

Effect of Type of Feeding on Duration of Hospital Stay in Acute Bronchiolitis

ABDUL GHAFFAR, ATHAR RAZZAQ*, FAUZIA WAQAR**, ABDUSATTAR***, MUHAMMAD FAROOQ****

ABSTRACT

Aim: To determine the role of type of feeding on duration of hospital stay in Acute Bronchiolitis.

Study design: Descriptive study

Place of study & duration: This was conducted at Pediatric Medicine department of Nishtar Medical College and Hospital, Multan, over a period of 6 months from October 2012 to March 2013.

Methods: All children between the ages 2 months to 2 years with symptoms and signs of low grade fever, cough, tachypnea and first episode of wheezing, or crackles on pulmonary auscultation who required hospitalization were included in this study.

Results: There were 188 patients, including 101(53.7%) males and 87(46.3%) females. There were 56 exclusively breast fed children, 96 predominantly breast fed and 36 having total artificial feeding. At admission most of the children were having age less than 6 months with median age (in months) 4.1 ± 1.1 in exclusive breastfed children, 3.4 ± 1.2 in predominant breastfed and 3.7 ± 1.3 in artificial feed children. Mean duration of hospital stays were 3 ± 1.1 days (2-6 months of age), 2 ± 1.4 (7-12 months), 2 ± 1.2 (13-18 months) and 1 ± 1.4 (17-24 months) among exclusively breast fed children. Duration of hospital stays were 4 ± 2.1 (2-6 months of age), 4 ± 1.2 (7-12 months), 3 ± 1.4 (13-18 months) and 1 ± 1.3 (17-24 months) among predominantly breast fed children. Whereas mean duration of hospital stay was 4 ± 2.2 (2-6 months), 3 ± 1.2 (7-12 months), 3 ± 1.6 (17-24 months) and 2 ± 1.4 (17-24 months).

Conclusion: Breast feeding has strong protective effect against acute Bronchiolitis and it also decreases the morbidity in the form of duration of hospitalization.

Keywords: Breast feeding, acute bronchiolitis, infants.

INTRODUCTION

Bronchiolitis is an acute viral infection of lower respiratory tract characterized by inflammation, edema, necrosis of epithelial cells, increased mucus production and bronchospasm. The American Association of Pediatrics (AAP) guidelines have defined bronchiolitis as "a constellation of clinical symptoms and signs including a viral upper respiratory prodrome followed by increased respiratory effort and wheezing in children less than 2 years of age¹. Under 2 years of age, this is the most common lower respiratory tract disorder and is also a leading cause of hospitalization as well. Respiratory syncytial virus (RSV) is the most commonly isolated agent (75%). Other agents that cause bronchiolitis include influenza B, parainfluenza virus types 1, 2 and 3, adenovirus type 1, 2 and 5 and Mycoplasma¹. There are strong evidences that breastfeeding has positive influence on child survival, but less information regarding effects on cause-specific mortality, such as that attributable to acute

respiratory infections (ARI) and diarrhea.² Yoon et al reported a higher risk of diarrhea and ARI mortality associated with lack of breastfeeding.³

METHODOLOGY

This observational study was conducted at Pediatric Medicine department of Nishtar Medical College and Hospital, Multan, Pakistan, over a period of 6 months from October 2012 to March 2013. A total of 188 children suffering from acute bronchiolitis were enrolled in this study. Any child between the ages 2 months to 2 years with symptoms and signs of low grade fever, cough, tachypnea and first episode of wheezing, or crackles on chest auscultation not longer than 7 days was included in this study. Children with congenital heart disease, inborn error of metabolism, foreign body aspiration, bronchial asthma and pneumonitis were excluded from the study. Categories of breast feedings were adopted as defined by WHO.

Exclusive breast feeding was defined when a child received only maternal milk, either directly from the breast or extracted and no other liquid or solid were given, with the exception of drops or syrups of vitamin, mineral and/ or medicine. Predominant breast feeding was considered when a child received

Trainee Fellow in Neonatal Pediatrics, Institute of Child Health, Multan, **Associate Professor Pediatrics, Nishtar Hospital, Multan, *Assistant Professor Medicine, KEMU, Lahore. ****Emergency Pathology Lab, SIMS/SHL, Lahore. Correspondence to Dr. Abdul Ghaffar, Assistant Professor, Pediatric Medicine, Nishtar Hospital, Multan*

maternal milk along with water or water based drinks such as fruit juices and tea. Artificial feeding was considered when the child was no longer breastfed

but received cow, buffalo or goat's milk in natural or powdered form with or without other liquids.

RESULTS

The details of results are given in tables 1,2

Table 1: General characteristics of children with acute bronchiolitis

Characteristics	Exclusive breast feeding children (n=56)	Predominant breast feeding children (n=96)	Artificial feeding Children (n=36)
Age(months)	4.1±1.1	3.4±1.2	3.7±1.3
Male (n=101) (53.7%)	19(18.8%)	51(50.5%)	31(30.7%)
Female(n=87) (46.3%)	17(19.5%)	45 (51.7%)	25(28.8%)
Days of symptoms at admission	3±1.1	4±2.1	3±1.2

Table 2: Age distribution and duration of hospital stay among different categories of children feedings suffering from acute bronchiolitis

Age (months)	n= 188	Duration Of Hospital Stay		
		Exclusive breast feeding 56(29.8%)	Predominant breast feeding 96 (51.1%)	Artificial feeding 36 (19.1%)
2-6	114(60.8%)	3±1.1	4±2.1	4±2.2
7-12	42(21.8%)	2±1.4	4±1.2	3±1.2
13-18	24(12.7%)	2±1.2	3±1.4	3±1.6
17-24	10(5.4%)	1±1.4	1±1.3	2±1.4

DISCUSSION

There are strong evidences of a positive influence of breastfeeding, especially exclusive breastfeeding, on the survival of the child. Breast feeding provides the best natural nutrition to the newborns and infants as well. It also gives protection against many infectious diseases like infectious diarrhea and respiratory tract diseases, it is because breast milk contains many bacterial and viral antibodies, including relatively high concentrations of secretory IgA that prevents microorganisms from adhering to the intestinal & respiratory mucosa. It also has protective substances against many common viruses.⁴

In our study majority of the children were of less than 6 months age which shows high incidence of this illness in this age group as well as increased need of hospitalization. Need for more hospitalization under 6 month of age is because, lower respiratory tract illness (LRTI) seen in young infants may be minimal in older patients, in whom bronchiolar edema is better tolerated. Also this is the age group in which children with acute bronchiolitis or other forms of respiratory illness likes pneumonia and Pertussis may be complicated by apnea and refusal to feed.⁵ Relatively increase risk for acute bronchiolitis was found among male (53.7%) children in this study. This is probably because of smaller airways present in boys. This association is similar to those reported by Tepper and Rubin.⁶

Although WHO advocate exclusive breastfeeding in infants for first six months⁷. But still this practice has not adopted as it should be. In our study, majority of the mothers besides breastfeeding were using top feeding as well. Illiteracy, lack of knowledge about benefits of breastfeeding and social factors are the main reasons behind the lack of practicing the exclusive breastfeeding. However with the help increasing literacy rate and promoting the benefits of breastfeeding through primary health services and media, this goal is not so difficult to achieve.

In this study, we found strong inverse relationship between duration of hospitalization and exclusive breastfeeding. It is well known that breast milk contains certain nutrients that promote the development of respiratory tract system that eventually protect from respiratory infections. The nutritional immunoregulatory and immunomodulatory factors in maternal milk may enhance maturation of the infant's immune competence.^{8,9} A study done by Cristina and his colleagues also observed the similar results.¹⁰ So, in the light of our and other international studies, it can be safely said that exclusive breastfeeding practice should be promoted in resource limited and high infant mortality rate population regions like Pakistan.

CONCLUSION

Exclusive breastfeeding not only reduces infectious illness in children but also reduces aggressive course in acute bronchiolitis.

REFERENCES

1. American Academy of Pediatrics, Subcommittee on Diagnosis and Management of Bronchiolitis. *Pediatrics*. 2006;118(4):1774-93
2. Habicht JP, DaVanzo J, Butz WP(1986) Does breastfeeding really save lives, or are potential benefits due to biases? *Am J Epidemiol* 123:279-290
3. Yoon PW, Black RE, Moulton LM, Becker S(1997) Effect of not breastfeeding on the risk of diarrheal and respiratory mortality in children under 2 years of age in Metro Cebu, The Philippines. *Am J Epidemiol* 143:1142-1148.
4. Shahidullah M(1994) Breast-feeding and child survival in Matlab, Bangladesh. *J Biosoc Sci.* 26:143-154. MedlineWeb of Science
5. Mustafa G. Bronchiolitis. *Pak Peds Rev* 2013;(1): 5-10
6. Rubin FM, Fischer GB. Clinical and transcutaneous oxygen saturation characteristics in hospitalized infants with acute viral bronchiolitis. *J Pediatr (Rio J)* 2003;79:435-42.
7. Marques RFSV, Lopez FA, Braga JAP. Growth of exclusively breastfed infants in the first 6 months of life. *J Pediatr (Rio J)* 2004;80:99-105.
8. Bachrach VRG, Shwarz E, Bachrach LR. Breastfeeding and the risk of hospitalization for respiratory disease in infancy. A meta-analysis. *Arch Pediatr Adolesc Med.* 2003;157:237-43.
9. Ahmad S, Aamir S, Nawaz K. Role of oral salbutamol administration for providing symptomatic relief in children with mild bronchiolitis. *Professional Med J Feb* 2013;20(1):089-094.
10. Dornelles CT, Piva JP, Marostica PJ. Nutritional status, breastfeeding, and evolution of Infants with acute viral bronchiolitis. *J Health Popul Nutr.* 2007 Sep;25(3):336-43.