto one year of age in Jasra Block of Allahabad district.

METHODS

The study was approved by Institutional Ethics Committee, M.L.N. Medical College, Allahabad. A cohort study was conducted in Jasra, a rural

block in Allahabad District. Multi-stage random sampling was done to select villages. In the first stage, two (Jasra and Ghoorpur) of the four total PHCs in Jasra block were randomly selected followed by selection of two sub-centres each from the two selected PHCs. These were Ghoorpur 2 and Birwal (from Ghoorpur PHC) and Jasra and Rera (from Jasra PHC). In the third stage, one village was randomly selected from each of the selected subcentre. Complete enumeration was done of all infants completing one year age from period November 2012 to April 2013 the selected villages. The infants completing one year from period 1st November 2012 to 30th April 2013 in the selected villages. A total of 78 infants were in the study group. Oral consent was taken from the mothers of infants to participate in the study. The exclusion criteria included newborns with congenital anomalies or malformations and non-responsive mothers and uncooperative children.

The newborns were followed till infants completed one year of age. Every village was visited twice a month during the study period, once during their vaccination session and the second time 15 days apart. During each visit IEC for following child health services were given. During each visit pregnant women/mothers were counselled regarding new born care, age appropriate infant feeding, recognizing the danger signs according to structured IEC material provided in “Mother and Child protection card” of NRHM.

Data was collected regarding newborn care, feeding practices (timely initiation of breast feeding, exclusive breast feeding,⁹ complementary feeding⁹) immunization status (fully and partially immunized¹⁰) and episodes of illnesses of infants and was compared with mean weight and mean length at 1 year. Infant weighing scale was used to measure weight with minimum clothing over body and without shoes. Weight was measured with an accuracy of 100 grams. Weights of the infants were recorded every month. Length was measured by a locally made infantometer. The infant was placed supine on the rigid measuring board of infantometer with its head held firmly in position against a fixed upright head board. The legs were straightened, keeping feet at right angles to legs with toes pointing upwards and a free foot board was brought into firm contact with the child’s heels.

Data was analysed using the SPSS, version 17.0. Descriptive statistics such as mean, standard deviation (SD) for continuous variables and frequency percentage for categorical variables were

determined. Student t test for independent sample was used to show the relation between independent and dependent variables.

RESULTS

The study comprised of a total of 78 infants. 75(96.15%) in study group were Hindus and 3(3.85%) were Muslims. Majority 46 (58.97%) belonged to Scheduled Caste (SC) category, followed by 25 (32.05%) who belonged to Other Backward Caste (OBC) and only 7 (8.97%) in belonged to General category. Out of total number of infants in the study, majority were males 41(52.56%) and 37(47.44%) were females. Majority 61 (78.21%) infants belonged to nuclear family, and the rest 17 (21.79%) infants belonged to joint family. Equal number of infants belonged to Class IV and Class V, 35(44.8%) in each class. Only 8(10.26%) belonged to Class III. None belonged to Class II or I.

In the study group 45 (57.69%) of infants were exclusively breastfed for six months and 47 (60.26%) infants were introduced to complementary feeding on time. Prolacteals was given to 32(41.03%) and colostrum to 52(66.67%) newborns. 68 (87.18%) infants were fully immunized and 10 (12.82%) infants were partially immunized. (Table 1 and 2)

In the study group also more than half of the infants i.e. 47 (60.26 %) gained weight to reach within the normal range and 31 (39.74%) infants weight was below 2 standard deviation. No infant was severely underweight.(Table 3)

Table 1: Newborn care practices among infants

Practices	n= 78 (%)
Application on umbilical cord	
Not applied	75 (96.14)
Applied	3 (3.85)
Skin to skin contact	
Practiced	70 (89.74)
Not practiced	8 (10.26)
Bathing practice	
<48 hrs of birth	6 (7.69)
≥3 rd day	72 (92.31)
Condition of cord stump on 3rd day	
Healthy	75 (96.14)
Not healthy	3 (3.850)
Initiation of breast feeding	
< 1 hr	64 (82.05)
>1 hr	14 (17.95)

There is statistically no significant difference between mean weights at birth. The mean weights at 3 months (p<0.05), 6 months (p<0.05) and 9 months (p<0.05) are statistically significant. Linear forecasting of mean weight gain among both groups shows a highly significant difference at and after 12 months (p<0.01) (Fig. 1)

There is statistically no significant difference between mean lengths at birth. The mean lengths at 3 months (p<0.05), 6 months (p<0.05) and 9 months (p<0.05) are statistically significant. Linear forecasting of mean length gain among both groups shows a highly significant difference at and after 12 months (p<0.01). (Fig. 2).

Table 2: Feeding practices and immunization status among infants

Practices	n= 78 (%)
Colostrum	
Yes	52 (66.67)
No	26 (33.33)
Prelacteal	
Yes	32 (41.03)
No	46 (58.97)
Exclusive breast- feeding	
Yes	45 (57.69)
No	33 (42.31)
Timely initiation of complementary feeding	
Timely	47 (60.26)
Early	18 (23.08)
Delayed	13 (16.67)
Immunization	
Fully immunized	68 (87.18)
Partially immunized	10 (12.82)

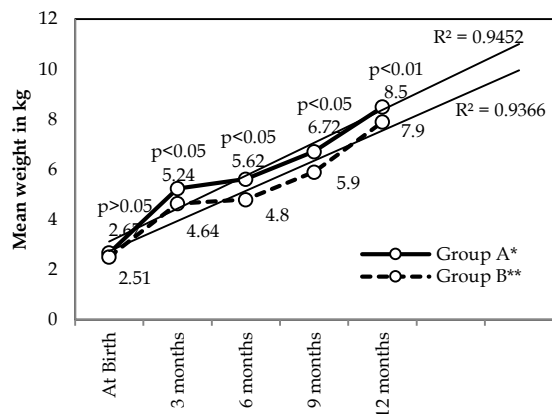
Table 3 Classification of infants according to their weight for age at 1 year of age (WHO growth chart for boys and girls up to 3 years age)¹¹

Weight for Age	Infant (n=78)	%
Normal	47	60.26
Underweight (-2 SD to -3 SD)	31	39.74

DISCUSSION

Similar findings were reported in a cluster randomized control trial in Sylhet district, Bangladesh, where the first bath was delayed until at least the third day in 78 % of infant.¹² In a study in Iran in which higher rates of exclusive breast-feeding was found in the study group (54%), comprising of 59 mother-infant pairs who received breastfeeding education than in the control group (6.5%) which is found to be similar to the present study.¹³

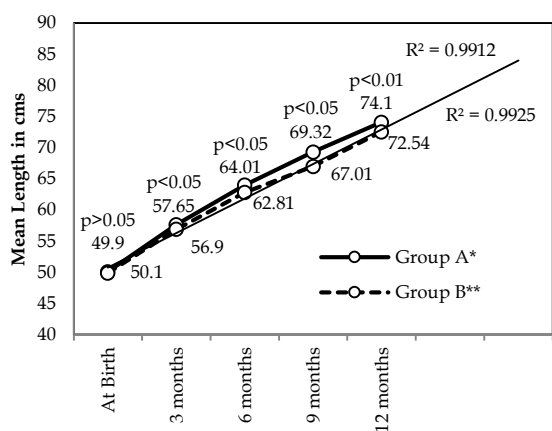
Fig.1: Mean weight gain pattern among two groups of infants and forecasting the trend of weight gain



Group A* Infants whose mothers practiced all newborn care, exclusively breastfeeding, timely initiated complementary feeding and fully immunised their infants

Group B** Infants whose mothers did not practice all newborn care, exclusively breastfeeding, timely initiated complementary feeding and fully immunised their infants

Fig.2: Mean length gain pattern among two groups of infants and forecasting the trend of length gain



Group A* Infants whose mothers practiced all newborn care, exclusively breastfeeding, timely initiated complementary feeding and fully immunised their infants

Group B** Infants whose mothers did not practice all newborn care, exclusively breastfeeding, timely initiated complementary feeding and fully immunised their infants

In a study conducted in Bareilly district that about 13.8% of the mothers started giving semi-solid foods before six months of age, while nearly 13% of the mothers gave semi-solid foods after nine months which is comparable to the findings of the present study.¹⁴ Findings similar to those observed in the present study were reported in a study in which they found that 79% infants had

been vaccinated in accordance with the recommended schedule (i.e. during the first year of life).¹⁵

In a survey conducted in 1993 in Chile, on interviewing 9330 mothers or caretakers of children aged 18 months or less reported that among children younger than 6 months, the prevalence of underweight was higher among children who received breast milk and infant formula than among children who were exclusively breast fed ($p < 0.01$). On the other hand, among children 6-8 months old, those who were exclusively breast fed and had never received solid foods were more likely to be malnourished than those who had received both breast milk and solid foods ($p < 0.01$).¹⁶

CONCLUSION

IEC given to mothers on child health services led to promotion of infant feeding and utilisation of immunization services which improved the nutritional status of infants. Growth monitoring strives to improve nutrition, reduce the risk of inadequate nutrition, educate caregivers, and produce early detection and referral for conditions manifested by growth disorders.

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