Original Article

Drug prescription study of bronchial asthma patients in a tertiary-care hospital in Bangladesh

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ABSTRACT:

Background: *Ideally bronchial asthma is treated according to standard asthma guidelines, but it is the knowledge, Attitude and Practice is responsible for appropriate application of standard asthma guidelines. The purpose of present study is to evaluate the drug prescription pattern of anti-asthma medications as outdoor follow up in a tertiary-care hospital. Many medications are now available for the treatment of asthma and selection of proper treatment is essential.* ***Materials and Methods:*** *The prescription data from 125 bronchial asthma patients were studied using a prescription auditing proforma. Data was recorded from the patients attending the outpatient department of Sher-E-Bangla Medical College Hospital, Barishal from January to June 2019, through convenient sampling. Verbal consent was taken from all patients before included in the proforma. Iniatialy 125 patients were included but only 100 prescriptions were monitored for data analysis as per the inclusion and exclusion criteria.* ***Results:*** *The results of the study revealed maximum patients were in the age of 31 – 40 years; 67% male and 33% female. Majority of the patients received multiple drug therapy as compared with individual drug therapy. Combination of salmeterol and fluticasone through inhalational route were prescribed in majority of patients. 63% patients received drugs through inhalational route.* ***Conclusion:*** *It is concluded that the present prescribing trends of anti-asthma medications in SBMCH does not completely meet standard guidelines of asthma treatment. There is need to encourage physicians of SBMCH to treat asthma patients according to national guidelines.*

Key words*: Bronchial asthma; prescription monitoring; anti-asthma medications.*

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INTRODUCTION:

Asthma is an important chronic disorder of the airways with significant morbidity and mortality. Around 300 million people in the world currently have asthma. It is estimated that there may be an additional 100 million people with asthma by 2025. According to First National . Asthma Prevalence Study (NAPS) 1999, in Bangladesh about 7 million people (5.2% of the population) are suffering from current asthma (at least three episodes of asthma attack in last 12 months). More than 90% of them do not take modern treatment (1).

Despite major advance in understanding the etiology and pathophysiology of asthma and the development of new therapeutic modalities, the prevalance, severity and mortality from asthma have all increased over the past decades in all age group (2).

Bronchial asthma is a chronic inflammatory disease of the respiratory tract characterized by the presence of intermittent symptoms including cough, dyspnoea, chest tightness and wheeze together with bronchial hyper responsiveness. Several factors such as aeroallergens, drugs, chemicals, exercise, cold, dry air, infections, emotions etc can aggravate the symptoms and precipitate attack (2, 3). The pathogenesis of chronic inflammation in asthma is not yet clear. The pathogenesis of asthma involves mast cell activation, eosinophil and T helper 2 [Th2] lymphocytes infiltration, IgE formation by B lymphocytes and release of other inflammatory mediators, chemokines and growth factors by airway epithelium (4). More than 100 inflammatory mediators mediate the inflammatory process in asthma. Complex cytokine networks, including chemokines and growth factors, play important roles in orchestrating the inflammatory process (5).

The aim of treatment is to achive and maintain clinical control. By reducing the aiway inflammation, relieving bronchoconstriction and causing must cell stabilization asthma can be effectively controlled. Long-term treatment is generally required for an effective management, which has an effect on the cost of therapy and patient's compliance (6). Ideally bronchial asthma is treated according to standard asthma guidelines, but it is the knowledge, Attitude and Practice is responsible for appropriate application of standard asthma guidelines.

Drug utilization audits ensure qualitatively that the drugs are used properly and safely or in combination of both. Quatitative audits qualifies the diverse facts of drug therapy use in a health-care system, whereas qualitative audits involve comparing drug use or practice with predetermined standards of criteria (7). The present study aimed to assess drug utilization in asthma therapy as a quantitative type of prescription auditing to collect data regarding their extent variability of drug usage in a health-care system of a partiular criteria.

MATERIALS AND METHODS:

The study was conducted at Sher-E-Bangla Medical College Hospital, Barishal after

obtaining consent to collect data from patients attending the physician in outpatient department through convenient sampling method. From January to June 2019, one hundrad patients were monitored using a questionnaire, based on WHO prescription monitoring proforma. After giving consent individual patients were interviewed using the prepared questionnaire and information was filled in the proforma. Also age and sex of the patients were recorded.The percentage of all observed data was calculated.

Only outpatients suffering from broachial asthma alone were enrolled in the study. Asthma patients suffering from other disease like diabetes mellitus, hypertension, heart disease, migraine, peptic ulcer disease were excluded from the study. Also patient who suffered from acute bronchitis, chronic bronchitis, chronic obstructive pulmonary disease and pneumonia were excluded.

RESULTS:

During the study 125 patients were included, but only 100 prescriptions were monitored for data analysis as per inclusion and exclusion criteria.The study was conducted between January to June, 2019 at Sher-E-Bangla Medical College Hospital, Barishal. The study revealed that maximum asthma patients were in the age of 31- 40 yrs (Table 1). Demographic analysis of data showed that 67% male and 33% female were in the study (Table 2). As per socioeconomic status, patients were divided into three groups , such as Group A: People in administration, Group B: Employees, clinical staff and Group C: Day labour, farmer, driver, gardeners etc). Groop C worker showed a greater incidence of asthma (Figure 1). Drugs prescribed in bronchial asthma patients were showed in table 3. In present study analysis of prescriptions revealed that multiple drug therapy were prescribed for maximum patients (84%) as compared to single drug therapy (16%) (Figure 2). 41% patients received combination of salmeterol and fluticasone through inhalational route (Figure 3). In 63% of patients drugs were given by inhalational route and in 37% of patients by oral route (Figure 4).

Table 1: Age-wise distribution of Asthma Patients

Age in yrs	No. of pts (n = 100)	Percentage
1 - 10	4	4
11 – 20	13	13
21 – 30	12	12
31 - 40	32	32
41 – 50	11	11
51 – 60	18	18
< 61	10	10
Total	**100**	**100**

The study showed that maximum asthma patients were in the age of **31 – 40 yrs.**

Table 2: Gender-wise distribution of Asthma Patients

Gender	No. of pts	Percentage
Male	67	67
Female	33	33
Total	**100**	**100**

Demographic analysis of data revealed that there were **67%** male and **33%** female in the study.

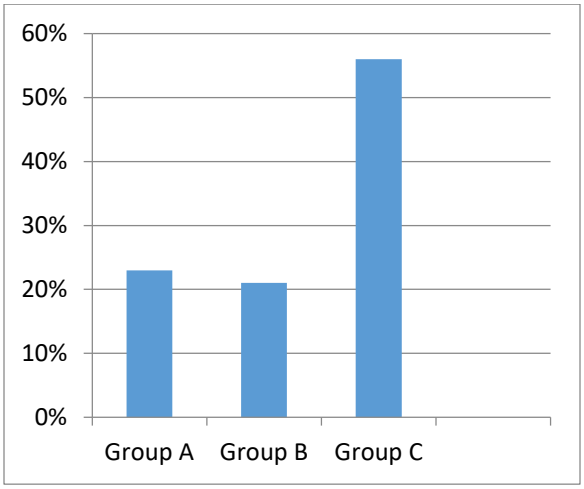

Figure 1: Group-wise distribution of Asthma Patients

Group C worker showed a higher incidence of asthma.

Table 3: Drugs prescriberd in bronchial asthma patients

Name of drugs	**No of patients**
Salbutamol	16(oral)
Levosalbutamol	21 (oral)
Theoohylline	22 (oral)
Doxophylline	21 (oral)
Beclomehasone	12 (inhalation)
Budesonide	10 (inhalation)
Prednisolone	12 (oral)
Montelukast	36 (oral)
Salmeterol + Fluticasone	41 (inhalation)
Salbutamol + Ipratropium Bromide	22 (inhalation)

Majority of the patients received combination of **salmeterol** and **fluticasone** inhalar.

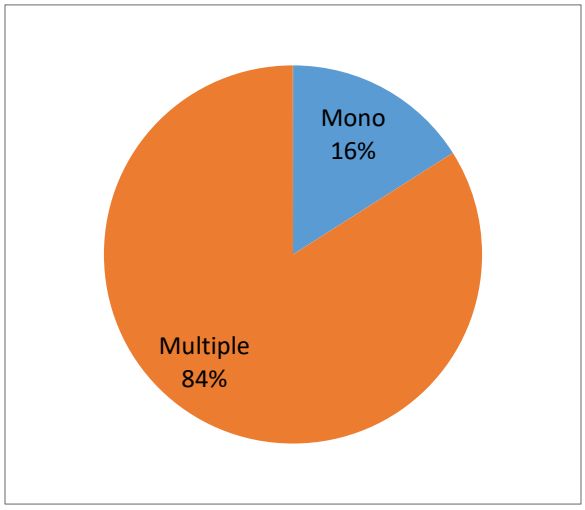

Figure 2: Majority of patients received multiple drug therapy.

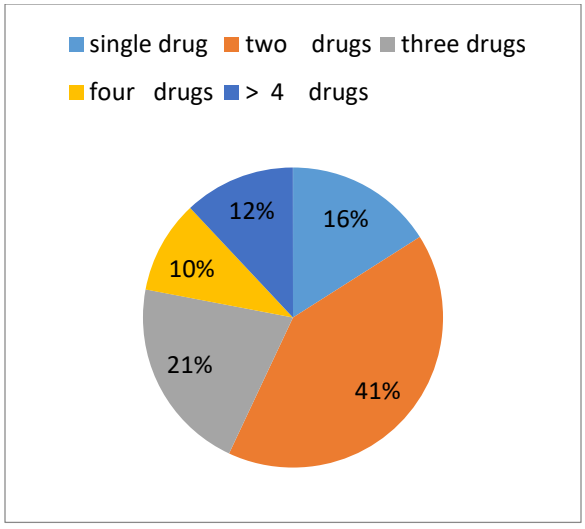

Figure 3: Drug therapy regimen (single/multiple regimen**)**

Majority of the patients received combination of **two drugs**.

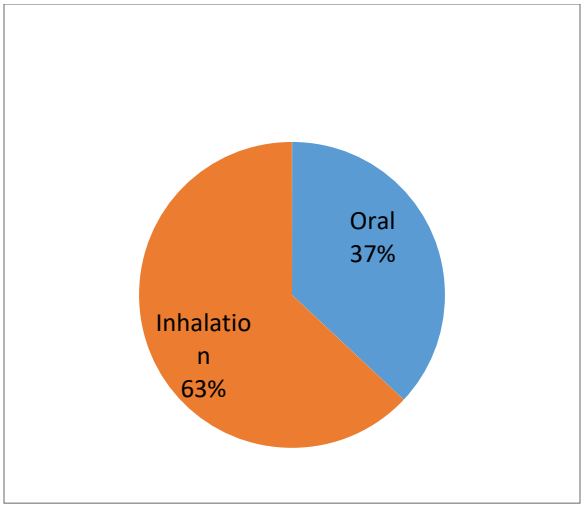

Figure 4: Distribution of drugs according to route of adminisrtation

Maximum patients received drugs through **inhalational route**.

DISCUSSION:

The prescription-based study is considered one of the scientific methods to assess and evaluate the rationality of the prescription. Recommendations of various international bodies on asthma to improve the prescribing practice of physicians and ultimately clinical standards are now available (8).

In our study we found that maximum asthma patients belonged to 31 – 40 yrs. Demogrphic chraracteristics revealed that males (67%) were suffering more than female (33%). The study also found Group C (day labour, farmer, driver, gardener etc.) workers showed a higher incidence of asthma. They worked in dusty environment which may be a factor for higher incidence. The study revealed that the combination of salmeterol and fluticasone were given in majority of the patients (41%). This finding was not in agreement with those reported by Shimpi et. al (9). In present study analysis of prescriptions revealed that multiple drug therapy were prescribed for maximum patients (84%) as compared to single drug therapy (16%). A. Awanish Pandey also showed similar trend (10). The present study revealed that the inhalational route of drug administration was used in 63% patients. Advantage of inhalational route of administration is that drugs reaches locally in the respiratory tract with quick onset of action and less systemic side effects. Less dose of drugs is required to produce the desired effects. This is in accordance to treatment guidelines: inhalational therapy for asthma should be the first choice of treatment (11-13). Antibiotics, antihistaminics, antitussive and expectorants were less presceibed compared with anti-asthma medications. This indicates awarness among physicians towards the standard treatment guidelines of Global Initiative for Asthma (GINA).

CONCLUSION:

This study suggest that the present prescribing practice in bronchial asthma therapy in Sher-E-Bangla Medical College Hospital, Barishal is not sufficiently rational. Based on these base line data and lacunae , in the present prescribing practice, an intervention was suggested to improve the current prescribing trends. The present study substantiates the need for the management of asthma patients in accordance with guidelines. This will help

ensure rational use of drugs and better patient outcome.

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