

Antibiotic usage pattern among under-five wheezers: A Bhubaneswar based study

Jyochnamayi Panda¹, Jyotiprakash Mishra²From ¹Department of Obstetrics and Gynaecology, Kalinga Institute of Medical Sciences, Kalinga Institute of Industrial Technology University,²Department of Paediatrics Capital Hospital, Bhubaneswar, Odisha, India**Correspondence to:** Dr Jyotiprakash Mishra, Department of Paediatrics, Capital Hospital, Bhubaneswar, E-mail: Odisha.jyotipm1960@gmail.com

Received - 07 September 2017

Initial Review - 15 November 2017

Published Online - 22 January 2018

ABSTRACT

Introduction: Acute under-five wheezers are the most suitable group for targeting focus aimed at reducing unnecessary use of antibiotics. Viral bronchiolitis is an important cause of wheezing in under-five children. Rationality behind antibiotic usage has rarely been reported from Odisha. **Aim:** The aim of the present study is to look into the decision of private practitioners of Bhubaneswar, Odisha, for an antibiotic prescription to under-five wheezers. **Materials and Methods:** Hundred prescriptions of private practitioners for under-five patients suffering from acute wheeze were analyzed between January and June 2016. The prescriptions were grouped as with antibiotics (Group A) and without antibiotics (Group B). The groups were compared for the presence of clinical, hematological, and radiological signs and results were statistically analyzed. **Result:** The number of prescriptions with antibiotic inclusion is higher (67%). Antibiotics are mostly prescribed to younger patients. Antibiotic administration was significantly higher with the symptoms of fever, tachypnea, crepitation's and leukocytosis, and X-ray findings. ($p < 0.05$) The average recovery period was almost the same in both the groups. The prescription patterns in the present study show rational usage.

Key words: Antibiotics, Bacterial infections, Children, Respiratory tract infections, Underfive wheezers

Acute under-five wheezers are the most suitable group for targeting efforts aimed at reducing unnecessary antibiotic use. Viral bronchiolitis is an important cause of wheezing in under-five children while bacterial etiology cannot be ruled out [1]. Antibiotics are often used in the management of under-five children with wheezing. It has been reported in few studies that antibiotics modify the course of sore throats minimally [2]. Nevertheless, they are often prescribed. The pediatricians would use antibiotics in bronchiolitis because it is not easy to differentiate from acute pneumonia and because of the risk of secondary bacteremia in the cases with viral bronchiolitis. Detailed history taking and clinical evaluation are a must to zero in onto the possibility of acute bacterial infection in under five wheezers. It has been speculated that a patient presenting with bilateral diffuse wheezing and upper respiratory symptom may not require routine antibiotics. Studies show no usefulness of routine antibiotics in acute bronchiolitis. There is increase concern regarding expenses and the emergence of antibiotic-resistant bacteria [3]. Rationality behind antibiotic usage has rarely been reported from Odisha. With this background in mind, we planned the present study to look into the decisions of private practitioners of Bhubaneswar regarding antibiotic prescription to under-five wheezers.

MATERIALS AND METHODS

This is a prospective observational study. Hundred prescriptions of private practitioners for under-five patients suffering from acute wheeze were studied in Bhubaneswar between January and June 2016. The prescriptions were grouped as with antibiotics (Group A) and without antibiotics (Group B). The antibiotics used in Group A were amoxyclav (37 prescriptions), azithromycin (13 prescriptions), cefuroxime (12 prescriptions), and clarithromycin (5 prescriptions). Cough and cold combinations were the second most commonly prescribed followed by antipyretics. Rest were bronchodilators, herbal mixtures and saline nasal drops in both the groups. The groups were compared for the presence of clinical, hematological, and n known to be suffering from atopic conditions, congenital heart disease and/or, known immunodeficiency were excluded from the study. Informed consent of the parents was taken before the study.

Table 1: The different antibiotics used

Moxclav	37 prescriptions
Azithromycin	13 prescriptions
Cefuroxime	12 prescriptions
Clarithromycin	05 prescriptions

Table 2: Prevalence of symptoms and signs and relevant parameters among antibiotic users and non-users

Parameters	Group A (n=67)	Group B (n=33)	p value (95% CI)
Mean age in years (%)	2.9±2	4.2±1.3	<0.05
Viral symptoms	54 (80)	28 (82)	>0.05
Fever	40 (60)	14 (40)	<0.05
Tachypnea	34 (50)	0	<0.05
Rhonchi	67 (100)	33 (100)	>0.05
Crepitations	54 (80)	14 (40)	<0.05
Leukocytosis (>15000/cm ²)	60 (90)	10 (30)	<0.05
X-ray findings	27 (40)	2 (5)	<0.05
Average period of recovery in days	6.6±1.2	7.5±1.3	>0.05

CI: Confidence interval

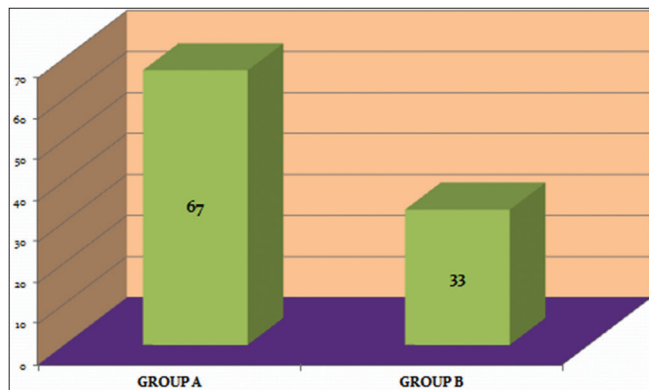


Figure 1: Percentage of antibiotic users and non-users among the subjects

Chi-square test was applied for statistical analysis using SPSS software version 18. $p < 0.05$ was considered significant.

RESULT

Among all 100 prescriptions studied, 67 had antibiotics written in it (Fig.1). Moxclav was the most prescribed antibiotics while Clarithromycin was prescribed the least (Table 1).

Table 2 shows a significant increase in the appearance of fever and tachypnoea in the non-antibiotic user group than the antibiotic user group. Similarly, crepitations, leukocytosis and x-ray findings were significantly less in the antibiotic user group when compared to the non-user group. Though average period of recovery was less in antibiotic user group than the non-user group, it was statistically insignificant.

DISCUSSION

Antibiotic prescription is on the higher side in this study (Fig. 1). Antibiotics mostly used were moxclav followed by azithromycin, cefuroxime, and clarithromycin. Antibiotics were seen to be prescribed with the severity of symptoms with a suspicion of bacterial infection [3,4]. Studies conducted in the recent past reveal the presence of low rates of serious acute bacterial infections in children with acute bronchiolitis hinting at the futility of antibiotic prescriptions [5,6]. Few studies show

that the antibiotic usage is around 40% in acute bronchiolitis group as compared to 67% in the present study which shows much higher value [7]. Some randomized control studies have also shown that there is no benefit of antibacterial therapy for the presence of crackles in children admitted as bronchiolitis [8,9]. Routine parenteral antibiotic use increases the cost of treatment as well as complications such as antibiotic-associated diarrhea, secondary fungal infection, and prolonged stay of the patients [10]. The present study findings reveal that a sizeable number of patients (33%) were managed well without antibiotics since the average period of recovery was almost the same in both the groups ($p > 0.05$). The percentage of prescriptions with antibiotic usage was high (67%). The inclusion of antibiotics was associated with few positive clinical, hematological, and radiological signs and symptoms. These findings well correlate with some studies carried out in the recent past [9,11].

CONCLUSION

The number of prescriptions with antibiotic inclusion is higher (67%) as compared to the other group (33%). Antibiotics are mostly prescribed to younger patients ($p < 0.05$). Antibiotic administration was associated with fever, tachypnea, crepitations, leukocytosis, and positive X-ray findings. The prescription pattern in the present study shows rational usage.

REFERENCES

- Østergaard MS, Nantanda R, Tumwine JK, Aabenhus R. Childhood asthma in low income countries: An invisible killer? *Prim Care Respir J* 2012;21:214-9.
- ESCMID Sore Throat Guideline Group, Pelucchi C, Grigoryan L, Galeone C, Esposito S, Huovinen P, *et al.* Guideline for the management of acute sore throat. *Clin Microbiol Infect* 2012;18 Suppl 1:1-28.
- Butler CC, Rollnick S, Pill R, Maggs-Rapport F, Stott N. Understanding the culture of prescribing: Qualitative study of general practitioners' and patients' perceptions of antibiotics for sore throats. *BMJ* 1998;317:637-42.
- Gjelstad S, Dalen I, Lindbaek M. GPs' antibiotic prescription patterns for respiratory tract infections-still room for improvement. *Scand J Prim Health Care* 2009;27:208-15.
- Kuppermann N, Bank DE, Walton EA, Senac MO Jr., McCaslin I. Risks for bacteremia and urinary tract infections in young febrile children with bronchiolitis. *Arch Pediatr Adolesc Med* 1997;151:1207-14.
- Harrison RF, Ouyang H. Fever and the rational use of antimicrobials in the

- emergency department. *Emerg Med Clin North Am* 2013;31:945-68.
7. Bronchiolitis Workup: Approach Considerations, WBC Count and Differential, Sepsis Workup. Available from: <http://www.emedicine.medscape.com/article/961963-workup#c8>. [Last cited on 2016 Dec 12].
 8. Friis B, Andersen P, Brenøe E, Hornsleth A, Jensen A, Knudsen FU, *et al.* Antibiotic treatment of pneumonia and bronchiolitis. A prospective randomised study. *Arch Dis Child* 1984;59:1038-45.
 9. Patra S, Singh V, Pemde HK, Chandra J. Antibiotic prescribing pattern in paediatric in patients with first time wheezing. *Ital J Pediatr* 2011;37:40.
 10. American Academy of Pediatrics Subcommittee on Diagnosis and Management of Bronchiolitis. Diagnosis and management of bronchiolitis. *Pediatrics* 2006;118:1774-93.
 11. Greenes DS, Harper MB. Low risk of bacteremia in febrile children with recognizable viral syndromes. *Pediatr Infect Dis J* 1999;18:258-61.

Funding: None; Conflict of Interest: None Stated.

How to cite this article: Panda J, Mishra J. Antibiotic usage pattern among under-five wheezers: A Bhubaneswar based study. *Indian J Child Health*. 2018; 5(1):54-56.

Doi: 10.32677/IJCH.2018.v05.i01.013