Medico Research Chronicles
ISSN NO. 2394-3971
DOI No. 10.26838/MEDRECH.2025.12.2.780
Contents available at www.medrech.com

Clinico-Demographic and Radiological Profile of Bronchiolitis Patients in a Tertiary Care Hospital in Bangladesh

[1]Dr. Shakila Khan, [2]Dr. Ahsan Ullah, [3]Dr. Syeda Tahmina Nasreen,
1. Registrar, Department of Pediatric Neuroscience, Bangladesh Shishu Hospital and Institute, Dhaka, Bangladesh.
2. Junior consultant, Department of Medicine, Mugda Medical College and hospital, Dhaka, Bangladesh.
3. Registrar, Green Life Medical College & Hospital, Dhaka, Bangladesh.

ARTICLE INFO

Article History
Received: February 2025
Accepted: April 2025
Key Words:
Bronchiolitis, Wheezing, Hypertranslucency.

Corresponding author
Dr. Shakila Khan*

ABSTRACT

ORIGINAL RESEARCH ARTICLE

Background: Bronchiolitis is the most common cause of hospitalization in infants below 2 years of age. It usually presents with breathing difficulty, cough, fever and runny nose. The treatment of bronchiolitis mainly supportive. **Objectives:** The aim of this study was to find out the clinico-demographic and radiological characteristics of bronchiolitis for its proper diagnosis and management. **Methods:** This is a cross-sectional observational study was done in the Department of Pediatrics, Bangladesh Shishu Hospital and Institute from July 2019 to June 2021. A total 100 patients between ages of 2-months to 1-year admitted with the diagnosis of bronchiolitis, were included in this study. Data were collected in the form of age, gender, clinical features, laboratory and radiological findings **Results:** most of the cases are less than 6 months and the majority patients were males (58%) and females were (42%). Cough, fast breathing and wheezing were present in most of the children. all patient had difficulty in breathing and chest indrawing. Cough was a presenting feature of 96% cases, fast breathing was in 89% cases. Wheezing was in (82%) cases. Predominant radiological findings are hyperinflation and hypertranslucency. Hypertranslucency was present in 97% cases whereas hyperinflation was present in 93% cases. **Conclusion:** We concluded that bronchiolitis patients present with typical clinical and radiological features which can help for its diagnosis and management.

INTRODUCTION

Bronchiolitis is one of the most common lower respiratory tract infections in children. It may be the first episode of wheezing in a child younger than 12 to 24 months who has physical findings of viral

respiratory infection and has no any other explanation for wheezing. [1] It usually occurs in winter from December to March in India.[2] It is more common in male than female. Common viral causes of bronchiolitis are respiratory syncytial virus (RSV), parainfluenza virus, influenza virus, human metapneumovirus and adenovirus. RSV is the most common cause of bronchiolitis and accounts for approximately 60% to 75% of bronchiolitis patients.[3] It is a cause of hospitalization in 32% of infants and children admitted due to lower respiratory tract infections.[4] Most of the children suffering from bronchiolitis have only mild disease and that is self-limiting. Risk factors associated with bronchiolitis include prematurity, low birth weight, lower socioeconomic group, overcrowded place and underlying cardiopulmonary disease. [5]Pathophysiology is important for diagnosis and to manage bronchiolitis patients. Viral infection occurs in the upper respiratory tract and spreads to the lower tract within a few days, this causes acute inflammation, edema of the bronchiolar epithelium, necrosis, increased mucus production and peribronchiolar mononuclear infiltration changes which obstruct flow in the small airways and leading to hyperinflation, microatelectasis and wheezing. Common presenting symptoms include runny nose and cough followed by tachypnea, nasal flaring, accessory respiratory muscles use and wheezing.[6] The diagnosis of bronchiolitis is based on history and physical examination. Blood sampling and chest radiography are needed occationaly.[7] The treatment of bronchiolitis mainly supportive such as clearing of the secretions, maintenance hydration and oxygen therapy for children presenting with low oxygen saturation. It is important to explore the epidemiological and clinical characteristics of acute bronchiolitis for proper management. For this reason, we propose this study.

METHODOLOGY

This cross-sectional observational study was done in the Department of General Pediatrics Bangladesh Shishu (Children) Hospital and Institute Sher-E-Bangla Nagar, Dhaka, Bangladesh during July, 2019 to June, 2021. A total of 100 patients of bronchiolitis were participated in this study. Sample was collected among the infants from 2 months to 1 year of age admitted in the Bangladesh Shishu Hospital and Institute. Inclusion criteria were history of viral prodrome present and first episode of respiratory distress associated with wheezing. Exclusion criteria were family history of asthma, congenital heart disease or chronic lung disease. After taking consent and matching eligibility criteria, data were collected from patients on variables of interest using the predesigned structured questionnaire by interview.

RESULTS

A total 100 patients between ages of 2-months to 1-year admitted with the diagnosis of bronchiolitis were included in this study. Figure I shows**,** the majority patients were males (58%) and females were (42%). Figure I also shows, age of 54% patients was in ≤6 and age of 46% patients was in between 7 months to 12 months of age. Table I shows, difficulty in breathing, chest indrawing, cough, fast breathing and wheezing were present in most of the children. Cough was a presenting feature of 96% cases, fast breathing was in 89% cases and wheezing was in (82%) cases. Table I also shows that all patient had difficulty in breathing and chest indrawing. Table II shows, predominant radiological findings are hyperinflation and hyper-translucency. Hyper-translucency was present in 97% cases and hyperinflation was present in 93% cases. Table II also shows, lymphocytosis presents in 62% cases and 38% cases had normal CBC.

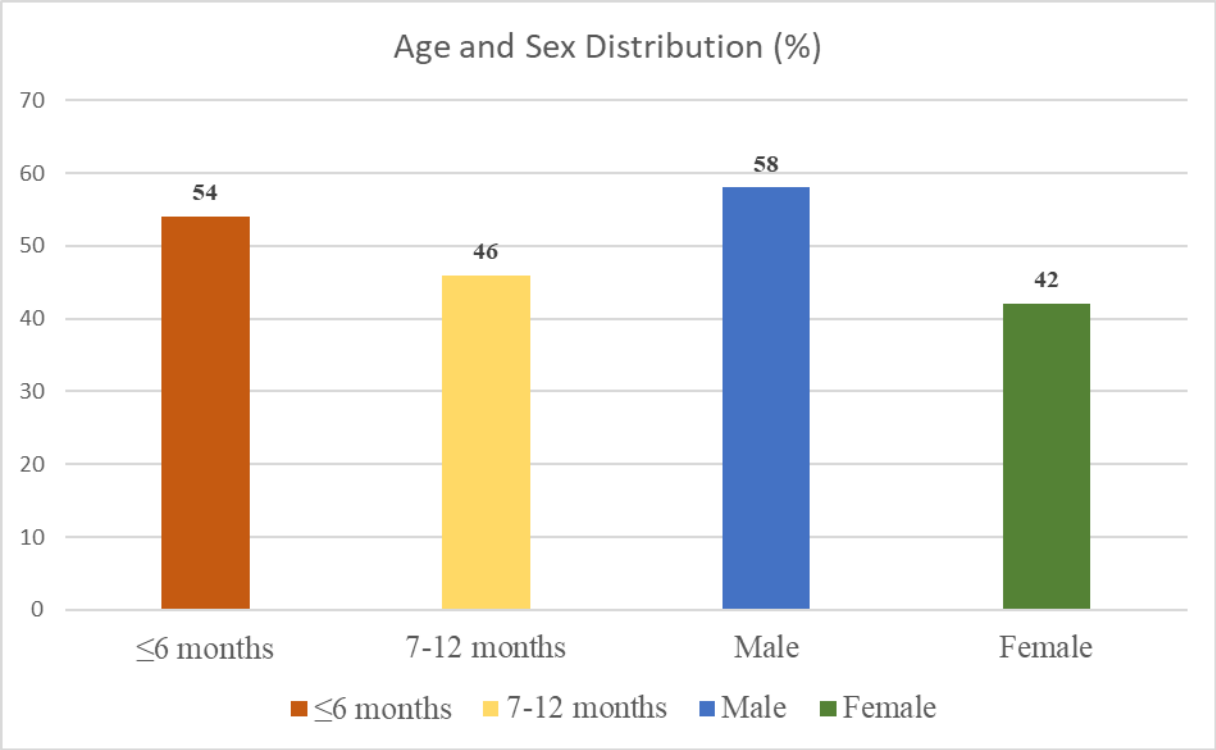

Figure I: Distribution of the studied case according to age and sex

Table I: Different clinical findings of studied case (n=100)

Variables	Percentage (%)
Difficulty in breathing	100%
Cough	96%
Fever	74%
Wheeze	82%
Ronchi	93%
Chest Indrawing	100%
Runny nose	76%
Tachypnoea	89%
Feeding difficulty	98%

Table II:Distribution of radiological and CBC findings on admission

Variables	Percentage (%)
Hyperinflation	93%
Hypertranslucency	97%
Lymphocytosis	62%

DISCUSSION

This study was done in department of Pediatrics of Bangladesh Shishu Hospital and Institute, Dhaka. Hundred patients of 2 to 12 months of age with bronchiolitis patients were included in this study. In current study most of the cases are less than 6 months which is similar to Kabir et al.[8] Kuzik et al and

Qymar et al also showed that most of cases are in less than 6 months of age in their study.[9, 10] In present study we observed that the majority patients were males (58%) and females were (42%). Usman et al and Islam et al also showed similar findings in their study. [11, 12] The high incidence of bronchiolitis in males as compared to females may be due to presence of XX chromosomes which provide more genetic diversity to the female immunologic defenses.

In this study cough, fast breathing and wheezing were present in most of the children. Cough was a presenting feature of 96% cases, fast breathing was in 89% cases. Wheezing was in (82%) cases. all patient had difficulty in breathing and chest indrawing. Similar results also found in studies by Islam et al.[13] Singh et al found in their study that the most common symptom in bronchiolitis was respiratory distress (100%) followed by cough (100%) and fever (85%).[14] Solaiman et al showed in their study that the most common clinical findings were cough (89%), wheezing (79%), fever (72%) and dyspnea (71%).[15] In this study shows that predominant radiological findings are hyperinflation and hypertranslucency. Hypertranslucency was present in 97% cases whereas hyperinflation was present in 93% cases. Kabir et al also showed that hypertraslucency was the most predominant radiological findings which is similar to this study.[8] Farid et al also showed similar findings to their study. Soleimani et al found that hyperinflation was the most prevalent finding.[15] Lymphocytosis was in 62% patients and 38% patients had normal CBC in this study. Solaiman et al also showed lymphocytosis in 67% and normal CBC in 33% patients.[15]

Finally, the correct diagnosis of bronchiolitis can be made by considering the most common epidemiological factors such as age, gender, clinical findings, laboratory and radiological signs for ensuring proper diagnosis and management.

Limitations of the study

The small sample size was a limitation of the present study. Isolation of virus could not be done.

CONCLUSION

Most of the children present with typical clinical and radiological features of bronchiolitis which can help the clinicians to identify this disease clinically more efficiently.

RECOMMENDATION

This study can serve as a pilot to much larger research involving multiple centers that can provide a nationwide picture, validate regression models proposed in this study for future use and emphasize points to ensure better management and adherence.

REFERENCE

1. Verma N, Lodha R, Kabra SK. Recent advances in management of bronchiolitis. Indian pediatrics. 2013 Oct; 50:939-49.
2. Koley G, Koley KC. Comparison of salbutamol to adrenaline nebulization in acute severe bronchiolitis: An original research paper. International Journal of Scientific Study. 2017;5(2):202-5.
3. Ralston SL, Lieberthal AS, Meissner HC, Alverson BK, Baley JE, Gadomski AM, Johnson DW, Light MJ, Maraqa NF, Mendonca EA, Phelan KJ. Clinical practice guideline: the diagnosis, management, and prevention of bronchiolitis. Pediatrics. 2014 Nov 1;134(5): e1474-502.
4. Modaressi MR, Asadian A, Faghihinia J, Arashpour M, Mousavinasab F. Comparison of epinephrine to salbutamol in acute bronchiolitis. Iranian journal of pediatrics. 2012 Jun;22(2):241.
5. Bloemers BL, Van Furth AM, Weijerman ME, Gemke RJ, Broers CJ, Van Den Ende K, Kimpen JL, Strengers JL, Bont LJ. Down syndrome: a novel

risk factor for respiratory syncytial virus bronchiolitis—a prospective birth-cohort study. Pediatrics. 2007 Oct 1;120(4): e1076-81.
6. Zorc JJ, Hall CB. Bronchiolitis: recent evidence on diagnosis and management. Pediatrics. 2010 Feb 1;125(2):342-9.
7. Ralston SL, Lieberthal AS, Meissner HC, Alverson BK, Baley JE, Gadomski AM, Johnson DW, Light MJ, Maraqa NF, Mendonca EA, Phelan KJ. Clinical practice guideline: the diagnosis, management, and prevention of bronchiolitis. Pediatrics. 2014 Nov 1;134(5): e1474-502.
8. Kabir ML, Haq N, Hoque M, Ahmed F, Amin R, Hossain A, Khatoon S, Akhter S, Shilpi T, Haq R, Anisuzzaman S. Evaluation of hospitalized infants and young children with bronchiolitis-a multi centre study. Mymensingh medical journal: MMJ. 2003 Jul 1;12(2):128-33.
9. Kuzik BA. Maybe there is no such thing as bronchiolitis. CMAJ. 2016;188(5):351-354.
10. Qymar K, Skjerven HO, Mikalsen IB. Acute bronchiolitis in infants, a review. Scand J Trauma ResuscEmerg Med. 2014;22:23.
11. Usman S, Zareen A, Gillani A, Kaleem A, Ali M, Sarwar HA. Comparison of Adrenaline and Salbutamol nebulization in treatment of Children with Bronchiolitis. The Professional Medical Journal. 2019 Sep 10;26(09):1434-9.
12. Islam MS, Mollah MA, Khanam RO, Chowdhury AS, Rahman MM, Al Baqui SA, Rashid MA. Comparative efficacy of nebulized 7% hypertonic saline versus 0.9% normal saline with salbutamol in children with acute bronchiolitis. Bangladesh J Child Health. 2019;43(2):80-4.
13. Islam KT, Mollah AH, Matin AB, Begum MA. Comparative efficacy of nebulized 3% hypertonic saline versus 0.9% Normal saline in children with acute bronchiolitis. Bangladesh J Child Health. 2018 Dec 17;42(3):130-7.
14. Singh C, Angurana SK, Bora I, Jain N, Kaur K, Sarkar S. Clinico demographic profiling of Respiratory syncytial virus infected children admitted in tertiary care hospital in North India. J Family Med Prim Care. 2021;10(5):1975-1980.
15. Halder AK, Sultana S, Nag BC. Clinico-Epidemiological and Radiological Profile of Bronchiolitis at Shere-E-Bangla Medical College Hospital in Barishal, Bangladesh. Annal of International and Dental Research. 2022;8(1):318-324.