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Original article

Association of breast feeding practice with worm infestation in children aged 0 - 24 months in Calabar South Local Government Area

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Abstract

Objective: Reduction in child morbidity and mortality require improved knowledge about hygiene, baby feeding and childrearing practices, especially by mothers in low resource nations. The objectives of the study were to compare the prevalence of worm infestation between exclusively and non-exclusively breast - fed children and to determine the age at which exclusively breast - fed children child could be significantly infested with worms. **Method**: Systematic sampling of 196 mother-infants pairs was done. A pretested interviewer administered semi-structured questionnaire was used for data collection. Fresh stool samples collected from the children were examined using the cellophane thick faecal smear technique of Kato - Katz. **Results**: The difference in prevalence of worm infestation within 6 months of age was not significant between the exclusively and non-exclusively breast feed children. Age of significant worm infestation for exclusively breast -fed infants was 13 months. Mother's educational level significantly influenced their de-worming practices. **Conclusion**: This study showed that breast milk does protect children in the first year of life against worm infestation; but the burden of infestation becomes significant after 12 months of age. Mothers should be taught to de - worm their children from 13 months of age.

Keywords: Breast feeding practice; Protection; Worm infestation

INTRODUCTION

In Nigeria, the high number of illiterate and unskilled people leaving the countryside in search of better life in the cities has increased the health problems confronting rural migrants to slums in urban areas. With the report of ascaris lumbricoides in two children aged four months, researchers have suggested a cost saving and effective strategy as breastfeeding to control parasitic infestation in children[1,2]. This type of control programme can only be effective if detailed epidemiology of parasitic infestation in children (0 - 24 months) is obtained. Safe and effective antithelminthic drugs are widely available, but their use in national control programmes in developing countries is virtually non-existent. The setting of the study was chosen because of lack of social amenities and poor sanitary condition. There is, therefore, a need for intervention in parasitic infestation control is such areas. The study was designed to determine the association of breast feeding practices with prevalence of worm infestation and the age of significant infestation in children aged 0 - 24months. Extensive internet and manual search of available literature showed that a similar study has not been conducted in the country. The findings of this study

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would assist in planning intervention programmes to reduce the burden of worm infestations in children below 2 years of age.

MATERIALS AND METHODS

The target population were infants from 0 to 2 years born between 1st May 2001 and 1st May 2003 and had lived in Calabar South Local Government Area within the same period. The study was conducted between 1st May and 15th May 2003. Households were selected for study using the multi - staged cluster sampling technique. Semi-structured interviewer administer questionnaire which was pretested at the Maternal and Child Health Unit of the University of Calabar Teaching Hospital, Calabar, was the tool for data collection. Verbal consent was obtained from mothers who participated in the study. Infants who were exclusively breast - fed for at least four months and continued breast - feeding to 24 months of age were compared with infants not exclusively breast - fed. Information obtained included socio-demographic profile of mothers, breast feeding practice and de - worming practice. Fresh stool samples collected from children were analyzed within three hours of collection using the cellophane thick faecal smear technique of Kato - Katz[3]. Data were analyzed using both descriptive and comparative statistical methods.

RESULTS

One hundred and ninety six mother-infant pairs were studied. Exclusively breast - fed infants (37%) were compared with non - exclusively breast-fed infants (63%). Total number of cases of parasitic infestation was 84 (43%) - see table 1. Prevalence of worms detected was: ascaris - 52 (62%), entamoeba histolytica - 22 (26%) and trichuris - 10 (12%). Analysis of table 1 revealed no worm infestation in exclusively breast-fed babies in the first six months of life; but this was not statistically significant when compared to non - exclusively breast - fed babies ($\chi^2 = 3.18$, df = 2, $P = 0.074$). However, further analysis of babies who were exclusively breast - fed and continued breastfeeding to two years of age, showed that the infestation rate rose from 1:3 for 0 - 12 months to 1:1 for 13 - 24 months. This was statistically significant ($\chi^2 = 4.45$, $P = 0.0349$). Mothers´ educational level significantly influenced their knowledge and de - worming practice (Table 2).

Table 1 Worm infestation by age - group and breast feeding practice.

Age-range	Exclusive Breast feeding		Non Exclusive		Total
	Worm infestation		Worm infestation		
Months	Present	Absent	Present	Absent	Number
0 - 6	0	18	6	32	56
7 - 12	7	3	13	7	30
Sub - total	7(1)	21(3)	19(1)	39(2)	86
13 - 18	9	15	17	13	54
19 - 24	13	7	19	17	56
Sub - total	22(1)	22(1)	36(1)	30(0.8)	110
Total	29	43	55	69	196

$\chi^2 = 3.69$, df = 3, $P > 0.05$ not significant

Number in bracket represents ratios between those who had and did not have worm infestation.

Total cases of parasitic infestation were 84 (43%): 29 cases in exclusively and 55 cases in non - exclusively breast fed, giving a ratio of 1:2. Analysis of table 1 revealed no worm infestation in exclusively breast - fed babies (0 - 6 months); but this was not statistically significant when compared to non - exclusively breast - fed babies. However, further analysis of babies who were exclusively breast - fed and continued breastfeeding to two years of age, showed that worm infestation rate rose from 1:3 for 0 - 12 months to 1:1 for 13 - 24 months old group. This was statistically significant.

Table 2 Knowledge and de-worming practice of mothers based on educational levels.

Educational level of mothers	De-worms her baby	Does not de-worm her baby	Total	%
No formal education	0(0)	3 (2%)	3	2
Primary education	5 (3%)	96 (49%)	101	52
Secondary education	11 (6%)	48 (22%)	59	30
Post secondary education	14 (7%)	19 (9%)	33	16
Total	30 (16%)	166 (82%)	196	100

$\chi^2 = 24.31$, $P < 0.05$

DISCUSSION

Initiation of breastfeeding at birth is crucial for the health of both child and mother[4,5]. Suckling at the breast immediately after birth aids the expulsion of the placenta and reduces the risk of postpartum haemorrhage in the mother, helps maintain the body temperature of the baby, and encourages bonding between the mother and child, which enhances their physical and psychological well-being. Breast feeding also provides contraceptive protection when there is lactational amenorrhoea[6]. Breast milk, a good source of nutrients and natural immunity for infants, is sufficient for newborns; they need not be given anything else to eat or drink besides breast milk. Giving the newborn the first breast milk, which contains colostrum, and exclusive breastfeeding during the first six months of a child's life are recommended because they protect the infant from disease agents as well as provide all required nutrients. UNICEF and WHO recommend that children be exclusively breastfed (receive only breast milk) during the first six months of life and that children be given solid and/or semisolid complementary food starting at age six months[7]. However, even after complementary foods have been introduced, breastfeeding should continue for at least the first two years of the child's life[8,9]. Based on this recommendation this study was carried out to see if the prevalence of worm infestation, in children below 2 years, was influenced by breast feeding practice.

In Nigeria, exclusive breastfeeding of infants is not practiced in compliance with the WHO/UNICEF recommendations. The data from the Nigeria Demographic and Health Survey 2003 show that only 17 percent of infants below six months are exclusively breastfed[10]. The prevalence of exclusive breast - feeding in this study was 37% compared to 22.9% reported by Ekure in Calabar[11]. This shows an increase in the exclusive breast - feeding rate which is in line with the report from Garnier that there is an increasing awareness in the practice of exclusive breast feeding[12]. This prevalence is however still low compared to rates of 62.5% from Canterbury[13].

The high prevalence of helminthiasis among children in this study was a reflection of the poor sanitary condition of the environment. All cases of worm infestation in the 0 - 6 months group occurred in the non - exclusively breastfeed infants. This finding agrees with Khan who reported that breastfeeding even for 3 months reduced the onset of worm infestation in babies[2]. Similarly, Oski reported that the risk of food contamination and infestation increases as the amount of breastfeeding decreased[14]. Clarkson reported that in any given month, the episode of worm infestation in wholly or partially breastfed infant was 3 - 10% compared to 22 - 33% in bottle-fed infants[15]. Clemens reported that exclusive breast feeding protected infants against enterotoxigenic Escherichia coli[16]. The prevalence of helminthiasis tended to increase with increasing age of children studied. This was due to increasing exposure to contaminants when babies start crawling and from mixed feeding. On the whole a higher incidence of worm infestation was observed in the non - exclusively breast-fed babies compared to the exclusively breast - fed (ratio of 2:1). Further analysis of babies, who were exclusively breast - fed and continued breastfeeding to two years of age, showed that the worm infestation rate rose from 1:3 for 0 - 12 months to 1:1 for 13 - 24 months babies. This establishes the age of significant worm infestation in exclusively breast - fed children at 13 months.

Finally, the chance of a baby being de-wormed was highly dependent on the mother´s educational level. Although the study revealed a low de-worming practice among mothers, all mothers with no formal education did not de-worm their babies. The low prevalence of de - worming practice reveals ignorance concerning the risk and morbidity associated with helminthiasis and when to commence periodic antihelminthic treatment.

In summary the protection of breastfeeding against worm infestation was limited to the first year of life. The age of significant infestation at 13 months reveals when periodic de - worming of children could be beneficial. Risk of worm infestation was related to exposure to environmental and food contaminants. Mothers´ educational level significantly influenced their de- worming practice.

Recommendations

Breastfeeding should be promoted as a beneficial option in promoting heath and nutrition of infants in the first year of life.

After the first year of life an organized programme of de-worming children should be instituted.

Investing in the girl - child education would ensure participation, by mothers to be, in child survival programmes.

Eradication of slums, improvement in sanitary condition and provision of portable water would reduce the risk of exposure and burden of helminthiasis in children below 2 years of age.

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