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Original Article

Drug Prescription Patterns for Bronchial Asthma in a Tertiary Level Hospital in Bangladesh

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Abstract

Background: Asthma is a chronic inflammatory disorder of the airways. The prevalence of asthma increased steadily over the latter part of last century. ***Objectives:*** To evaluate drug prescription pattern for bronchial asthma in a Tertiary Level Hospital. ***Methodology:*** This was a cross-sectional, observational study conducted in the department of Pharmacology, Mymensingh Medical College, in collaboration with the departments of Respiratory Medicine and Medicine out-patient departments in Mymensingh Medical College and Hospital, Mymensingh. ***Results:*** A total of 160 patients were selected non-randomly for the study. Age distribution indicates that majority (76, 47.5%) of patients were in the 28-37 years age group, followed by 18-27 years (44, 27.5%). Out of the 160 patients, 139 (86.88%) were treated with combination therapy and 21 (13.12%) were treated with monotherapy. Most of the patients (140, 87.5 %) used Fixed Dose Combination (FDC) therapy and the mostly used combination (131, 93.57%) was Salmeterol and Fluticasone. Combination of Salbutamol and Ipratropium bromide was used in only 9 (6.43%) cases as FDC therapy. Routes of administration of the anti-asthmatic drugs were inhalation and oral- of which the major route was inhalation (245/468 doses, 52.35%) and the other was 223 (47.64%). ***Conclusion:*** Majority of patients were treated with combination therapy. Mostly used FDC therapy was combination of Salmeterol and Fluticasone.

Keywords: Bronchial Asthma, Drug Prescription papers, Fixed Dose combination Therapy.

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Introduction

Bronchial asthma associated with airflow restriction due to airway smooth muscle contraction often leading to difficulty in breathing and hypoxia and bronchial hyper-reactivity, being a chronic inflammatory condition of the respiratory tract.[1] The various triggers of asthma are infection, dust mites, molds and mildew, insects, pollens, pets, irritants, stress, smoke, food etc. Main characteristics of asthma is coughing, wheezing, shortness of breath, chest tightness.[2] Worldwide, asthma cases are increasing at a rate of 50 per cent every decade, and asthma would become the 3rd leading cause of death as per World Health Organization by the year 2020.[3]

To address the cases of asthma, different terms like allergic or asthmatic bronchitis, wheezy bronchitis, intrinsic and extrinsic asthma are used frequently by the physicians.[4] Factors affecting this disease include urbanization, air pollution, passive smoking, and also allergens.[5]

Over time and pulmonary function test diagnosis of the disease is usually made on the pattern of symptoms and/or response to therapy.[6] Following international consensus on asthma management, it is reasonable to hope that prescribing in the community should be in line with recognized guidelines to optimize asthma treatment.[7] Daily inhaled corticosteroid therapy as monotherapy or in combination with adjunctive therapy is the preferred treatment for all patients with persistent asthma.[8-10]

There are about 500,000 annual hospitalizations (individual aged 18 years or younger which is 34.6%) due to asthma and inhaled glucocorticoids are the most effective controller medications currently available.[11] Irrational use of medicines is currently a serious problem worldwide- WHO estimates that more than 50% of all medicines are used irrationally. Considering these facts, WHO is promoting rational use of

medicine and defines rational use of medicines as "that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at lowest cost to them and their community".[12]

To evaluate drug prescription pattern for bronchial asthma in a Tertiary Hospital in Bangladesh that can be utilized in the development of treatment regimen this study was conducted.

Methodology

This study carried out over one year (July 2017 to June 2018) in the department of Pharmacology with collaboration of the department of Respiratory Medicine and Medicine in Mymensingh Medical College and Hospital, Mymensingh. This was a cross-sectional type of observational study.

Data were collected from outdoor prescriptions from the patients by questionnaire. Data related to type of drugs used, monotherapy, combination therapy, route of administration, drug schedule, type of bronchial asthma and various drug delivery devices were collected. Data related to knowledge of using meter-dose-inhalers and nebulization were also collected.

Collected data were checked and edited first and processed with the help of software Statistical package for social sciences (SPSS) version 21 and analysed. In view with the objectives of the study, an analysis plan was developed. Statistical analyses were done using appropriate statistical tool. Data expressed in categorical variables were presented as frequency and mean with standard deviations for continuous variables. Statistical significance was assessed at the 0.05 level for all analyses.

Results

In this study, of the 160 recruited patients, most common age group suffering from Bronchial Asthma were among 28-37 years (76, 47.5%) and second most common age group was 18-27 years (44, 27.5%). (Table 1) Considering sex of the enrolled patients suffering from Bronchial Asthma, it was found that majority of them were females (118, 73.75%). (Table 2) As reported occupation of the participants, it was found that majority were home makers (110, 68.8%), followed by service holders (25, 15.6%) and business person (14, 8.8%). (Table 3)

Table 1: Age distribution of patients

Age groups in years	Number of patients	Percent	Mean+ SD
18-27	44	27.50	
28-37	76	47.50	
38-47	30	18.75	33.5+10.35
48-57	4	2.50	
58-67	2	1.25	
68-77	4	2.50	
Total	**160**	**100.00**	

Table 2: Sex distribution of patients

Sex	Number of patients	Percentage (%)
Male	42	26.25
Female	118	73.75
Total	**160**	**100.00**

Table 3: Reported occupation of the enrolled patients

Sl no	Occupation	Number of patients	Percent
1.	Home maker	110	68.75
2.	Service holder	25	15.63
3.	Business person	14	8.75
4.	Daily worker	8	5.00
5.	Others	3	1.87
	Total	**160**	**100.0**

Out of 160 patients, 140 (87.5%) were treated with fixed dose combination (FDC) therapy and remaining 20 (12.5%) by monotherapy. (Figure 1) Mostly used (131, 93.57%) FDC therapy was combination of Salmeterol and Fluticasone, whereas, combination of Ipratropium Bromide and Salbutamol was used in only in 9 (6.43%) of cases as FDC therapy. (Table 4)

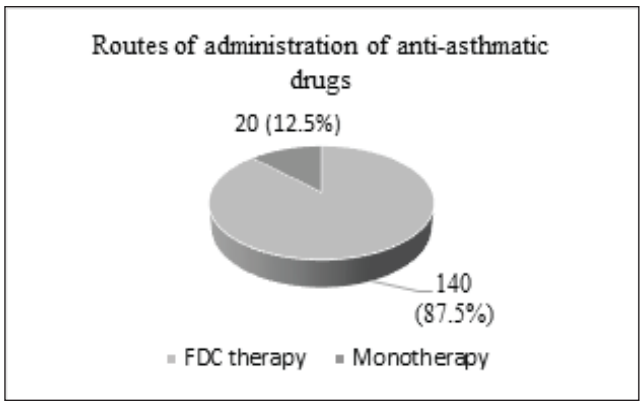

Figure 1: Routes of administration of anti-asthmatic drugs (n=160)

Table 4: Status of the patients with fixed dose combinations

Name of drugs in FDC*	Number of patients	Percent
Salmeterol + Fluticasone	**131**	93.57
Ipratropium bromide + Salbutamol	**9**	6.43
Total	**140**	**100.00**

*FDC- Fixed dose combination

Two different routes of administration of the anti-asthmatic drugs were recorded- oral and inhalation, which included a total of 468 doses of medications. Of them, majority 245 (52.35%) of the total anti-asthmatic drugs-doses prescribed were with inhalation dosage forms and remaining 223 (47.65%) by oral route. (Table 5)

Table 5: Routes of administration of anti-asthmatic drugs

Sl no	Routes of administration	Frequency of doses	Percentage (%)
1.	Inhalation	245	52.35
2.	Oral	223	47.64
	Total	**468**	**100.0**

Discussion

In this study, majority (47.5%) patients were in 28-37 years age group, which is almost similar with the study by Prasad et al,[13] who reported mostly affected group of patients by bronchial asthma were 30-40 years. However, the present study is different with that one by Karki et al[3], where young patients were affected more in the age group of 16-30 years. Considering occupation, majority (68.75%) of the patients were homemakers in this study.

The result of the present study is also supported by Karki et al[3] reported that 92.6 % asthmatic patients were on combination drug therapy and only 7.4 % patients were on single drug therapy. Further, in the study by Shimpi et al,[14] investigators found that the percentage of single drug therapy was higher than our study, where it was 24% and the rest (76%) were treated with multiple drug therapy.

The mostly used Fixed Dose Combination (FDC) was Salmeterol +Fluticasone (93.57%), which is different from the study conducted by Rajathilagam et al, where most commonly used FDC was Montelukast + Levocetirizine (36.8%).[11] The result is similar to the study done by Prasad et al in (2015 in eastern India).[13]

Regarding route of administration of the drugs in this study, almost all (93.57%) were by inhalation route. The inhalation route is the most favourite, because it delivers more drugs locally in the respiratory tract with fewer side effects. Whereas, other studies reported somewhat different findings.[1,3,13] Rafeeq and Murad1 found 34.8% drugs prescribed by oral route and 61.3% drugs via inhalational route. Study conducted by Karki et al[3] shows contrasting results, which reported that 66% anti-asthmatic drugs were taken orally, and remaining 34% by inhalation route. The study conducted by Prasad et al[13] also reported that 60% drugs were prescribed via inhalation route and 38% by oral route.

Limitation of the study include primarily the study period-although this study was for a calendar year from July to June, Bronchial asthma patients are usually widely available during the winters of December to February each year in Bangladesh. Moreover, we could not include child patients-because they were not available in the study sites of outpatients' department of Respiratory Medicine.

Conclusion

Majority of patients were treated with fixed dose combination (FDC) therapy and the mostly used FDC was combination of long-acting ß-2 agonist (Salmeterol and steroid (Fluticasone). Therefore, the current practice of using FDC in the treatment of Bronchial asthma is rationally practiced following recommended regimen.

Conflict of interest: None declared

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