Original Article

Comparison of knowledge and practice of breastfeeding among mothers of children below 2 years with and without pneumonia

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ABSTRACT

Background: One of the leading causes of childhood morbidity and mortality, especially in children under five is Pneumonia. Studies have shown that breastfeeding is associated with reduced risk of pneumonia. **Objectives:** To assess the relationship between knowledge and practice of mothers about breastfeeding and pneumonia among children below 2 years. **Material and Methods:** A case-control study was carried out at Sir Salimullah Medical College & Mitford Hospital from January 2016 to October 2017. 38 cases and 38 controls were selected by convenience sampling according to the inclusion criteria. The interview was taken face-to-face through a structured questionnaire. Data analysis has been done by Statistical Package for the Social Sciences (SPSS), version 20. **Results:** In this study among cases 8(21.1%) and among controls, 3(7.87%) were not currently breastfeeding their child, the difference was statistically significant (p value 0.04), with an odd ratio of 4.67 indicates association with development of pneumonia, previous episode of acute respiratory infection was significantly more among children currently non breastfeeding than exclusive breastfeeding. Duration of exclusive breastfeeding, time of initiation of breastfeeding, prelacteal feed, and socio-demographic characteristics do not have any significant difference between groups. Regarding knowledge, most of the mothers had poor knowledge about breastfeeding; case 13(34.2%) and control 20(52.6%), 18(47.4%) and 10(26.3%) had fair knowledge among the case and control group, respectively, 7(18.4%) case and 8(21.1%) control group had good knowledge. **Conclusion:** Pneumonia developed significantly among children who are not currently breastfeeding. Previous episodes of acute respiratory infection were significantly more among children who are currently not breastfeeding than exclusively breastfeeding. There was no significant difference in knowledge about breastfeeding between the both groups.

Key Words: Prelactial Feeding, Exclusive Breast feeding, Pneumonia.

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Introduction

Children are the blessings of the Almighty Allah. Breastfeeding is the most precious gift a mother can give to her infant. It is the most natural way of infant feeding to satisfy nutritional, metabolic and psychological needs of the baby. Breastfeeding is associated with a lower risk of infant morbidity and mortality. Global number of under five child death is 5.6 million. Pneumonia is the single largest cause

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of death in children worldwide. Pneumonia killed 920136 children under the age of five in 2015, accounting for 16% of all deaths of children under five years old.[1]

Feeding practices play a pivotal role in determining the optimal growth and development of infants. Poor breastfeeding and infant feeding practices have adverse consequences for the health and nutritional status of children. The importance of breastfeeding in the prevention of infectious diseases during infancy is well known. Although breastfeeding is almost universal in Bangladesh (98%), the rates of exclusive breastfeeding under 6 months is 55% which is still low, duration of breast feeding at age 12 months is 96% and at age 23 months is 87% according to BDHS 2014.[2]

WHO and UNICEF launched the Baby-friendly Hospital Initiative (BFHI) in 1992, to strengthen maternity practices to support breastfeeding. The foundation for the BFHI are the Ten Steps to Successful Breastfeeding described in Protecting, Promoting and Supporting Breastfeeding: a Joint WHO/UNICEF Statement. The BFHI has been implemented in about 16.000 hospitals in 171 countries and it has contributed to improving the establishment of exclusive breastfeeding world-wide. Yet breastfeeding rates globally generally remain low. Only 43% of the world's newborns are put to the breast within 1 h of birth and 40% of infants aged 6 months or less are exclusively breastfed.[3]

In a cohort study in Chittagong, Bangladesh showed the group who were exclusively breastfed for six months had an 8.6% lower prevalence of diarrhoea and a 20% lower prevalence of ARI than the group who were not exclusively breastfed. There was a significant association between the lack of exclusive breastfeeding and diarrhoea and acute respiratory infection in the groups. Similarly there was a large difference in prevalence in acute respiratory illness between exclusively (ARI prevalence 54.2%) and predominantly breastfed infants (ARI prevalence 70.4%).[4]

The protective properties of human milk can be divided in to cellular and humoral factors. Cellular components including T and B lymphocytes, macrophage, and neutrophils, are at especially high levels in colostrum and they persist in milk in lower concentrations but in activated forms as long as breastmilk is produced. Humoral factors include immunoglobulins, lysozyme, nucleotides, lactoferrin, complements, bifidus factor, interferon, lacto peroxidase, oligosaccharides, vitamin B12 binding protein and epidermal growth factor. Secretory IgA predominates in human milk plays a vital role in the provision of local to the mucosal membrane. Human milk contains glucosamine which promote the growth of lactobacillus bifidus, which helps to prevent the growth of pathogenic flora in the gut.[5] This study aims to analyze the knowledge and practice of mothers on breastfeeding and its association with pneumonia.

Methods: A case control study was carried out at Sir Salimullah Medical College & Mitford Hospital for 22 months from January 2016 to October 2017. Cases and controls selected by convenient sampling according to inclusion criteria. Inclusion criteria was children below 2 years with clinical features and radiological evidence of pneumonia admitted in Sir Salimullah Medical College & Mitford Hospital served as cases, children below 2 years coming to EPI center for vaccination and Paediatrics outpatient department of Sir Salimullah medical college and Mitford hospital due to other illness served as control. Exclusion criteria was children with major congenital anomaly, children with immunocompromised state, children with chronic diseases and disability. A structured questionnaire was used to assess knowledge and practice about breastfeeding. Interview was taken face to face. The questions were explained before the participants, some questions were yes\no type and some open ended. Each item in the knowledge section of questionnaire had three possible responses, namely 'Yes, No or Not sure'. One mark awarded for every correct response and wrong response or 'Not sure' awarded as zero. Hence, a total number of marks in the knowledge section ranged from 0 to 10. The knowledge score categorized into poor (0-4), fair (5-7) and good (8-10) knowledge quality. Sample size was 38 by Convenient sampling method. Data were collected over a period of six months and analyzed by appropriate computer based programmed software Statistical Package for the Social Sciences (SPSS), version 20. Ethical clearance was taken from the central ethical committee of Sir Salimullah Medical College & Mitford Hospital, Dhaka.

Results: In this study among cases 8(21.1%) and among controls 3(7.87%) were not currently breastfeeding their child, the difference was statistically significant (p value 0.04), odd ratio 4.67 indicates association with development of pneumonia, previous episode of acute respiratory infection was significantly more among children

currently non breastfed than exclusive breastfed. Duration of exclusive breastfeeding, time of initiate breastfeeding, prelacteal feed, socio-demographic characteristics does not have any significant difference between groups. Regarding knowledge, most of the mothers had poor knowledge about breastfeeding; case 13(34.2%) and control 20(52.6%), 18(47.4%) and 10(26.3%) had fair knowledge among case and control group respectively, 7(18.4%) case and 8(21.1%) control group had good knowledge.

Table-1: Distribution of the study subjects by current breastfeeding pattern (n=76)

Current breastfeeding pattern	Case (n=38)		Control (n=38)		P value
	No.	%	No.	%	
Exclusive breastfeeding	4	10.5	7	18.4	
Predominant breastfeeding	11	28.9	6	15.8	
Mixed feeding	14	36.9	22	57.9	0.119[ns]
Currently not breastfeeding	8	21.1	3	7.9	
No breastfeeding at all.	1	2.6	0	0.0	
Total	38	100.0	38	100.0	

Data were expressed as frequency and percentage n : number of patients

P value reached from Chi-square test

ns : not significant

Table-1: Shows mixed feeding practice is more among both cases 14(36.9%) and controls 22(57.9%), only one case did not breastfeed.

Table-2: Distribution of the study subjects by exclusive breastfeeding and duration of exclusive breastfeeding (n=76)

Variables	Case (n=38)		Control (n=38)		P value
	No.	%	No.	%	
Exclusive breastfeeding of any duration					
Yes	10	27.1	13	34.2	0.454 [ns]
No	27	72.9	25	65.8	
Duration of exclusive breastfeeding					
≤ 4 months	2	5.3	6	15.8	0.192 [ns]
> 4-6 months	8	21.1	7	18.4	

Data were expressed as frequency and percentage

P value reached from Chi-square test

ns : not significant

n : number of patients

Table-2: Shows exclusive breastfeeding of is 10(26.3%) in case and 13(34.2%) in control group, duration of exclusive breastfeeding more than 4 months is 8(21.1%) and 7(18.4%) in case and control group respectively, P value is not statistically significant.

Table-3: Distribution of the study subjects by duration of breastfeeding (n=76)

Duration of breast feeding	Case (n=38)		Control (n=38)		P value
	No.	%	No.	%	
≤ 6 months	16	43.2	24	63.2	
> 6-12 months	14	37.8	7	18.4	1.141 ns
> 12 months	7	18.9	7	18.4	
Total	37	100	38	100	

Data were expressed as frequency and percentage

P value reached from Chi-square test

ns : not significant

n : number of patients

Table-3: Shows most cases 16(43.2%) and controls 24(63.2%) breastfeed for only 6 months or less, 14(37.8%) and 7(18.4%) cases and controls respectively breastfeed up to 12 months and rest more than 12 months. 11 children combined from both group stopped breastfeeding at the time of enrolment and 1case did not breastfeed at all, P value 0.141 which is not statistically significant.

Table-4: Distribution of previous episodes ARI in cases and controls combined by breastfeeding pattern on enrollment (n=76)

Pattern of breastfeeding on enrollment	No of frequency of ARI	Mean ARI Episode	P value
Exclusive breastfeeding	30	2.90±0.94	
Predominant breastfeeding	7	3.28±0.92	
Mixed feeding	146	3.85±1.12	<0.001*
Currently not breastfeeding	51	4.75±0.75	
No breastfeeding at all	3	1.50±0	

Data were expressed as frequency and mean

P value reached from ANOVA test

s : significant

n : number of patients

Table-4: Shows previous episode of acute respiratory infection are more among children who are not currently breastfeed (Mean±SD 4.75±0.75), followed by among mixed feeding (Mean±SD 3.85±1.12) and among exclusive breastfeeding (Mean±SD 2.90±0.94) less episode of previous ARI, P value <0.001 which is statistically very highly significant.

Discussion:

This case control study was carried out in the department of Paediatrics of Sir Salimullah Medical College and Mitford hospital, Dhaka during the period from January 2016 to October 20117 to assess the relationship between knowledge and practice of mothers about breastfeeding and pneumonia among children below 2 years.

This study reveals among cases and controls are mostly below six months, mean age distribution among cases are 9.8±5.9 and 8.1±6.4 among controls. A systemic review on the benefits of breastfeeding on diarrhoea and pneumonia mortality published on 2013 showed breastfeeding reduced the risk of hospitalization for respiratory infection by 57% [pooled relative risk: 0.43 (95% confidence interval: 0.33; 0.55)], and this protective effect did not change with age.[6]

Current breastfeeding patterns shows mixed feeding practice is more among both cases 14(36.9%) and controls 22(57.9%), though there is no significant difference between two groups were observed in this study, may be faulty believe, lack of knowledge, cultural factors acts as influencing factors this type of feeding patternin our country. This study shows among cases 8(21.1%) and among controls 3(7.87%) were currently not breastfeeding their child, p-value is 0.04 which is statistically significant, odd ratio 4.67 indicates association with development of pneumonia, that mean no breastfeeding act as a risk factor for developing pneumonia, in a nested case-control study in Brazil showed infant who were not being breastfeed 17 times more likely than those being breastfeed develop pneumonia,[7] this similar type of results were observed in many other previous studies.

Previous episode of acute respiratory infection are more among children who are not currently breastfed (Mean±SD 2.90±0.94) than who are exclusive breastfed (Mean±SD 2.90±0.94), P value <0.001 which is statistically very highly significant, similar observation was seen in many previous study.

In this study 10(26.3%) among cases and 13(34.2%) of controls were exclusively and duration of exclusive breastfeeding were also very low in both groups although it has been observed 27% of lower

respiratory tract infection hospitalizations could have been prevented each month by exclusive breastfeeding in a Millennium Cohort Study of United Kingdom.[8]

Initiation of breastfeeding within one hour of birth is an important aspect of preventing neonatal sepsis and mortality, in this study only 9(24.3%) case and 12(31.6%) control initiate breastfeeding within 1 hour, most of study population failed to initiate breastfeeding within one hour mostly due to lack of knowledge and maternal illness. A descriptive cross-sectional study was conducted among 400 mothers in the Paediatrics outpatient department (OPD) of Mymensingh Medical College Hospital, which showed that 272 (68.00%) infants received breastfeeding within 1 hour after birth, while 128 (32.00%) received it after 1 hour. Of 128 cases, in 48 (37.50%) cases, the mother's illness was the reason for the delay in initiating breastfeeding. In contrast, in 70 (54.69%) cases, it was due to reduced milk production, according to the mother's statement.[9]

Breastfeeding knowledge is an important aspect of developing good breastfeeding practice, in this study most of the mothers had poor knowledge about breastfeeding; case 34.2% and control 52.6%, 47.4% and 26.3% had fair knowledge among case and control group respectively and only very few18.4% case and 21.1% control group had good knowledge, may be this lower percentage of knowledge lead to a suboptimal breastfeeding practice in this study.

Conclusion:

Pneumonia developed significantly among children who are currently not breastfeeding. Breastfeeding had protective association in development of pneumonia. Previous episode of acute respiratory infection are significantly more among children currently non breastfed than exclusive breastfed. There was no significant difference in knowledge about breastfeeding in both groups. Knowledge and breastfeeding practice is suboptimal in both groups.

Limitations:

1. It is a single center hospital based study rather than community oriented with time and resource limitation.
2. Small sample size.
3. No randomization.

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