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Original Research Article

A Prospective Hospital Based Study to Assess the Treatment Pattern with Global Initiative for Asthma (GINA) Guidelines in Patients of Bronchial Asthma

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Abstract

Aim: The aim of the present study was to assess the treatment pattern with Global Initiative for Asthma (GINA) guidelines in patients of bronchial asthma.

Methods: The study was a prospective observational study for a period of one year in the outpatient and inpatient Department of Medicine and Paediatrics, Department of Pharmacology, DMCH, Laheriasarai, Darbhanga, Bihar, India. Permission was acquired from the head of department of medicine and paediatrics for the study.

Results: The average age of the Patients was 38.52±23.77 Yrs. (Range- 6-83), majority of the patients were Male -53.34% and Females were 46.67%. β2 agonists were the most common antiasthmatic drugs prescribed in all the patients followed by corticosteroids and methylxanthines respectively. The next common drug class prescribed was antimicrobial agents. Oxygen was prescribed in 9 patients. Other drugs prescribed were antacids and antireflux agents, antihistaminics, vitamins and minerals, antidiabetics, antihypertensives and antipyretics and analgesics. β2 agonists were the most common antiasthmatic drugs prescribed in 48 patients followed by corticosteroids and anticholinergics respectively. Magnesium sulphate was prescribed to inpatients only. The next common drug class prescribed was antimicrobial agents. Oxygen was prescribed in 11 patients. Other drugs prescribed were expectorants, antipyretics and analgesics, antacids and antireflux agents and antihistaminics.

Conclusion: It was concluded from our study that Overall pattern of drug use showed that β2 agonists and corticosteroids were most common class of antiasthmatic drugs prescribed. A detailed drug utilization of antiasthmatic drugs indicated that the use of oral and nebulised salbutamol, injection hydrocortisone, nebulised budesonide and injection as well as oral theophylline was high in both IPD and OPD medicine patients. The use of oral and nebulised salbutamol, systemic steroids and nebulised budesonide was high only in paediatric IPD patients as compared to paediatric OPD patients. The use of theophylline was only in medicine patients while magnesium sulphate was prescribed to only paediatric patients.

Keywords: Global Initiative for Asthma (GINA) , Bronchial asthma(BA), Drug use pattern of Bronchial asthma

Introduction

Asthma affects more than a quarter of a billion people worldwide, is the most common chronic condition in childhood, and is responsible for over 1000 deaths a day, of which the majority are preventable. [1-4] The Global Initiative for Asthma (GINA) was established by the World Health Organization and the US National Heart Lung and Blood institute in 1993 to improve asthma awareness, prevention, and management worldwide. GINA is independent of industry, funded by the sale and licensing of its evidence-based, annually updated reports and figures.

The GINA report is a global evidence-based strategy that can be adapted for local health systems and local medicine availability. Many countries have their own national asthma guidelines, with many of these based on GINA. [5] However, most national guidelines are updated only infrequently, so they may not reflect current best evidence. In recent years, some countries have conducted partial updates of their asthma guidelines, by undertaking a detailed review of evidence for a limited number of clinical questions, but this process often takes several years. By contrast, the GINA strategy is

updated every year based on a twice-yearly cumulative review of new evidence.

Hence, even when national asthma guidelines are available, the GINA report may provide a useful resource for clinicians (both primary care and specialists) to be aware of the most recent evidence, and to understand how it can be integrated into holistic asthma care. However, when assessing and treating patients, health professionals are strongly advised to use their own professional judgment, and to take into account local and national regulations and guidelines, and the needs of the individual patient. While the GINA strategy report is intended to have global relevance, there are particular considerations for asthma management in low- and middle-income countries. [6,7] Of particular concern is the widespread lack of access to affordable diagnostic tools and inhaled medications, which contributes substantially to the heavy burden of asthma mortality and morbidity seen in these countries.

At the most fundamental level, patients in many areas do not have access even to low-dose inhaled corticosteroids (ICS), which are the cornerstone of care for asthma patients of all severity. GINA collaborates with and strongly supports the call by the International Union against Tuberculosis and Lung Diseases for a World Health Assembly Resolution on universal access to affordable and effective asthma care, as a step towards addressing these needs. [8]

INA is also a partner organization in a program launched in March 2006 by the World Health Organization (WHO) and the Global Alliance against Chronic Respiratory Diseases (GARD). Through the work of GINA, and in co-operation with GARD and with the International Union Against Tuberculosis and Lung Diseases, substantial progress toward better care for all patients with asthma globally should be achieved in the next decade. To achieve this, GINA believes that the safest and most effective approach to asthma treatment in adolescents and adults, which also avoids the consequences of starting treatment with short-acting beta2 agonists (SABA) alone, depends on access to ICS–formoterol across all asthma severity levels. With budesonide-formoterol now on the WHO essential medicines list [9], the fundamental changes to treatment of mild asthma first included in the ground-breaking 2019 GINA report [10] may provide a feasible solution to reduce the risk of severe exacerbations with very low dose treatment.

The aim of the present study was to assess the treatment pattern with Global Initiative for Asthma (GINA) guidelines in patients of bronchial asthma.

Materials and Methods

The study was a prospective observational study for a period of one year in the outpatient and inpatient Department of Medicine and Paediatrics, Department of Pharmacology, DMCH, Laheriasarai, Darbhanga, Bihar, India. Permission was acquired from the head of department of medicine and paediatrics for the study. Confidentiality regarding patients information was maintained. A written informed consent was obtained from patients willing to take part in the study. A written informed consent of patients of either sex above age 5 years was obtained from parents/guardians and assent was obtained from children above age 7 years. Previously diagnosed patients of bronchial asthma of varied duration who visit the hospital outpatient department of medicine and paediatrics or are admitted in the inpatient department of medicine and paediatrics. Newly diagnosed patients of bronchial asthma by physicians either clinically, radiologically or by laboratory investigations were included into the study while Patients with coexistent respiratory disorders like bronchitis or emphysema (COPD), fibrosis and any other known lung disease. Patients who were not willing to give written informed consent were excluded from the study. Details of Age and Sex was asked Overall pattern of drug use in medicine patients, paediatric patients. The data was entered in excel sheet and analyzed by for excel software for windows 10.

Results

Table 1: Distribution of the patients as per the Age and Sex

Characteristics	Mean±SD
Age in years	38.52±23.77
Gender	
Male	80 (53.34)
Female	70 (46.67)

The average age of the Patients was 38.52±23.77 Yrs. (Range- 6-83), majority of the patients were Male -53.34% and Females were 46.67%.

Table 2: Overall pattern of drug use in medicine patients

Drug class	Number of Inpatients (%) (n=50)	Number of Outpatients (%) (n=100)	Total (%) (n=150)
Antiasthmatic drugs Beta-2(β2) agonists	50	100	150
Corticosteroids	48	88	136
Methylxanthines	47	76	123
Anticholinergics	17	22	39
Leukotriene inhibitors	1	2	3
Antimicrobial agents	38	56	94
Antacids and antireflux agents	29	6	35
Antihistaminics	10	19	29
Vitamins and minerals	11	10	21
Antidiabetics	4	10	14
Antihypertensives	5	8	13
Oxygen	9	0	9
Antipyretics and			
Analgesics	1	5	6
Drugs used for ischemic heart disease	2	0	2
Antiemetics	1	0	1
Antiparkinsonian drugs	1	0	1
Others	3	0	3

β2 agonists were the most common antiasthmatic drugs prescribed in all the patients followed by corticosteroids and methylxanthines respectively. The next common drug class prescribed was antimicrobial agents. Oxygen was prescribed in 9 patients. Other drugs prescribed were antacids and antireflux agents, antihistaminics, vitamins and minerals, antidiabetics, antihypertensives and antipyretics and analgesics.

Table 3: Overall pattern of drug use in paediatric patients

Drug class	Number of Inpatients (%) (n=35)	Number of Outpatients (%) (n=15)	Total (%) (n=50)
Antiasthmatic drugs Beta-2(β2) agonists	35	13	48
Corticosteroids	35	11	46
Methylxanthines	23	8	31
Anticholinergics	18	0	18
Leukotriene inhibitors	2	0	2
Antimicrobial agents	18	10	28
Expectorants	11	6	17
Antipyretics and analgesics	8	5	13
Antacids and antireflux agents	14	0	14
Oxygen	11	0	11
Antihistaminics	6	3	9
Others	20	0	20

β2 agonists were the most common antiasthmatic drugs prescribed in 48 patients followed by corticosteroids and anticholinergics respectively. Magnesium sulphate was prescribed to inpatients only. The next common drug class prescribed was antimicrobial agents. Oxygen was prescribed in 11 patients. Other drugs prescribed were expectorants, antipyretics and analgesics, antacids and antireflux agents and antihistaminics.

Discussion

Drugs play an important role in improving human health and promoting well-being. However, to produce the desired effect, they have to be safe, efficacious and have to be used rationally. Drug use is a complex subject involving the prescriber, the patient and pharmaceutical institutions. It is influenced by factors such as drug availability, prescribers' experience, health budget, promotional activities of the pharmaceutical industry, cultural factors, communication system and the complex interaction between these factors. [11] Drug utilization has been defined by the World Health Organization (WHO) in 1977 as “the marketing, distribution, prescription, and use of drugs in

society, with special emphasis on the resulting medical, social, and economic consequences". [12]

Asthma is known to be one of the major causes of morbidity and mortality in India, comprising 3-11% of adults and 3-5% of paediatric population [13] and its prevalence varies from place to place. [14] Global Initiative for Asthma (GINA) guidelines are the international guidelines available for the management of asthma. As per GINA guidelines, mainly two categories of drugs are used namely controllers (inhaled and systemic glucocorticoids and inhaled long acting beta agonists in combination used with inhaled corticosteroid, leukotriene modifiers, sustained-release theophylline, cromones, anti- IgE) and relievers (inhaled and oral beta-2 agonists, short acting anticholinergics, short acting theophylline). The average age of the Patients was 38.52±23.77 Yrs. (Range- 6-83), majority of the patients were Male -53.34% and Females were 46.67%. β2 agonists were the most common antiasthmatic drugs prescribed in all the patients followed by corticosteroids and methylxanthines respectively. The next common drug class prescribed was antimicrobial agents. Oxygen was prescribed in 9 patients. Other drugs prescribed were antacids and antireflux agents, antihistaminics, vitamins and minerals, antidiabetics, antihypertensives and antipyretics and analgesics. β2 agonists were the most common antiasthmatic drugs prescribed in 48 patients followed by corticosteroids and anticholinergics respectively. The goal of treatment as per GINA guidelines is to achieve good symptom control and to minimize future risk of exacerbations, fixed airflow limitation and side effects of treatment. It also identifies that fixed international guidelines may not work in many locations and hence it recommends that these guidelines be adapted according to local needs and availability of resources. [15] For effective implementation of any guideline it is important first to assess the current status of asthma care in the target region and this can be achieved by doing drug utilization study. This will help not only to understand the current prescribing trends but also to assess other factors like availability of preventive, diagnostic and curative resources and also affordability, compliance and knowledge of patients. [16]

Magnesium sulphate was prescribed to inpatients only. The next common drug class prescribed was antimicrobial agents. Oxygen was prescribed in 11 patients. Other drugs prescribed were expectorants, antipyretics and analgesics, antacids and antireflux agents and antihistaminics. In a study done by Sayedda et al [17], prescription of anticholinergics (32.4%) and magnesium sulphate (1.6%) was seen to be less as compared to the present study. This discrepancy could be because another bronchodilator aminophylline was also prescribed in their study. Aminophylline was not prescribed in paediatric patients of the present study. Similar to the results seen in medicine patients (Table 3), the use of leukotriene. [18]

Conclusion

It was concluded from our study that Overall pattern of drug use showed that β2 agonists and corticosteroids were most common class of antiasthmatic drugs prescribed. A detailed drug utilization of antiasthmatic drugs indicated that the use of oral and nebulised salbutamol, injection hydrocortisone, nebulised budesonide and injection as well as oral theophylline was high in both IPD and OPD medicine patients. The use of oral and nebulised salbutamol, systemic steroids and nebulised budesonide was high only in paediatric IPD patients as compared to paediatric OPD patients. The use of theophylline was only in medicine patients while magnesium sulphate was prescribed to only paediatric patients.

References

1. Levy ML. The national review of asthma deaths: what did we learn and what needs to change?. Breathe. 2015 Mar 1;11(1):14-24.
2. Royal College of Physicians. Why Asthma Still Kills. The National Review of Asthma Deaths (NRAD) Confidential Enquiry Report (RCP, 2014).
3. Anagnostou K, Harrison B, Iles R, Nasser S. Risk factors for childhood asthma deaths from the UK Eastern Region Confidential Enquiry 2001–2006. Primary Care Respiratory Journal. 2012 Mar;21(1):71-7.
4. British Thoracic Association. Death from asthma in two regions of England. Br Med J (Clin Res Ed). 1982 Oct 30;285(6350):1251-5.
5. Network GA. The Global Asthma Report 2018. Auckland, New Zealand: Global Asthma Network, 2018.
6. Mortimer K, Reddel HK, Pitrez PM, Bateman ED. Asthma management in low and middle income countries: case for change. European Respiratory Journal. 2022 Sep 1;60(3).
7. Meghji J, Mortimer K, Agusti A, Allwood BW, Asher I, Bateman ED, Bissell K, Bolton CE, Bush A, Celli B, Chiang CY. Improving lung health in low-income and middle-income countries: from challenges to solutions. The Lancet. 2021 Mar 6;397(10277):928-40.
8. Stolbrink M, Chinouya MJ, Jayasooriya S, Nightingale R, Evans-Hill L, Allan K, Allen H, Balen J, Beacon T, Bissell K, Chakaya J. Improving access to affordable quality-assured inhaled medicines in low-and middle-income countries. The International Journal of Tuberc ulosis and Lung Disease. 2022 Nov 1;26 (11): 1023-32.

9. World Health Organization. Model List of Essential Medicines. 22nd list (2021) (WHO, 2021).
10. Reddel HK, FitzGerald JM, Bateman ED, Bacharier LB, Becker A, Brusselle G, Buhl R, Cruz AA, Fleming L, Inoue H, Wai-san Ko F. GINA 2019: a fundamental change in asthma management: treatment of asthma with short-acting bronchodilators alone is no longer recommended for adults and adolescents. European Respiratory Journal. 2019 Jun 1;53 (6).
11. Adebayo ET, Hussain NA. Pattern of prescription drug use in Nigerian army hospitals. Annals of African medicine. 2010; 9(3).
12. Introduction to Drug Utilization Research [Internet].
13. Patel Pinal D, Patel RK, Patel NJ. Analysis of prescription pattern and drug utilization in asthma therapy. Int Res J Pharm. 2012;3 (7):257-60.
14. Aggarwal AN, Chaudhry K, Chhabra SK, D Souza GA, Gupta D, Jindal SK, Katiyar SK, Kumar R, Shah B, Vijayan VK. Prevalence and risk factors for bronchial asthma in Indian adults: a multicentre study. Indian Journal of Chest Diseases and Allied Sciences. 2006 Jan 18;48(1):13.
15. Global Initiative for Asthma (GINA) [Internet]. Global Strategy for Asthma Management and Prevention; Revised 2014.
16. Shivhare SC, Kunjwani HK, Manikrao AM, Bondre AV. Drugs hazards and rational use of drugs: a review. J Chem Pharm Res. 2010 Nov; 2(1):106-2.
17. Garje YA, Suman RK, Kumar R, Deshmukh YA, Patra V. Prescribing patterns and pharmacoeconomic analysis of drugs used in pediatric asthma patients at tertiary care hospital. World J Pharm Pharm Sci. 2014 Apr 17;3:1448-65.
18. Brown PJ, Greville HW, Finucane KE. Asthma and irreversible airflow obstruction. Thorax. 1984 Feb 1;39(2):131-6.