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Research Article

PRESCRIBING PATTERN AND USE OF STEROIDS IN ASTHMA PATIENTS

Thomas Zacharia *, Sruthi.S, Tony M Kuriakose, V. Viji Queen, Simin Sabu Jacob
Department of pharmacy practice, SRIPMS Coimbatore, Tamil Nadu, India
*Corresponding Author Email: siminsabu@yahoo.com

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ABSTRACT

Asthma affects people of all ages, India has an expected 15-20 million asthmatics according to world health organisation. Steroids are widely prescribed in asthmatic patients, forming a part of standard and most treatment for asthma. Henceforth, care should be exercised in the selection of steroid drugs and its dosage regimen. This study was carried out to assess the prescribing pattern and appropriateness of steroids in asthma. A prospective observational study was conducted at tertiary care teaching hospital located at Coimbatore, India. The data were analysed for the pattern of prescribed steroids. Out of 55, 56.36% (31) were male and 43.64% were female. The prescribing pattern defines the form of steroids used in patients. Maximum of steroids was prescribed in the form of nebulizers (41.4%3), and second most prescribed is systemic steroids (32.86%) and then 17.14% of them were given oral steroids, and the least prescribed with metered dose inhalers (8.57%). And the study assessed age wise prescription pattern. The drug interactions with the steroids were assessed, 10.91% of patients had major interaction with steroidal drugs, 36.36% of patients had moderate interaction with steroidal drugs and 52.73% of patients did not show any interaction with steroidal drugs. The above results reveals that a pharmaceutical care program for asthma patients were found to be effective and certainly improved the outcomes of the therapy.

Keywords: Pharmaceutical care, DUE, Prescribing pattern analysis, Asthma.

INTRODUCTION

Asthma has been known since antiquity, yet it is a disease that still defies precise definition. According to world health organization (WHO) estimates, 235 million people suffer from asthma and in 2013. World-wide, deaths from this condition have reached over 180,000 annually. Asthma is not just a public health problem for high income countries, it occurs in all countries regardless of level of development. Over 80% of asthma deaths occur in low and lower-middle income countries. Asthma deaths will increase by almost 20% in next 10 years if urgent action is not taken. Asthma is under diagnosed and under treated, creating a substantial burden to individuals and families and possibly restricting individual's activities for a life time [1,2,3] The primary goal is prevention of life-threatening asthma by early detection and early intervention. Steroids are very effective and are the treatment of choice for severe asthma symptoms. unfortunately, prolonged use of steroid tablet is associated with significant side effects such as weight gain, diabetes and thinning of bones (osteoporosis) for this reason oral steroids are given as short cause treatment [4]. This study acme the lacunas in the prescribing patterns for steroids (only Glucocorticoids & Mineralocorticoids); the pharmacist's role in successful quality outcomes on patient's life. Pharmacists could assist physicians and asthma patients by providing with appropriate information, optimising the dosage regimes and train on asthma drug, educating correct inhalation procedure, interrogating the patient's understanding of their medications, elucidating the necessary of inhaled corticosteroids, addressing the patient's apprehensions about possible side-effects and facilitating adherence to controller medication [5]. Drug utilization audits are done to ensure the appropriateness and safety of prescription containing steroids [6,7]. There is an ample possibility for the existence of drug interactions and ADRs arising throughout the management of asthma in the usage of steroids and furthermore in a polypharmacy linked prescription. Some of these may be potentially beneficial, but the majority are possibly detrimental. Interactions may even occur between more than two drugs simultaneously [8,9,10]. We pursued to determine the frequency of diverse patterns of asthma controller medication in the tangible clinical practice [11]. We hypothesized that the pharmacist's interventions on the medication use would consistently improve the patient-reported asthma control over time [12].

MATERIAL AND METHODS

The study entitled "Prescribing pattern and use of steroids in asthma" was carried out in a 700 bedded multi-specialty tertiary care teaching hospital located at Coimbatore. The hospital is unique and is well known for its services to people who come from various parts of the country. A prospective observational study was conducted among 55 patients for a duration of 6 months between March and August 2014. The study was carried out after obtaining consent from hospital authorities and patients.

Inclusion criteria

1. All patients above the age of 12 years
2. Patients prescribed with at least one steroid (Glucocorticoids and/or Mineralocorticoids)
3. Patient who signed the consent to participate in the study.

Exclusion criteria

1. Patient's prescriptions containing steroids other than Glucocorticoids and Mineralocorticoids like androgens, oestrogens & progestin steroids [13].
2. Patients below the age of 12 years and terminally ill patients.
3. Patient who are reluctant to participate.

Data were collected during a regular ward round participation in the department of Pulmonology. Patients who had satisfied the inclusion criteria were included. A structured data collection form was used to obtain information on demographics of patient, presenting complaints, provisional/ confirmed diagnosis, Glucocorticoid therapy given and laboratory test reports [14]. The obtained data were thoroughly analysed on the prescribing pattern of steroids, the appropriateness of the prescribed steroids using various guidelines [15], the Drug Interactions by Micromedex version 2.0 and ADRs occurred while using steroids.

RESULTS AND DISCUSSION

During the study period, 55 patients were enrolled and included in the study as per inclusion criteria. The gender wise distribution of asthma revealed that the incidence of asthma was more prevalent in male patients 56.36% (31) than female patients. A study conducted by Inseon S Choi ascertains that female patients are more susceptible to allergic asthma and having struggle in controlling asthma symptoms [16]. Incidence of asthma based on family history was gaged, only 7.27% (4) were found to have family history and 92.23% (51) had no history of asthma. This study reveals that family history is insignificant. A study carried out by Wylie Burke et al. discusses comparable results [17]. The assessment of past medication history revealed that among the study population 36.36% (20) were under treatment and 63.64% (35) were not under treatment. This data exemplifies that the rate negligence is higher and patients contemplate treatment seriously only upon hospitalization. The pharmaceutical care activities are highly significant to curb jeopardizing patient health. A study carried out by Sumino et al. discusses similar findings [18]. The level of severity was assessed from the collected data, 32.72% (18) of the population reported to mild attacks of asthma, 52.27 % (29) of them reported to have moderate asthma and 14.54 % (8) of the population reported to have severe episodes of asthma. The data is illustrated in Table 1. A similar result was found on a study conducted by Laxminarayana Kamath et. al 2012 [15]. The age wise prescription pattern was acquired with age groups and forms of steroids used. The frequently prescribed steroid formulations for the age group 20-39 were systemic steroids (7.14%), among 40-59 were steroidal nebulizers (18.57%), 60-79 systemic steroids (17.14%) and in patients above 79 years were treated with steroidal nebulizers (8.57%). The pattern is illustrated in the figure 1. A study conducted by Sanoj Varkey et. al. shows similar result [19]. The prescribing pattern is shown in the figure 2 points out that steroidal nebulizers (41.43%) are more often prescribed route of administration and followed by systemic steroids (32.86%) and then the oral steroids (17.14%) and the least prescribed is metered dose inhaler (8.57%). Dry powder inhalers were not prescribed during hospital stay. The intervention of the collected data illustrates that nebulizers are the most commonly prescribed form of steroids. Nebulizer forms deliver a fine liquid mist of medication in a significantly faster rate to the lungs; providing an effective therapeutic outcome and reduces the period of hospital stay. Nebulizer also helps in administering higher doses of steroid. A study carried out by Mintz M 2004 discussed the same results [20]. The second most prescribed form of steroids is systemic, this route is preferred for faster action and mostly in severe cases. Rapid onset of action of systemic steroids is the reason behind the prescribing pattern of systemic steroids. Another study conducted by Laxminarayana Kamath et. al. shows similar results [15]. Oral steroids are not much preferred because of its side effects such as osteoporosis, weight gain and diabetes. Inspite of the side effects, oral steroids are preferred due to ease of administration and medication adherence.

Table 1: Severity of Asthma

Severity	Number of patients (n=55)	Percentage
Mild	18	32.72%
Moderate	29	52.17%
Severe	8	14.54%

Table 2: Data collected regarding drug interaction with steroids

Steroid interaction	Number of patients	Percentage
Moderate interaction	20	36.36%
Major interaction	6	10.91%
No interaction	29	52.73%

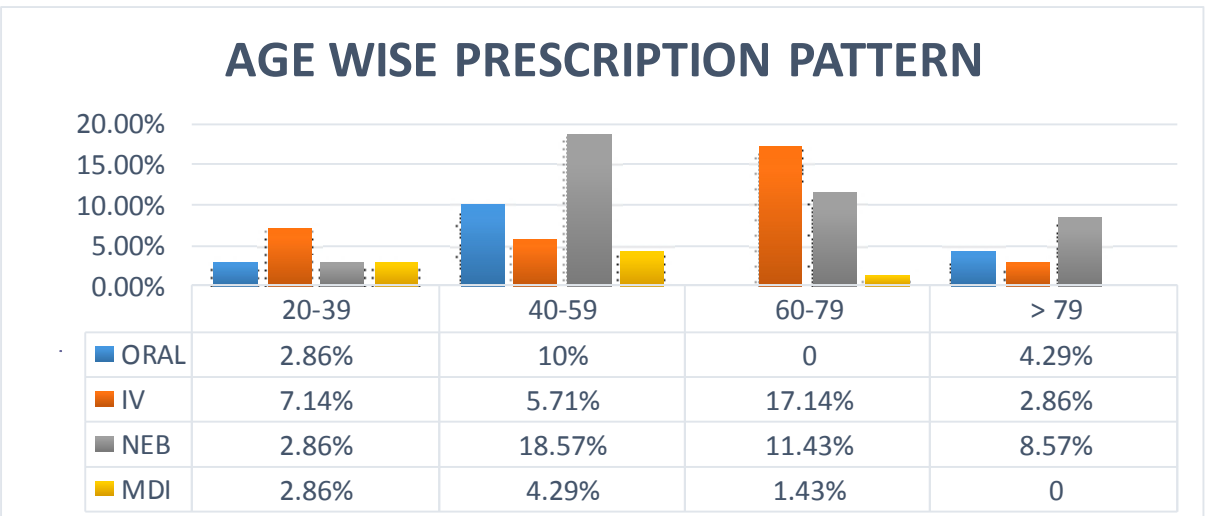


Figure 1: Age wise prescribing pattern of steroids in asthma patients

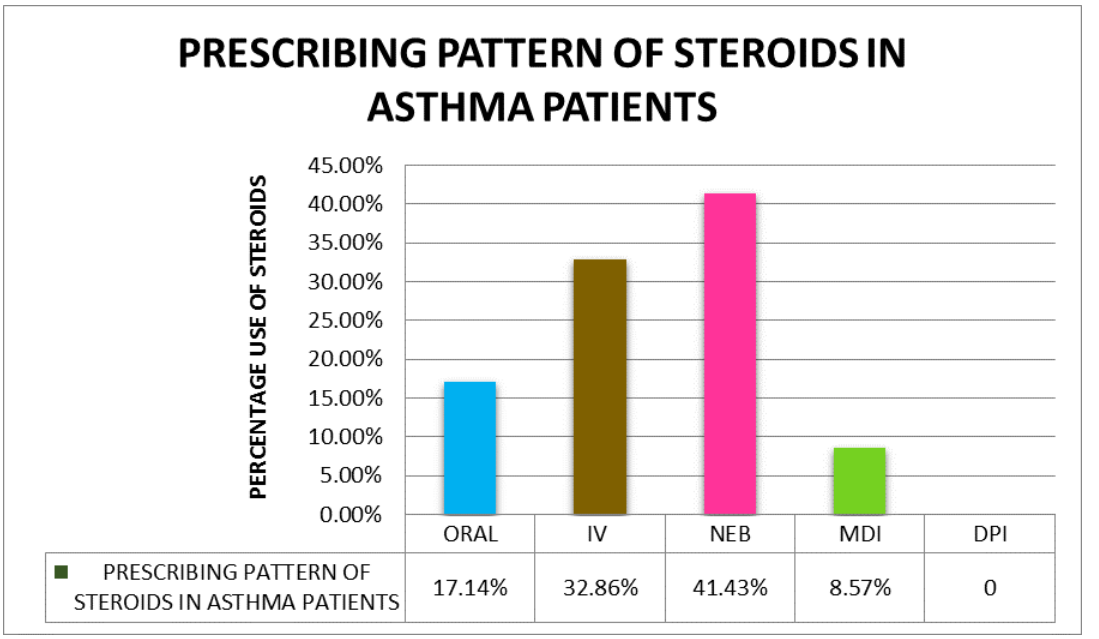


Figure 2: Prescribing pattern of steroidal drugs in asthma

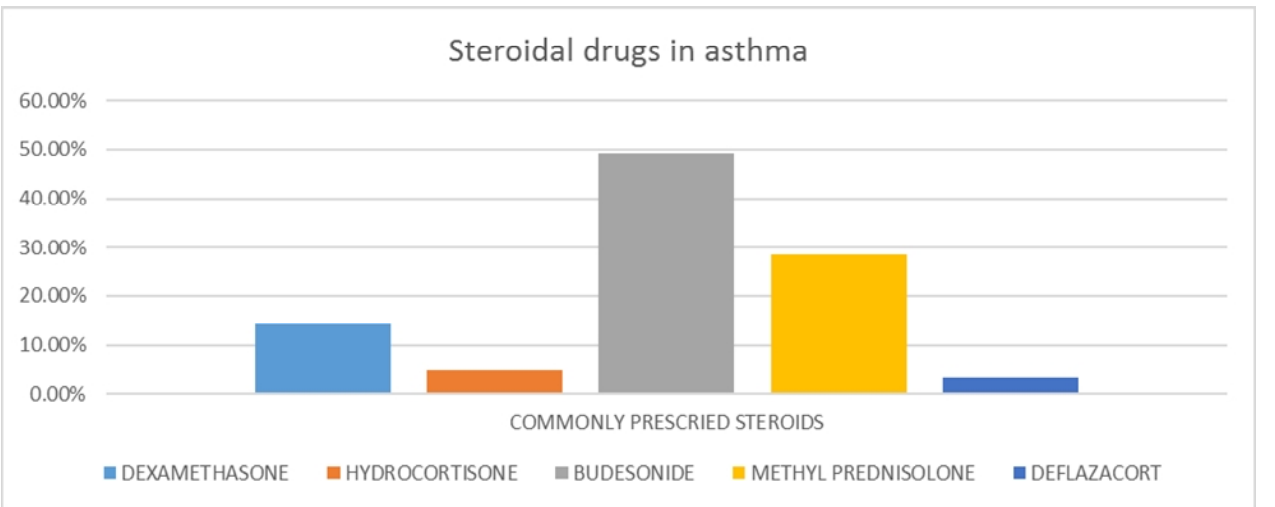


Figure 3: Steroidal drugs in asthma

Metered doses are least preferred because patients develop a poor inhalation performance with relentless use. On the other hand, dry powder inhalers were not at all prescribed due to inconvenience of patients. Another study conducted by Crompton GK presents similar results [21]. The most commonly prescribed steroid was found to be Budesonide (49.21%), followed by Methyl prednisolone (28.57%), Dexamethasone for 14.29% patients, hydrocortisone for 4.76% patients and Deflazacort for 3.17% patients, the data is demonstrated in the figure 3**.** A study carried out by K.V.Ramanath et.al. 2013 establishes similar results [22]. In our study which includes 55 patients with asthma those had steroids in their prescription, among those 10.91% of patients had major interaction with steroidal drugs, 36.36% of patients had moderate interaction with steroidal drugs and 52.73% of patients did not show any interaction with steroidal drugs. The data is illustrated in Table 2.

CONCLUSION

The present study demonstrates the prescription pattern and use of steroids in asthma. The study describes various challenges in steroid therapy. Most of the patients were admitted with moderate asthma. The assessment of steroid drug usage pattern in asthma patients concluded that, steroidal nebulizers are given the most. The rationality of the drug use was assessed and the treatments found to be satisfactory. The pharmacist plays a crucial role in rational decision making upon the designing of asthma treatment with a view to improve therapeutic outcome and quality of life. This study showed that the prescribing of steroids was rational &. Patient counseling services were helped them to understand their therapy, disease. Even though the drug interactions observed with the steroids, benefits of therapy were noticed more.

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