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Original Research Article

Evaluation of disease distribution and drug utilization for management of psoriasis patients in dermatology OPD of a tertiary care centre: a retrospective observational study

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ABSTRACT

Background: Psoriasis is a chronic skin disorder that can have different clinical presentations. Topical corticosteroids are the primary therapy for psoriasis, but there are many new drug options approved for its treatment. The aim of this study was to assess the prescription patterns and disease distribution of psoriasis patients in a tertiary care center in central India.
Methods: We conducted a retrospective observational study of 195 psoriasis patients treated in the Dermatology OPD of a teaching hospital from September 2020 to June 2021. We analyzed patient data for demographics, disease characteristics, and medications prescribed using frequency distributions in Microsoft Excel.
Results: Plaque psoriasis was the most common clinical variant among the patients, and the male to female ratio was 1.5:1. February had the highest number of patients treated, indicating an aggravation of symptoms during cold weather. Most patients (93.33%) were prescribed topical corticosteroids, with clobetasol being the most commonly used medication (78%). The average number of drugs per prescription was 5, with other drugs prescribed including emollients (53.33%), vitamin D (31.7%), anti-histamines (21.02%), and methotrexate (5.1%).
Conclusions: Topical corticosteroids, particularly clobetasol, were the most commonly prescribed medication for psoriasis patients in this study. Multiple drugs were needed for the management of most patients. The study provides insights into the prescription patterns of psoriasis medications, which may improve patient care and outcomes.

Keywords: Psoriasis, Clobetasol, Corticosteroids, Plaque psoriasis

INTRODUCTION

Psoriasis is a chronic, inflammatory, proliferative papulosquamous disorder of the skin, with polygenic predisposition combined with triggering environmental factors such as trauma, stress or medication associated with systemic manifestations in many organ systems.[1] The extensor surfaces are most commonly involved with most characteristic lesions of red, scaly, sharply demarcated, indurated plaques. Mostly involved areas are scalp, elbows, knees. Hands, feet's, trunk also being common sites. The morphology, severity and extent of diseasevaries over time and is different for different individuals. The pathology of the disease involves hyperproliferation of the epidermis, a marked dermal and epidermal inflammatory infiltrate, increased angiogenesis within the dermis and abnormal cutaneous neuronal/neurotransmitter organization.[2] Both genetic and environmental influences have a critical role in the aetiology and pathogenesis.

There are a multitude of interacting molecular processes that result in these abnormalities andthe clinical cutaneous phenotype.[3] Stress is also an important contributing factor for psoriasis. Higher incidence in subjects who had a stressful even suggest that it can lead to outbreak of psoriasis and that stress may have a role in triggering the disease in predisposed individuals.[4] The most common classification used classifies psoriasis as Plaque psoriasis, guttate, pustular, erythrodermic, and inverse psoriasis. The psoriasis area and severity index was used to assess severity of psoriasis. it can also be classified as psoriasis affecting specific sites being scalp psoriasis, follicular psoriasis, seborrheic psoriasis (sebopsoriasis), flexural psoriasis (inverse psoriasis), genital psoriasis, non-pustular, palmoplantar psoriasis, nail psoriasis, mucosal lesions and ocular lesions**.** clinical forms of psoriasis (based on morphology or natural history) plaque psoriasis (psoriasis vulgaris), Acute guttate psoriasis, 'Unstable' psoriasis -invers, Erythrodermic psoriasis, Pustular psoriasis, atypical forms of psoriasis are also used The Medical Advisory Board of the National Psoriasis Foundation hasalso defined psoriasis as mild, moderate, and severe psoriasis based on quality-of-life (QOL)measures. Also, the classification takes into account the body surface area covered by psoriasis.[5]

The age of onset also varies but mostly is presented between the 3rd and 4th decades and is less encountered in ages less than 10 years. In the paediatric population, about 0.5%-2% is the prevalence and Infants are affected rarely.[6] Children are generally seen with mild psoriasis and they mostly respond to topical treatments.[7] Males are more commonly affected than females, with a prevalence of 0.44-2.8% in India.[8] Psoriatic arthritis occurs in 10%-25% ofpatients; while pustular and erythrodermic forms may be associated with fever. HLA Cw6 has been associated with an early onset of psoriasis and with positive family history.[9] Henseler and Christopher stated that psoriasis can be of two type- Type 1 <40 years old with positive family history Type 2 >40 years old and without any family history. But there is no difference between treatment response in both the types.[10]

Genetics in Relation to the Skin is unclear and difficult to understand. Genetic variation, cultural and socioeconomic differences all play an important role and must be considered in management.[11] Persons can be advised, for example, that if both parents have psoriasis, the probability is 60% to 75% that a child will have psoriasis and the pathology is more common in monozygotic twins compared to dizygotic twins.[12] In a study of risk factors for psoriasis inItaly, Naldi et al found that smoking accounted for up to 26% of all cases.[13] In individuals with psoriasis who smoked and who also had a family history of psoriasis, an increased bodymass index might be accounted for up to 48% of disease. The fact that smoking and obesity are modifiable risk factors suggests that psoriasis is preventable, at least to some degree, in this population (14). Psoriasis is one of the nine categories of skin diseases that account for over 70% of dermatological diagnosis in primary and secondary care. It can cause up to approx. 3% economic burden of disease. There is a lot of psychological and social impact of livingwith skin diseases and those factors that may exacerbate a skin condition.

Aim and objectives

This study was aimed to evaluate the drug utilization pattern in patients with different presentations of psoriasis in Dermatology OPD of a tertiary care Centre, with the objective to evaluate different presentations of psoriasis and characterize them according to age and gender. To evaluate the prescription pattern in such patients and to evaluate various classes of drugs used in their management.

METHODS

This was a retrospective observational study conducted in the outpatient department of dermatology of Indira Gandhi Government medical college, Nagpur. The study site was an outpatient department of dermatology in the tertiary care center and teaching hospital. The study was conducted for a duration of 10 months from September 2020 to June 2021.

Sample size

As this a duration-based study, all the prescriptions in the study duration were collected. The demographic data like age, sex of the patients and the prescriptions were collected fromoutpatient department of skin and VD and the missing data was later collected from electronic record forms in the health management information section (HMIS) of the tertiarycare center. The prescription data was evaluated for the medicines prescribed, along with their route of administration, duration and frequency. Data was analyzed for disease characteristics and distribution. Frequency distributions are calculated using Microsoft Excel.

Inclusion criteria

Inclusion criteria for current study were; patients attending OPD of dermatology diagnosed with psoriasis, patients diagnosed with psoriasis with comorbidities and old and newly diagnosed patients.

Exclusion criteria

Exclusion criteria for current study were; pregnant and lactating patients and Inpatient department patients.

The present study was conducted to analyze the rationality and drug utilization patterns of psoriasis treatment in the outpatient department of dermatology and to compare with the standardtreatment guidelines (American Academy of dermatology association). The data was also analyzed using WHO core indicators to check for the rationality of prescribed drugs.

Statistical analysis

Data was collected and compiled using Microsoft Excel 2010 and then analyzed by calculating simple proportions, frequency and percentage of various parameters.

RESULTS

In our observation, the demographic distribution of 195 patients was studied and analyzed according to gender-wise distribution (Figure 1) and age-wise distribution (Figure 2).

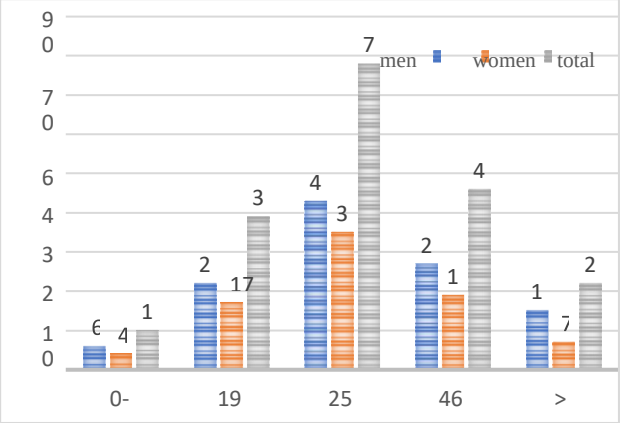

Figure 1: Age wise distribution.

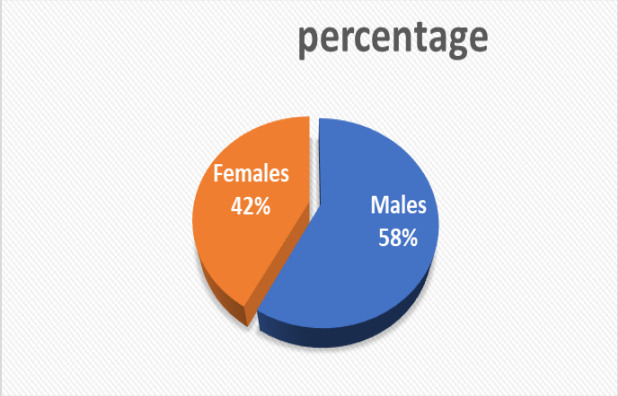

Figure 2: Gender distribution of disease.

Males were more likely to be affected as compared to females with a ratio of 1.5:1 (Figure 1). The age-wise distribution of Psoriasis is shown in (Figure 2) where it was seen that people were affected predominantly in their 3rd and 4th decade, and almost 41 percent of patients were seen from this age group. The most common type of psoriasis seen in our observation was plaque psoriasis followed by the pustular and erythrodermic types of psoriasis (Figure 3). There is a seasonal variation pattern seen in psoriasis where patients see an exacerbation of the disease or present with new symptoms, and psoriasis generally gets worse in cold weather. Also, a similar finding was seen in our observation where there was a considerable rise in patients attending the dermatology OPD in the month of February as cold weather is amajor aggravating factor for psoriasis (Figure 4).

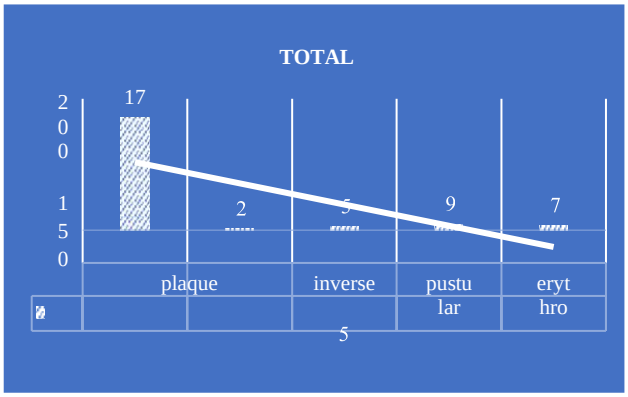

Figure 3: Disease distribution type of psoriasis.

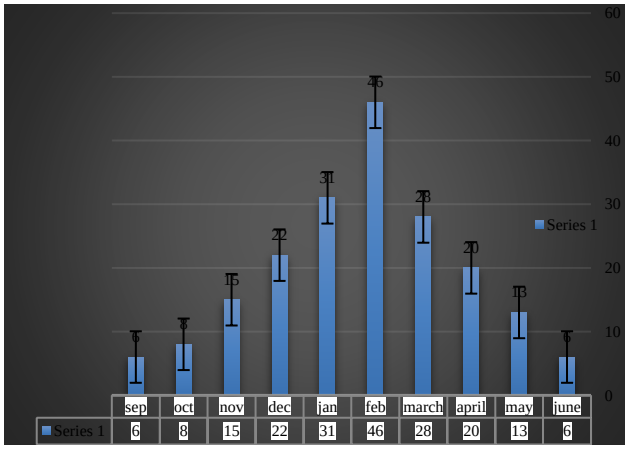

Figure 4: Patients distribution- seasonal effect.

Table 1: WHO core indicators.

Parameters	Observations
Total number of prescriptions	195
Total number of drugs	1080
Average number of drugs per prescription	5
% of drugs prescribed by generic name	1
% of drugs prescribed by brand name	99
% of drugs prescribed topically	74
% of drugs prescribed orally	26
Drugs from national essential drug list	46

Analysis of 195 patients was done according to WHO core indicators (Table 1). The total number of drugs prescribed was 1080. The average number of drugs per patient was 5 which indicates polypharmacy. Almost 99% of patients were prescribed drugs by brand due to the non-availability of generic drugs and also due to patients' demands. Most patients were prescribed topical agents (74%) while (46%)

of drugs prescribed were from the essential medicine list. The patients were prescribed various classes of drugs both topically and orally.

Table 2: Topical dosage form distribution.

Topical form	%
Ointment	6.6
lotions	15.55
Emollient	10.18
Cream	41.01
Shampoo	1.66

Table 3: Drug distribution by class of drugs.

Class ofdrugs	N	Duration	Frequency
Steroids	182	2weeks	BD/TDS
Anti- histamines	57	2 weeks	BD
Emollients	104	2 weeks	BD
Vit D	82	4 weeks	Once a week
Anti-fungals	30	2 weeks	OD
Methotrexate	10	2 weeks	OD
Antibiotics	6	5 days	BD
Others	65	2 weeks	BD

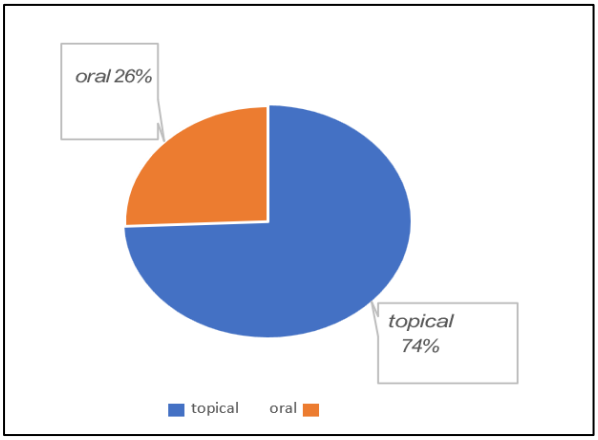

Figure 5: Drug dosage form distribution.

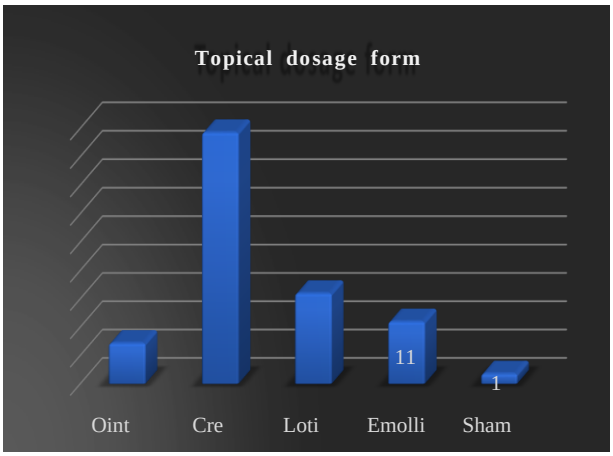

Figure 6: Topical dosage form (number).

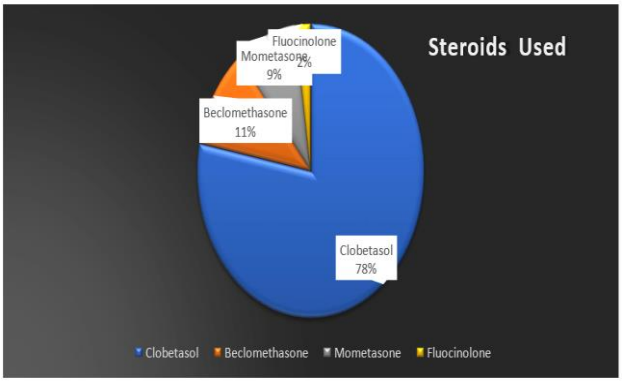

Figure 7: Steroids class distribution.

The more preferred dosage form was topical, around 74%, and oral was 26% (Figure 5). Topically prescribed medicines were majorly cream which was around 41.01% followed by lotions,emollients, and others (Table 2). Of the total 1080 drugs, (N=443) were creams, followed by lotions (N=106) (Figure 6). Out of the total 1080 drugs, the most commonly used class of drug is steroids, almost 182 patients (Table 3) were prescribed steroids. Out of 195 patients who were prescribed steroids mainly used steroid was clobetasol which was around 78% (Figure 7).Other steroids prescribed were beclomethasone, mometasone, and fluocinolone. The duration of treatment was mostly 2 weeks with twice or once-a-day frequency. Antibiotics were given for a period of 5 days in cases of pustular and guttae psoriasis.

DISCUSSION

Most studies from India report a male preponderance similar to the findings of this study where the male: female ratio was found to be 1.5:1. In India, the prevalence rate of psoriasis in children is around 4.4%, withapeak between 6-9 years.[15,16] The incidence of psoriasis varies greatly around the world and is related to race, geographic location, and environment.[17] Guttate psoriasis is more common inchildren and adolescents than adults and is usually triggered by streptococcal infection and stress.[18] Okhandiar et al and Bedi et al showed that there is a significant difference in prevalence rate in the north Indian population.[19] In our observation, we found that patients mostly presented in their 3rd and 4th decade which is in contrast with the study of Naik et al where the peak age is seen in 4th and 5th decade.[20] The most common form of psoriasis seen in our observation was plaque psoriasis. The most common class of drug used to treat psoriasis was corticosteroids mainly clobetasol, emollients and Vit D. The most common route of administration preferred was the Topical form which was almost 74% while the oral route was 26%. The diagnosis is mainly done on the clinical presentation of the patient and there is very less need for skin biopsy which was also found in our observation where the treatment depended on the classification depending on theclinical presentation.[21] The treatment of psoriasis is generally divided into 2 parts

topical and systemic of which mostly preferred is the topical route of administration which was also seen in our observation where the topical use of agents is almost 74%. A variety of scoring systems have been used to assess the severity of psoriasis. Treatment modalities are chosen on the basis of disease severity, relevant comorbidities and patient preference (including cost and convenience). In our study, it was seen that drugs were more prescribed by brand and the patient's choice played an important role here. Other factors influencing the choice of drugs was the Efficacy of drugs and the evaluation of individual patient's response. Drugs prescribed by brand increases the cost of treatment but the non-availability of drugs prescribed by generic name again is a contributing factor why the cost of treatment increases. Steven R Feldman et al showed the most commonly used corticosteroid is Betamethasone while in our observation we found Clobetasole to be the most commonly used.[22] The average number of drugs per prescription is 5 which indicates polypharmacy. The other class of drugs used were antihistaminics like cetirizine in patients with complaints of itching. Antifungals like itraconazole, fluconazole, and terbinafine was used in patients of fungal infections. Other drugs that were used are vitamin D, retinol and multivitamins. Methotrexate was mostly used in patients with guttate psoriasis and in children where the infection was of concern along with antibiotics and this was in accordance to the guidelines and the drugs were prescribed rationally according to the rational prescription of a dermatologist.[23] But with the increase in a number of drugs being prescribed, it increases the chances of drug interaction and also can increase the rate of adverse drug reactions. The quality of life of patients with severe psoriasis is very pooras the cost of treatment is very high and the treatment is usually life long.[24]

Limitations

The limitations of the current study include the involvement of small number of patients due to covid which did not give a broader view of treatment prescribed for psoriasis especially in moderate to severe type of psoriasis.

CONCLUSION

Psoriasis is a chronic autoimmune disease with no cure which has a significant effect on quality of life and hence management should also keep in account both psychological as well as physical components. With day by day increase in prevalence of psoriasis in Indian population and progress in research, India still lags behind in psoriasis research output. Well-conducted research is needed in areas specific to Indian population considering the differences in genetic makeup, environmental influences and health care costs and it would go a long way in improving the healthcare services for the affected patients in our country. The quality of life of patients suffering from psoriasis has to improve and hence such psychosocial factors including the social functioning should also be considered. Many advances are made in the treatment of psoriasis with biologics including T-cell inhibitors andTNF inhibitors like efalizumab and alefacept and many more which are FDA approved for the same but they are used very cautiously with regular monitoring of patient. The new drugs have various limitations and their availability for patient is again the concern which arises during the selection of such agents for treatment of psoriasis. Indian population is day by day getting inclined to alternative medicine and this is affecting the prognosis of this disease. Hence there is a need for studies to be conducted in the population with psoriasis where patients are on complimentary alternative medicine.

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