

Original Article

Approach of Drug Treatment on Drug Prescription Pattern for Bronchial Asthma at a Tertiary Level Hospital

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Abstract

Background: A wide variety of medicines are now accessible for asthma treatment and it is important to choose the most favorable treatment. **Objective:** The purpose of the present study was to evaluate the Drug prescribing pattern of bronchial asthma in a tertiary level hospital. **Methodology:** This cross-sectional type of observational study was carried out over one year in the Department of Pharmacology in collaboration with the Department of Respiratory Medicine and Medicine at Mymensingh Medical College and Hospital, Mymensingh. A total of 160 patients were selected non-randomly for the study. The prescription data from 160 patients with asthma patients were studied using a prescription auditing pro format. Data were recorded from the patients attending the Outpatient Department of Mymensingh Medical College and Hospital. Oral consent was taken from the patients before filling the consent form. **Results:** During the study, 160 patients were monitored according to their inclusion and exclusion criteria. Demographic analysis of data revealed that there were 73.75% women and 26.25% men in the study. The study showed that maximum patients with asthma belonged to 28-37 years' age group. Most commonly use single drug is Montelukast that is 6.25% and most commonly used combination therapy is Salmeterol plus Fluticasone, Salbutamol and Montelukast that are 28.13%. Drugs prescribed as monotherapy in this study was Montelukast (6.25%), Methylxanthine (3.13%), Antihistamine (1.88%) and Salbutamol (1.88%). Of these, Montelukast was the preferred drug as monotherapy. **Conclusion:** The approach to the treatment of bronchial asthma are vary depend on the severity of the disease.


Keywords: Combination therapy, Monotherapy, Prescription audit, Prescription pattern

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Introduction:

Bronchial asthma is the most common disease among respiratory tract infections that collaborate with or characteristics of bronchial tree inflammation and airflow limitation giving rise to difficulty in respiration and hypoxia.¹ In clinical practice various variants of asthma are found such as extrinsic or intrinsic asthma, allergic or asthmatic bronchitis, and wheezy bronchitis.² In the running

year the rate of asthma patients increased but in the preceding year, it was downcast.³ Allergens, cold exposure, spring, smoke, air pollution, and town areas are causative factors for bronchial asthma.⁴ In monotherapy or combination therapy, corticosteroids in inhaled form play the main role play in bronchial asthma.⁵ In the modern period, environmental factors are the main culprit rather than genetic factors.⁶ Regarding this disease every patient and

physician should have study and keep knowledge. So, the approach to the treatment of bronchial asthma either monotherapy or combination therapy, and the boundary of knowledge between patient and doctor is grown by drug prescribing samples for bronchial asthma⁷ Worldwide, asthma cases are increasing at a rate of 50 percent every decade, and according to the World Health Organization, by the year 2020, asthma will become the third leading cause of death. Drug utilization research facilitates the rational use of drugs in populations. The prescription of a well-documented drug at an optimal dose, along with appropriate information and at an affordable price altogether counts as the rational use of the drug. It is difficult to start a discussion on rational drug use or to suggest measures to improve prescribing practice without knowledge of how drugs are being prescribed and applied.⁸ Following international consensus on asthma management, it is reasonable to hope that community prescribing should align with recognized guidelines to optimize asthma treatment.⁹ The purpose of the present study was to evaluate the drug prescribing pattern of bronchial asthma in a tertiary level hospital.

Methodology

Study Settings and Population: This cross-sectional type of observational study was carried out over one year from July 2017 to June 2018 in the Department of Pharmacology in collaboration with the Department of Respiratory Medicine and Department of Medicine at Mymensingh Medical College and Hospital, Mymensingh, Bangladesh. During the study, 160 patients were monitored according to their inclusion and exclusion criteria. The inclusion criteria were patients of either sex, patients of all age groups, and patients with diagnosed bronchial asthma were willing to enrol in the study with informed consent. The exclusion criteria were patients who are suffering from other systemic disorders (Heart diseases, Cancer, Tuberculosis).

Study Procedure: Data was collected from outdoor prescriptions. Data was also collected from the patient by questionnaire. A total of 160 patients were selected non-randomly for the study. The prescription data from 160 patients with asthma patients were studied using a prescription auditing pro forma. Data were recorded from the patients attending the Outpatient Department of Mymensingh Medical College and Hospital. Verbal consent was taken from the patients before filling the pro forma. Data related to type of bronchial asthma, type of drugs used, monotherapy, combination therapy, route of administration, drug schedule and various drug delivery devices.

Data related to knowledge of use meter dose inhalers and nebulization.

Statistical Analysis: Findings were recorded and analysed. Collected data were checked and edited first and processed with the help of the software Statistical Package for Social Sciences (SPSS) version 21 and analysed. Statistical analyses were done by using appropriate statistical tools. Data were expressed in means with standard deviations for continuous variables and categorical variables were presented as frequency. Statistical significance was assessed at the 0.05 level for all analyses.

Ethical Clearance: Institutional Review Board (IRB) clearance, Memo no. MMC/IRB/2018/24, Dated 13/01/2018. This is to certify that the thesis protocol entitles “Drug Prescription Pattern for Bronchial Asthma in a Tertiary level Hospital” submitted by Dr. Manira Khanam Nishi as a student of M.Phil (Pharmacology) Part-1 Final has been reviewed and approved by the Institutional Review Board (IRB) of Mymensingh Medical College.

Results

Out of 160 patients, 139 patients were treated with combination therapy (86.88%) and 21 patients were treated with monotherapy (13.13%).

Table 1: Approach of Treatment

Approach of treatment	Frequency	Percent
Monotherapy	21	13.1
Combination therapy	139	86.9
Total	160	100.0

Here we can see the frequency of use of antiasthmatic drugs in single or combination therapy. The most commonly used single drug is Montelukast which is 6.25% and the most commonly used combination therapy is Salmeterol plus Fluticasone, Salbutamol, and Montelukast which is 28.13% (Table 2).

Discussion

The objective of the current study was evaluating the prescription pattern for bronchial asthma at a tertiary care hospital. Beside this, We also aimed to assess the pattern of using drugs in the treatment of asthma, use of drug as monotherapy or combination therapy, knowledge regarding metered dose inhaler and nebulization as well as route of administration, patient's knowledge regarding drug schedule and various drug delivery devices. There were no cases of severe acute asthma encountered in the study.

Table 2: Anti-asthmatic Drugs Prescribed in Bronchial Asthma in Single and Combination Therapy

Name of Drugs	Frequency	Percent
Montelukast	10	6.25
Methylxanthine	5	3.13
Antihistamine	3	1.88
Salbutamol	3	1.88
Beclomethasone, Montelukast	4	2.5
Salmeterol+Fluticasone, Montelukast	25	15.63
Salmeterol+Fluticasone, salbutamol	10	6.25
Salmeterol+Fluticasone, salbutamol, montelukast	45	28.13
Ipratropium bromide + Salbutamol, Methylxanthine, Montelukast	4	2.5
Salmeterol+Fluticasone, Salbutamol, Antihistamine, Montelukast	28	17.5
Salmeterol+Fluticasone, Salbutamol, antihistamine, Methylxanthine, Montelukast	18	11.25
Salmeterol+Fluticasone,Ipratropium bromide+salbutamol, antihistamine, montelukast	5	3.13
Total	160	100

Asthma is mostly diagnosed from history and clinical examination of the patient by the physician. The goal of this study was to drug prescription patterns for bronchial asthma in tertiary-level hospitals. In addition, we also explore the approach of treatment, which is monotherapy and combination therapy. This prescribing trend or pattern may be attributed to the goals of asthma therapy to minimize chronic symptoms, to prevent recurrent exacerbations, to reduce the need for hospitalization and to maintain near normal pulmonary function.

In this running study, the majority of patients were treated with combination therapy other than monotherapy. The most commonly used single drug is Montelukast which is 6.25% and the most commonly used combination therapy is Salmeterol plus Fluticasone, Salbutamol, and Montelukast which is 28.13% cases.

Out of 160 patients, 139 patients were treated with combination therapy (86.88%), and 21 patients were treated with monotherapy (13.13%). The outcome is similar to Karki et al⁸, which state that 92.6% of combination therapy on asthmatic patients and 7.4% patients were treated with monotherapy. On the other side by Shimpi et al¹⁰ reported that monotherapy (76%) was higher than combination therapy (24%). The approach of drug treatment in bronchial asthma combination therapy is mostly found other than single therapy. Combination therapy study reported by Rajathilagam et al¹¹ and Prasad et al³. Drugs prescribed as monotherapy in this study was Montelukast (6.25%), Methylxanthine (3.13%), Antihistamine (1.88%) and Salbutamol (1.88%). Of these, Montelukast was the preferred drug as monotherapy, which is contrast to the study conducted by Thamby et al¹².

The limitation of monotherapy is suboptimal efficacy, development of resistance, dose related side effects and limited scope of action. On the other hand, limitation of combination therapy is increased risk of adverse effects, drug interactions, complexity in dosing, cost, lack of evidence, resistance issues and monitoring and adjustment.

Conclusion

The approach to the treatment of Bronchial asthma are vary depend on the severity of the disease. In severe cases of bronchial asthma use combination therapy other than monotherapy.

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Conflict of Interest: There was no conflict of interest to any of the authors.

Reference

1. Rafeeq MM, Murad HA. Evaluation of drug utilization pattern for patients of bronchial asthma in a government hospital of Saudi Arabia. *Nigerian Journal of Clinical Practice*. 2015.;20(9):1098-105.
2. Maheshwari P, Ravichandiran V, Kumar KHB, Saisreelekha KV, Baig TS, Nausheenshe S. Prescribing Patterns of Antibiotics in Paediatrics for respiratory tract infection/Disorder in Tertiary care Hospital. *Asian J Pharm Clin Res*. 2015; 8(4):259-261.
3. Prasad A, Pradhan SP, Datta PP, Samajdar SS, Panda P. Drug prescription pattern for bronchial asthma in a tertiary-care hospital in Eastern India. *National Journal of Physiology, Pharmacy and Pharmacology*. 2015;5(3):263.

4. Aleemuddin NM, Bahmed F, Bashir MS, Ali A, Khatoon S, Hussain MM. A cross-sectional study on prescribing patterns on patients suffering from respiratory disorders in a teaching hospital of South India. *J Contemp Med Dent.* 2014;2:12-7.
5. Gupta CN, Chatterjee K. Prescription pattern of antibiotics in respiratory disorders in a tertiary care teaching hospital in Eastern part of India. *International Journal of Research in Medical Sciences.* 017;28;5(4):1430-3.
6. Trivedi N, Acharya HR, Barvaliya MJ, Tripathi CB. Prescribing pattern in patients of asthma visiting outpatient departments of a tertiary care hospital: a cross-sectional, observational study. *Int J Basic Clin Pharmacol.* 2017;6(3):587.
7. Jyothi DB. A prospective study of prescription pattern in COPD in Medicine Department at Brims Teaching Hospital, Bidar. 2017.30582627.
8. Karki S, Mohanty IR, Potdar PV, Deshmukh YA, Shah RC, Pokhrel BR. Assessment of prescribing patterns of drugs used in adult asthma patients at a Tertiary Care hospital. *Int. J. Curr. Res. Med. Sci.* 2017;3(6):169-75.
9. G. Jepson, T. Butler, D. Gregory and K. Jones, Prescribing patterns for asthma by general practitioners in six European countries, *RESPIR. MED.* (2000) 94, 578±583.
10. Shimpi RD, Salunkhe PS, Bavaskar SR, Laddha GP, Kalam A, Patel KH, Jain SS. Drug utilization evaluation and prescription monitoring in asthmatic patients. *International Journal of Pharma and Bio Sciences.* 2012;2(1):117-22.
11. Rajathilagam T, Sandozi T, Nageswari AD, Paramesh P, Rani Jamuna R. Drug utilization study in bronchial asthma in a tertiary care hospital. *Int J Pharm Appl.* 2012;3(2):297-305.
12. Thamby SA, Juling P, Xin BTW, Jing NC. Retrospective studies on drug utilization patterns of asthmatics in a Government hospital in Kedah, Malaysia. *Int Curr Pharm J.* 2012; 1(11): 353-360