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Original Research Article

Clinical practice for the management of atopic dermatitis (eczema) patients attending dermatology outpatient department at a tertiary health care centre

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ABSTRACT

Background: Atopic dermatitis (AD) is a chronic pruritic inflammatory skin condition that affects all age groups. It is one of the most common skin disorders in developed countries. Symptoms are eczematous papules, itch and associated consequences, like sleep disturbances that significantly have an impact on quality of life of the patients. The standard therapies for AD consist of the use of topical corticosteroids, topical applications of emollients, and oral formulations. The present study was undertaken with a view to find out the treatment patterns for AD in patients visited dermatology outpatient department (OPD) in a tertiary care teaching hospital.
Methods: A prospective observational study conducted for a period of three months at OPD of dermatology in tertiary care hospital (GGH-RIMS), Kadapa. A total of 45 prescriptions were collected after obtaining a proper informed consent from recruited patients.
Results: In a total of 45 prescriptions analysis, it was found that there was a female predominance with a female to male ratio of 2:1. AD was more prevalent in the age group of 20-29 years. Topical preparations were highly prescribed i.e., 90 utilizations when compared to oral formulations having 60 utilizations. Levocetirizine was the most commonly prescribed drug.
Conclusions: This study provides prescription patterns of AD in a tertiary care hospital. Cost can be minimized by generic prescribing. Treatment strategies to be individualized having strong emphasis on patient education. Self-management strategies also optimize outcomes and reduces unnecessary costs associated with management of AD.

Keywords: Atopic dermatitis, Predominance, Prescription patterns, Antihistamines, Emollients

INTRODUCTION

Atopic dermatitis or atopic eczema is a common, chronic relapsing inflammatory, multifactorial skin disease which is characterized by intense pruritis, that occurs most frequently in children up to 20% but can also affect adults of about 1-3%. AD is often associated with elevated serum immunoglobulin (IgE) levels and a personal or family history of type 1 allergies, allergic rhinitis and asthma. AD has complex pathogenesis involving genetic, immunologic and environmental factors, which lead to a dysfunctional skin barrier and dysregulation of the immune system. Pruritis is a hallmark of the condition that is responsible for much of the disease burden borne by patients and their family.[1] AD affects about one-fifth of all individuals during their life time but the prevalence of the disease varies greatly through the world. The risk of developing

AD is much higher in those whose family members are affected. The clinical presentation of AD is often more elaborate with a large variation in the morphology and distribution of eczema combined with various other features. However, many patients with AD have a general tendency to present with dry skin (xerosis) due to the low water content, also due to excessive water loss through the epidermis. AE may be caused by genetic factors and may be influenced by environmental factors. Most AE patients have a chronic, relapsing disease course characterized by remission and intermittent flares. Therefore, controlling symptoms of chronic AE is still challenging.[2] Thus, AD can have a detrimental effect on the lives of patients and their families through the life span which includes impacts on quality of life and social, academic and occupational impacts. All of these aspects with direct and indirect cause encompass the burden of disease of AD.[3] AD is not curable, and many patients will experience a chronic course of the disease. Accordingly, the treatment of AD aims to minimize the number of exacerbations of the disease, so-called flares; reduce the duration and degree of the flare if flare occurs.[4] Systemic steroids are known to be recommended for use at 0.5 mg/kg/day for 1-2 weeks during acute severe exacerbation of AD.

Long-term systemic treatment with corticosteroids is not recommended for patients with moderate to severe AD due to the risk of adverse effects including impaired glucose tolerance, diabetes, hypertension, hyperlipidaemia, gastritis, osteoporosis, fluid retention, and opportunistic infections. However, short-term administration of systemic steroids is usually considered safe.[5] Immune dysregulations in AD is further exacerbated by underlying skin barrier dysfunction. Thus, the current standard of care includes topical emollients to restore barrier integrity as well as anti-inflammatory agents such as corticosteroids, calcineurin inhibitors, and recently approved phosphodiesterase 4 inhibitors (crisaborole). Topical corticosteroids and calcineurin inhibitors are generally not recommended for long-term use.[6]

The present study was undertaken with a view to find out the treatment patterns for AD (eczema) in patients visited dermatology OPD in a tertiary care teaching hospital.

METHODS

A prospective observational study was carried out in newly diagnosed cases attending the outpatient dermatology department of a tertiary care hospital (GGH-RIMS) Kadapa after obtaining permission from the institutional ethics committee. Articles published in past 5 years were reviewed. A proper informed consent was taken after explaining the study to the patients in a language they could understand. A total of 45 prescriptions issued to patients attending the OPD dermatology were entered in the case record forms following counsultation. The prescriptions were collected for a period of 3 months i.e., from October 2021 to December 2021.

Inclusion criteria

It includes the patients who agree to participate in study by signing informed consent form, both male and female patients of age group 11 to 60 years and patients with confirmatory diagnosis of AD.

Exclusion criteria

Key parameters were the patients with comorbidities, patients with incomplete data and inconsistent diagnosis of AD, pregnant women, breast feeding women, neonates, geriatrics (>60 years), and patients using alternative system of medicine (other than allopathy).

Study procedure

The purpose of this study was to determine the most frequent medications prescribed in all ages of AD. This is a prospective observational study of AD outpatients of dermatology department visited from October 2021 to December 2021. A total of 45 prescriptions were collected.

After sample size has been determined, systematic random sampling technique was used for the recruitment of the samples. Well-trained pharmacy personnel collected data of patient prescriptions. The specific types of data necessary to measure the prescription patterns were recorded for each patient prescription and entered directly into an ordinary prescription form. The data was verified by supervisor and principal investigators during the data collection period. Frequency tables were created for age, gender, and treatment.

Prescriptions were analyzed using following indicators: distribution of the patients based on gender, distribution of the patients based on different age groups, utilization of total number of the drugs, average number of drugs per prescription, classification of the drugs according to therapeutic categories, and analysis of most common prescribed drug category and medication.

Ethical consideration

Permission for collecting patient's data was approved by institutional ethical committee of RIMS hospital and clinical guide of dermatology department. In addition, hospital management also allowed us to utilize the other facilities for project.

Statistical analysis

Results were represented as frequencies, percentages, mean and medians. Software Graph pad prism was applied to evaluate and to analyze the data. In some cases, inferential statistics like analysis of variance (ANOVA) followed by student t–test, using statistical package for the social sciences (SPSS) software version 21.0 also implemented.

RESULTS

Figure 1 represents the gender-wise distribution of the study sample. In a total of 45 patients, 30 patients were females constituted 66.67% and 15 patients were males constituted 33.33%. In our study, we found that there was a female predominance with a female to male ratio of 2:1.

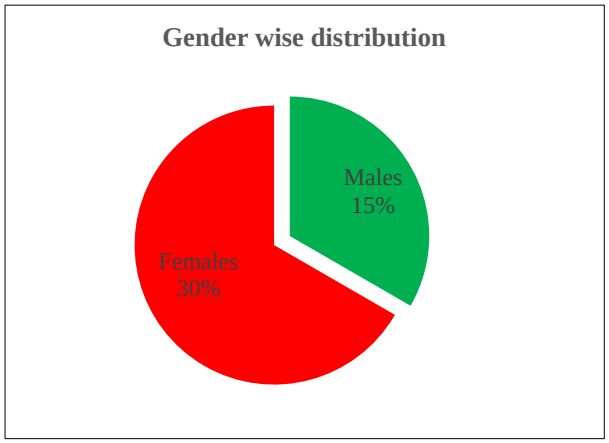

Figure 1: Patients distribution based on gender.

Figure 2 shows the age-wise distribution of the study sample. Of total 45 recruited patients, 3 patients belonged to age group of 10-19 years, 14 patients belonged to age group of 20-29 years, followed by 9 patients in the 30-39 years, 11 patients in the age group of 40-49 years, and 8 patients in the 50-59 years' age group. A large number of patients were in 20-29 years' age group.

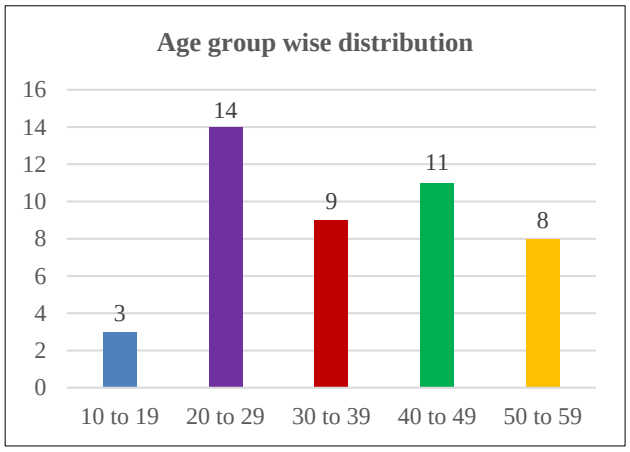

Figure 2: Patients distribution based on different age groups.

In a total of 45 prescriptions, 150 drugs were prescribed. The average number of drugs per prescription was found to be 3.3. Female to male ratio was 2:1. The oral formulations prescribed were 60 and the topical preparations were 90. All these results were represented in Table 1.

Of total 150 drugs, 60 medications were oral preparations and 90 medications were topical formulations. The number of prescriptions of antihistamines were 35 constituted percentages of 23.33%, oral antibiotics were 8 with a percentage of 5.33%, oral antifungals were 6 with a percentage of 4%, vitamin supplements were 11 constituted a percentage of 7.33%, topical antibiotics were 7 constituted a percentage of 4.67%, topical antifungals were 18 constituted a percentage of 12%, topical steroids were 25 with a percentage of 16.67%, and emollients were 40 with a percentage of 26.67%.

In our study, two classes of drugs largely prescribed by the dermatologists were antihistamines and emollients. All these details were summarized in Table 2.

Table 1: Table of results.

Results	Number
Total number of prescriptions	45
Total number of drugs prescribed	150
Average number of drugs per prescription	3.3
Ratio of females to males	2:1
Oral formulations	60
Topical preparations	90

Table 2: Number of prescriptions with different drug classes.

Drug classes	Number of prescriptions
Antihistamines	35
Oral antibiotics	08
Oral antifungal	06
Vitamin supplements	11
Topical antibiotics	07
Topical antifungal	18
Topical steroids	25
Emollients	40
Total	150

In a total of 150 prescribed medications, 35 antihistamines and 40 emollients were given to patients during the study period. In a total of 35 antihistamines, it was found that Levocetrizine accompanied 20 utilizations, constituting to 57.15%, Fexofenadine had 5 utilizations, comprising of 14.28%, and levocetrizine+fexofenadine were 10 utilizations, with a percentage of 28.57%.

In a total of 40 emollients, petrolatum had 23 utilizations, constituting to 57.5%, cocoa butter had 10 utilizations, constituting to 25%, and glycerin had 7 utilizations, constituting to 17.5%. Levocetrizine was most commonly prescribed drug in antihistamines, and glycerin was also commonly prescribed drug in emollients. All details were represented in Tables 3 and 4.

Table 3: Frequency of prescription of various antihistamines.

Antihistamines	Number of prescriptions
Levocetrizine	20
Fexofenadine	05
Levocetrizine+fexofenadine	10
Total	35

Table 4: Frequency of prescription of various emollients.

Emollients	Number of prescriptions
Petrolatum	23
Cocoa butter	10
Glycerine	07
Total	40

DISCUSSION

AD is an endogenous eczema which is an inflammatory skin disorder characterized by pruritis, erythema, excoriation, and serious exudate, as well as lichenification in chronic cases. AD is a common disorder with a prevalence of 25% in children and 10% in adults; it is increasing globally in children. Approximately 25% of AD cases diagnosed in childhood persist into adulthood;in upto 15% of cases the onset of AD occur during adulthood. AD is frequently a comorbid condition with other atopic disorders (eg: asthma, rhinosinusitis, food allergies), and often may be a precursor for the development of other atopic disorders (i.e. atopic march). Patients with AD have significant impairment in quality of life, including intense pruritis, sleep disruption, and mood disorders.[7]

AD was the commonest dermatosis in children registered to a paediatric dermatology clinic where it constituted 30.1% of all registered patients. Gender ratio has varied greatly between the studies though many have reported a male predominance 2.29:1 for infants. In our study we found that there was a female predominance with a female to male ratio of 2:1. In Indian children, the disease is relatively milder than children of developed countries.[8] Average number of drugs per prescription is an important index of prescription audit. An average of 3.3 of our study was in confirmation with some of the other hospital studies done in India which showed 2-3 drugs per prescription.[9] Patient and parent education is effective in the management of AD and should aim to provide information about the clinical characteristics of AD, aggravating and relieving factors, self management and improving coping skills. Patients with AD often complain aggravation due to stress. Minimizing stress may be helpful in controlling the disease. Psychotherapeutic approaches and behaviour therapy can be considered to manage individual emotional factors that trigger AD such as vicious itch scratch cycles, comorbidity with anxiety and depression, and low quality of life. Depending on the severity of AD, topical and systemic treatments are recommended.[10]

First line therapy includes moisturizers/emollients, topical corticosteroids, topical calcineurin inhibitors, systemic corticosteroids. Second line therapy includes oral calcineurin inhibitors. Third line therapy includes phototherapy, azathioprine, mycophenolate mofetil, and methotrexate. Fourth line therapy includes crisaborole, dupilumab, omalizumab, other biologicals, apremilast, interferon gamma, and high dose intravenous immunoglobulin. Adjunctive therapy includes alitretinoin, probiotics, vitamin-D and fatty acids.[11] A research into the presence and impact of AD associated staphylococcal biofilm as a cause of occlussion of sweat glands leading to inflammation and pruritis was conducted in pennsylvania. It concludes that staphylococci were present in 85% of samples from AD lesions. There is evidence to suggest that staphylococi can impact disease severity. In severe exacerbations systemic antibiotic treatment may be helpful.[12]

Topical glucocorticoids are the first line anti-inflammatory drugs according to the needs of the patient (pruritis, sleeplessness, and new flare). In our study, the total of 45 patients received 150 medications of different drug categories of which 60 were antihistamines. Among antihistamines, levocetrizine (48 utilizations) were majorly recommended followed by chlorpheneramine maleate (12 utilizations). The skin of patients suffering from AD is heavily colonized with *S. aureus* even at uninvolved sites. So toxins secreted by majority of *S. aureus* on the skin behave as superantigens and can directly influence disease activity. Oral antibiotics like clindamycin 600 mg (8 utilizations) is effective against *S. aureus*. Topical fusidic acid (3 utilizations), mupirocin ointment 2% (4 utilizations) has proved to be very effective against S.aureus because of its low MIC and good tissue penetration. However long term therapy suspected to be responsible for increasing the resistance therefore a restricted topical application for only short periods of about 2 weeks is advisable. Oral antifungals such as itraconazole (11 utilizations) followed by topical antifungals such as fluconazole ointment (15 utilizations)) were prescribed. Vitamin supplements i.e., vit A and D capsules (9 utilizations) were prescribed. Topical glucocorticosteroids such as betamethasone valerate 0.1% (17 utilizations) were prescribed are still an important tool for the treatment of acute flare-ups.[13] Different therapeutic schemes have been established for AD. Intermittent use might be as effective as initial therapy with a high potent steroid followed by a time - dependent dose reduction or change over to a lower potent preparation. Recent data indicate that in children and adults an application of corticosteroids on unaffected skin twice weekly prevents further flare-ups of atopic dermatitis. A key feature of AD is severe dryness of the skin caused by a dysfunction of the skin barrier with increased transepidermal water loss, this is typically accompanied by intense pruritis and inflammation, so emollients were recommended highly

i.e., glycerine (23 utilizations). The regular use of emollients is important for addressing this problem, and it represents the mainstay of the general management of AD.[14]

Limitations

As there is a burden of AD on physical, mental, and social health so, the need to develop new targeted therapies is also high. The data was collected from a single center for shorter duration due to barrier of maintaining the confidentiality of patient demographics. In this study, many children with atopic eczema go on to develop asthma and allergic rhinitis as the eczema improves with time. Further studies have to be conducted in the future so that the long term efficacy and safety of novel and emerging topical and systemic therapeutic agents for AD can be bought to the focus of public attention.

CONCLUSION

AD is a chronic inflammatory dermatological disorder, mainly characterized by itching, pruritis, rashes, redness. In clinical practice guidelines and position statements concerning the management of AD, the use of systemic CS, including prednisone, hydrocortisone and celestone, is generally discouraged, while systemic CS can lead to rapid clearing of AD, their side effect profile and the risk of severe rebound flares after discontinuation limit their use. Our aim through this text, is to explore the treatment patterns of AD, providing with tips and tricks to improve patient care and the most current trends, treatment approaches available on this horizon. All prescriptions recorded the dose, frequency of administration and duration of treatment. This positive observation would be a sign of good prescribing patterns.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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