

CHALLENGES IN THE MANAGEMENT OF BRONCHIOLITIS

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Received: ???, Revised and Accepted: ???

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ABSTRACT

Objective: This study aims to review and evaluate current medication and to provide practical guidelines to the practitioners managing children with bronchiolitis.

Methods: A 6-month retrospective study was carried out in the Department of Paediatrics in Tertiary Care Hospital, a 350-bedded multispecialty hospital to review the management of bronchiolitis. A total of 60 cases selected from July 2014 to December 2014 were included in the study. Patient data and prescription details were recorded and analyzed accordingly.

Results: About 58.3% of bronchiolitis cases were reported in the age group of <1 year, 26.6% in the age group of 1-2 years and 15% cases reported at the age >2 years. Commonly reported symptoms in different cases include 85% of cases with fever, 90% with a cough, 93.3% with cold, 30% with vomiting, 35% with breathlessness, 33.3% with loose motions, and 68.3% with wheezing. A single broad-spectrum antibiotic was used in 68.3% cases, two broad spectrum antibiotics in 26.6% of cases, and three or more combinations in 5% of cases to prevent bacterial coinfections. A careful assessment of study has evaluated that antiviral therapy was not used in any of the cases to avoid antiviral resistance but broad-spectrum antibiotics were most commonly prescribed for a viral respiratory illness which is generally self-limiting adding to the threat of antibiotic resistance. Bronchodilators and corticosteroids were routinely used. As per current Standard Treatment Guidelines for the management of bronchiolitis, the priority has been given to adequate rest, intravenous fluids, symptomatic therapy, and reserve antiviral therapy for special cases. This study demonstrated the importance of routine medication review and the need of a clinical pharmacist at various levels of clinical setup.

Conclusion: From this study, it can be concluded that interventions by a clinical pharmacist are needed in taking a special effort to analyze prescriptions and provide clinicians with a feedback involving available antiviral medications, antiviral resistance, prescription costs, limitations of antiviral agents and updated current standard treatment guidelines.

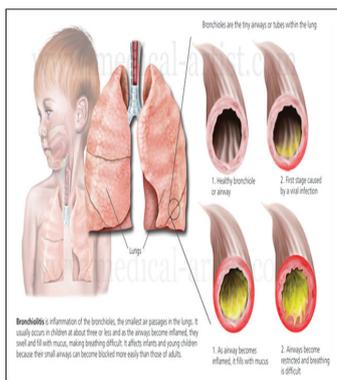
Keywords: Self-limiting, Antiviral therapy, Antiviral resistance, Antibiotic use, Antibiotic resistance.

INTRODUCTION

Background

Bronchiolitis is a disorder most commonly caused in infants by viral lower respiratory tract infections (LRTIs). It is the most common type of LRTI in children from 1 month to 2 years of age [1]. 90% of children are infected with respiratory syncytial virus (RSV) in the first 2 years of life and up to 40% of them will have LRTI [2]. Other viruses identified to cause bronchiolitis are human metapneumovirus, influenza virus, adenovirus, and parainfluenza virus. Viral LRTI is a risk factor for bacterial coinfection [3].

Bronchiolitis is characterized by: Acute inflammation, edema and necrosis of epithelial cells, lining small airways increased mucus production and bronchospasm [4].



Clinical manifestations

Rhinitis, tachypnea, wheezing, cough, runny nose, stuffy nose, use of accessory muscles, and/or nasal flaring.

Objective

This study aims to review and evaluate current medication and to provide practical guidelines to the practitioners managing children with bronchiolitis.

- A 6-month retrospective study was carried out in the Department of Paediatrics in Tertiary Care Hospital, a 350-bedded multispecialty hospital to review the management of bronchiolitis
- The main objective of this study is to demonstrate the role of the pharmacist in ensuring safe and efficient use of medicines in daily practice in pediatrics with bronchiolitis.

METHODS

A total of 60 cases selected from July 2014 to December 2014 were included in the study. Patient data and prescription details were recorded and analyzed accordingly. Pediatric patients with bronchiolitis were included in the study. The patients with insufficient medical records were excluded from the study. Medication chart review for each patient was conducted, recorded, and assessed accordingly.

RESULTS

A total of 54 patients were studied during the study period and the following results were observed.

Age distribution

Table 1 illustrates that bronchiolitis was most commonly seen in the age group of <1 year.

Commonly reported symptoms

Fig. 1 illustrates that cough and cold were the most common symptoms observed.

Number of antibiotics used

Fig. 2 illustrates that minimum one antibiotic was used in all the patients.

DISCUSSION

Around 58.3% of bronchiolitis cases were reported in the age group of <1 year, 26.6% in the age group of 1-2 years, and 15% cases reported at the age >2 years which illustrates that bronchiolitis was most commonly seen in the first 2 years of age. This observation coincides with the study conducted by Flaherman *et al.* [5]

Out of all the reported symptoms include a cough and cold were the most common symptoms observed. This study coincides with the study conducted by Markopoulou *et al.* [6].

Minimum one broad-spectrum antibiotic was used in all the patients to prevent bacterial coinfections. This study is in contrast with the study conducted by King *et al.* where no antibiotics were used in any of the patients [7].

Table 1: Distribution of age

Age (years)	Number of patients (n=54)	Percentage of patients
<1	35	58.3
1-2	16	26.6
>2	03	15

Mean=18, standard deviation=25.45

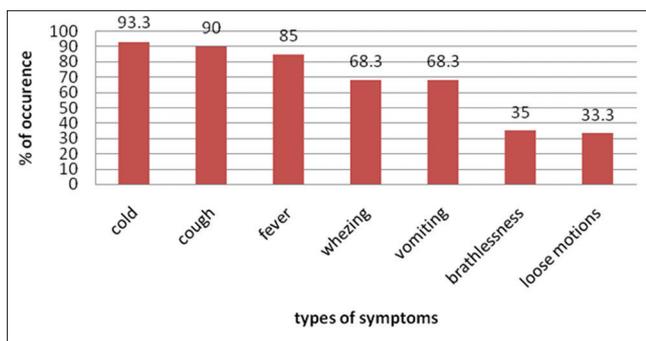


Fig. 1: Distribution of commonly reported symptoms

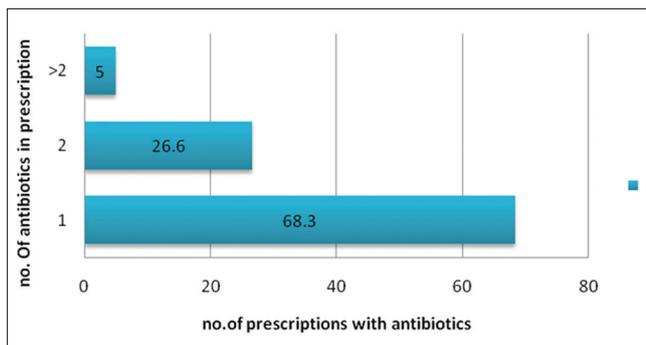


Fig. 2: Number of antibiotics used

Careful assessment of study has evaluated that antiviral therapy was not used in any of the cases to avoid antiviral resistance but broad-spectrum antibiotics were most commonly prescribed for a viral respiratory illness which is generally self-limiting adding to the threat of antibiotic resistance.

Bronchodilators and corticosteroids were routinely used [7].

As per current Standard Treatment Guidelines for the management of bronchiolitis, the priority has been given to adequate rest, intravenous fluids, symptomatic therapy and reserve antiviral therapy for special cases [1].

This study demonstrated the importance of routine medication review and the need of a clinical pharmacist at various levels of clinical setup.

CONCLUSION

The current management primarily consists of supportive care including hydration, supplemental oxygen, and mechanical ventilation when required.

At this point, there is no specific treatment for bronchiolitis for which there is a strong or convincing evidence of effectiveness.

It may be appropriate to administer nebulized epinephrine or salbutamol in a given child and continue these if found beneficial and discontinue if there is no effect.

Corticosteroids are judged to be ineffective and not indicated for these infants.

In the absence of an effective vaccine, palivizumab, a monoclonal antibody against RSV may be considered for passive immunoprophylaxis in certain high-risk infants before the RSV season.

From this study, it can be concluded that interventions by a clinical pharmacist are needed in taking a special effort to analyze prescriptions and provide clinicians with a feedback involving available antiviral medications, antiviral resistance, prescription costs, limitations of antiviral agents, and updated current standard treatment guidelines

ACKNOWLEDGMENT

We express our sincere thanks to Dr. B. V. S. Lakshmi, Head of the Department, Pharm D, Malla Reddy College of Pharmacy and our sincere gratitude to Ch. Malla Reddy, Chairman of Malla Reddy Group of Institutions for providing adequate facilities, without which this work would not have been attained this standard.

REFERENCES

1. Verma N, Lodha R, Kabra SK. Recent advances in management of bronchiolitis. *Indian Pediatr* 2013;50(10):939-49.
2. American Academy of Pediatrics Subcommittee on Diagnosis and Management of Bronchiolitis. Diagnosis and management of bronchiolitis. *Pediatrics* 2006;118(4):1774-93.
3. Hanson IC, Shearer WT. Bronchiolitis. In: McMillan JA, Feign RD, De Angelis C, Jones MD, editors. *Oski's Pediatrics: Principles and Practice*. 4th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2006. p. 1391.
4. Wright AL, Tausig LM, Ray CG, Harrison HR, Holberg CJ. The Tucson children's respiratory study. II. Lower respiratory tract illness in the first year of life. *Am J Epidemiol* 1989;129(6):1232-46.
5. Flaherman VJ, Ragins AI, Li SX, Kipnis P, Masaquel A, Escobar GJ. Frequency, duration and predictors of bronchiolitis episodes of care among infants ≥32weeks gestation in a large integrated healthcare system: A retrospective cohort study. *BMC Health Serv Res*

- 2012;12:144.
6. Markopoulou KD, Cool CD, Elliot TL, Lynch DA, Newell JD, Hale VA, *et al.* Obliterative bronchiolitis: Varying presentations and clinicopathological correlation. *Eur Respir J* 2002;19(1):20-30.
7. King VJ, Viswanathan M, Bordley WC, Jackman AM, Sutton SF, Kathleen BS. Pharmacologic treatment of bronchiolitis in infants and children. *Arch Pediatr Adolesc Med* 2004;158(2):127-37.

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