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Assessing the Impact of Topical Steroids on Tinea Infections: An Epidemiological Investigation

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Abstract

This retrospective epidemiological study investigates the prevalence and characteristics of modified tinea infections resulting from the use of topical steroids. Analyzing patient records from October 2022 at 'District General Hospital, Amravati, the study reveals a significant association between topical steroid use and altered clinical features in 89% of cases. Factors such as steroid potency, duration of use, and specific tinea subtypes affected contribute to understanding the epidemiology of modified tinea infections. Patient counseling plays an important role in the fast recovery of such patients. Healthcare providers should take into account the past use of steroids when diagnosing and treating tinea infections, underscoring the importance of additional research to guide evidence-based protocols. It is recommended that medical professionals consider the patient's past use of steroids while identifying and treating tinea infections. This emphasizes the need for more investigation to clarify the specifics of this relationship and to guide evidence-based practices. These kinds of studies are essential for expanding our knowledge of the difficulties associated with identifying and treating tinea infections, which will ultimately lead to better patient treatment and results. Through the integration of findings from both this study and upcoming research endeavors, medical professionals will be able to formulate more knowledgeable strategies for the diagnosis and treatment of tinea infections, which will maximize treatment effectiveness and foster patient welfare.

Keywords: Dermatophytes, Topical steroid misuse, Tinea incognito, Steroid-modified tinea, Corticosteroids

INTRODUCTION

Dermatophytes are a group of fungus that can infect the skin, hair, and nails by using keratin as a nutrient source throughout their growth [1]. The causative fungus for steroid-modified tinea in a tertiary care hospital in India belongs to three asexual genera: Microsporum, Trichophyton, and Epidermophyton [4]. 'Tinea incognito', commonly referred to as steroid-modified tinea, is a dermatophytic illness that arises from prior use of steroid treatments and formulations [1]. This infection is distinguished by a modified or altered clinical presentation (maybe either topical or systemic) [2].

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Corticosteroids suppress the immune response and camouflage the symptoms of inflammation, leading to a misleading feeling of rash recovery. Concurrently, the abundance of dermatophytes, which flourish in situations of weakened immune system (particularly, a decrease in T-cell driven immune response), rises [3, 8]. In order to reduce the infection, the topical corticosteroid might be included in the initial stage of treatment. The broad availability of over-the-counter medication, simplicity of manufacture, and a lack of knowledge and awareness among the general public contribute to the prevalent and major issue of TC misuse in our nation [1].

Inappropriate and superfluous utilization of combination creams (containing steroids) might lead to treatment ineffectiveness and severe adverse reactions. Topical corticosteroids (TCs) are commonly employed in conjunction with antifungal medications to augment their efficacy [7]. Nevertheless, the potent ingredient Clobetasol propionate [2], Momentasone, Beclomethasone, Hydrocortisone [4], Tolnaftate [2] frequently employed in topical corticosteroids (TCs), is frequently abused. Most common brand name was Betnovate GM (30.9%) in study conducted by Nivedha A (2020) [9]. The composition was Betamethasone valerate 0.1%, Gentamycin 0.1%, Miconazole nitrate 2.0% [9]. The most common brand name was Betnovate in a study conducted by Bains P. (2021) [10]. This encompasses the act of acquiring it without a prescription and utilizing it for prolonged durations, spanning from weeks to months or even years. Such overuse can result in the emergence of persistent and widespread illnesses. This study investigates the frequency of steroid-modified tinea at a specialized medical facility in India [2].

Steroid-modified tinea is becoming more common in the community, and it is defined by repeated and persistent clinical signs. Administering patient counseling can effectively decrease the length of treatment after prolonged steroid usage. Therefore, the present study was undertaken to assess the burden of this topical steroid misuse to draw the attention of medical practitioner toward it.

NEED OF STUDY

The patient's delayed diagnosis and treatment of tinea (Dermatophytosis) can be related to the atypical appearance of the infected lesions resulting from the application of topical steroids. The prevalence of steroid usage in fungal infections is notably elevated among the illiterate population, potentially attributable to a dearth of knowledge and inadequate availability of suitable healthcare within the community. The current reported prevalence in India is obtained in wide range (6.09–61.5%) [12, 13]. Hence, it is imperative to examine the frequency of topical corticosteroid abuse among the community. Additionally, it facilitates the widespread sharing of information among the general public on the application of steroid creams.

METHODOLOGY

An investigation was conducted in a hospital environment, specifically in the Dermatology outpatient department of a tertiary care hospital-'District General Hospital, Amravati', with the aim of collecting data on patients. The study enrolled participants from the Dermatology Outpatient Department (OPD) and took place from October 2022 to August 2023.

STUDY DESIGN

Cross sectional observational study.

SAMPLE SIZE

The study encompassed 330 individuals who were clinically suspected of having topical steroid modified tinea. These individuals were assessed utilizing a pre-designed proforma. The provided information covers a detailed account of combination steroid creams, including information regarding their specific type, recommended length and frequency of application, family medical history, and a comprehensive clinical presentation of tinea.

STUDY CRITERIA

Inclusion Criteria

- Patient of age group between 15–80 years old, irrespective of sex who uses topical steroid or medication attending dermatology outpatient department.
- Patient with history of topical steroid application for skin disease.

Exclusion Criteria

- Patient not willing to participate in study.
- Patient who are immunosuppressed, AIDS, pregnancy, and lactation

- Patients who are on oral steroid treatment for other diseases.

DATA COLLECTION

After obtaining written consent from patients who have history of topical cream used in tinea, information that collected as per the proforma was enclosed and recorded in clinical data. Phenomenographic analysis involved the collection of clinical data from patients (here, is history of steroid used) and recorded in patients own way as per their understanding. Complete history regarding onset, frequency, progression and treatment was collected along with advised for steroid used (Figure 1 and Table 1).

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RESULT

Sex Distribution

Out of 330 patients enrolled in study, 190 (58%) were male and 140 (42%) were female.

Distribution of Age

Majority of the patients were belong to 20–29 year age (24.8%).

Area

As per the survey, of total 330 patients collected most patients belongs to urban area (66%), followed by suburban area (21%) and rural area (14%) (Figure 2).

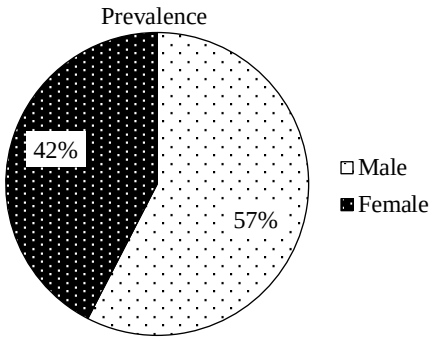

Figure 1. Sex-wise distribution.

Table 1. Age wise distribution.

S.N.	Age groups (year)	Number of patients
1	10–19	23
2	20–29	82
3	30–39	79
4	40–49	68
5	50–59	36
6	60–69	29
7	70–79	13

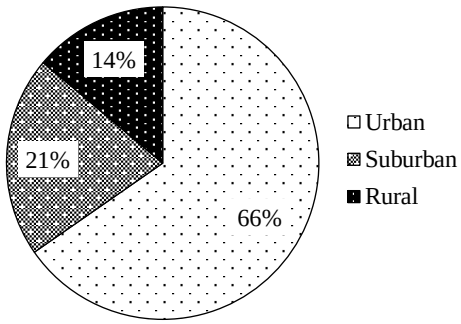

Figure 2. Area-wise distribution.

Occupation

Majority of population belong to unemployed category showed more prevalence toward infected with tinea about 53% (178) (Figure 3).

Relationship Status

As per the study of patient collected married person 70% (230) more prevalent to tinea infection (Figure 4).

Symptoms

Majority of patients documented showed that itching, rash and round patches are the common symptoms. The symptoms itching account for 27% and rash for 27% and combined showed 54% (Figure 5).

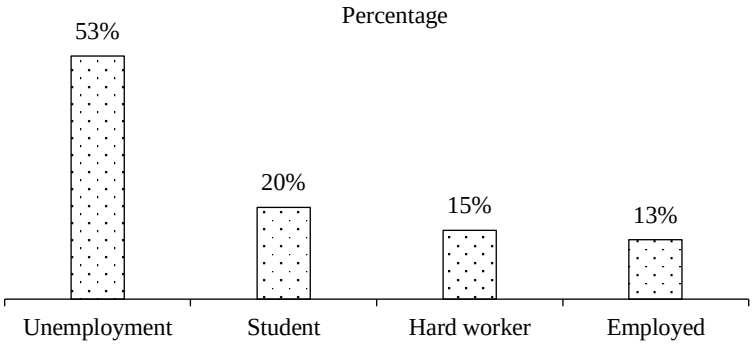

Figure 3. Occupation-wise distribution.

Figure 4. Relationship status-wise distribution.

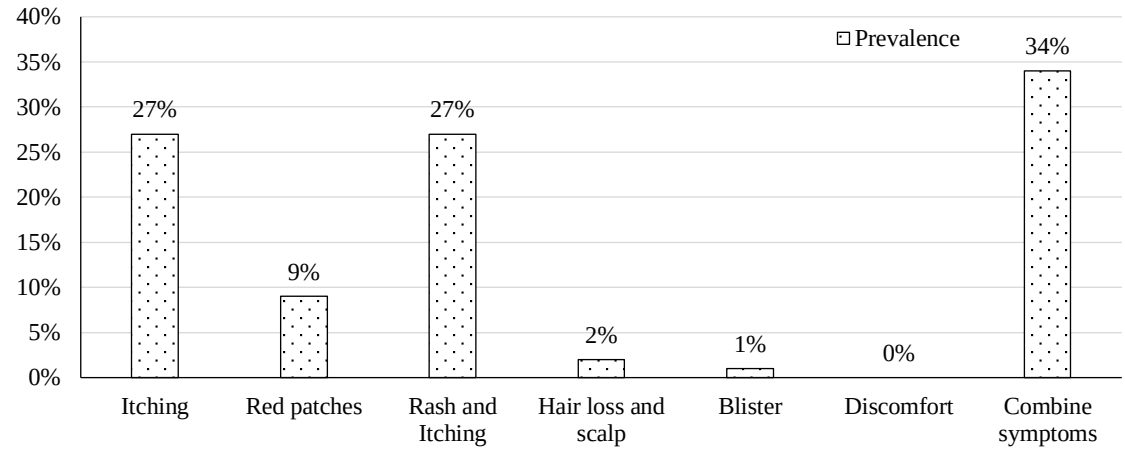

Figure 5. Symptom-wise distribution.

Clinical Patterns

Majority of patient documented with Tinea Cruries (27%) (Groin) followed by Tinea Corporis (26%) (Body). Prolonged used (more than 6 weeks) of topical steroid can lead to uncommon form of undisseminated rounded lesions on affected part with severe reaction (Figure 6).

Steroid Creams

Majority of documented information reveals that Dermi 5 is most commonly used steroid cream in that area. Its account for 21% made up of clobetasol and other drugs. There are more other combination creams used by people that easily available without prescription (Figure 7).

1. clobetasol + miconazole+ gentamycin
2. betamethasone dipropionate +salicylic acid
3. ketoconazole + beclomethasone dipropionate.

Source of Information

The most important culprit were Pharmacist, as per collected data. The information regarding used of steroid creams was given by pharmacist more and sold it OTC. Its account for 32% (205) followed by family relative gave advised with no reference stands for 29% (194). There are also more other sources for such providing information to people in community (Figure 8).

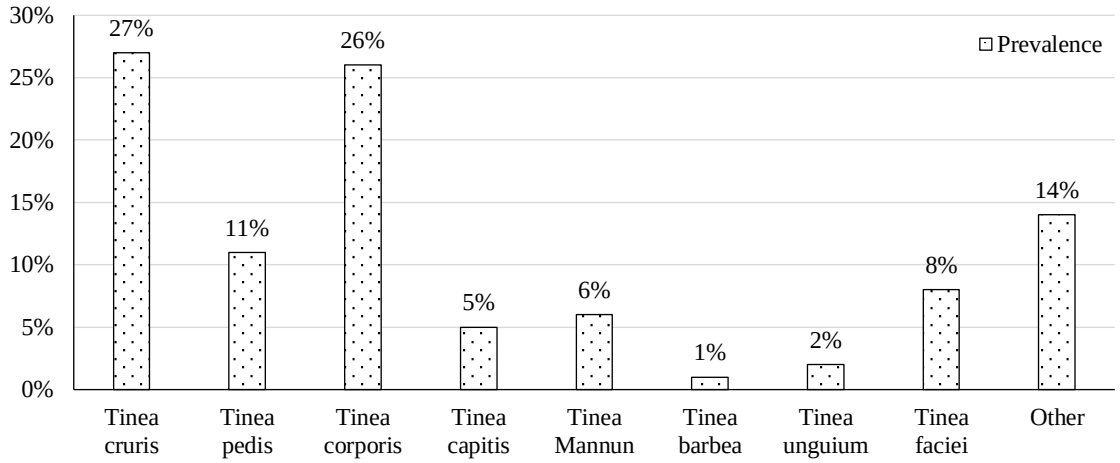

Figure 6. Clinical pattern-wise distribution.

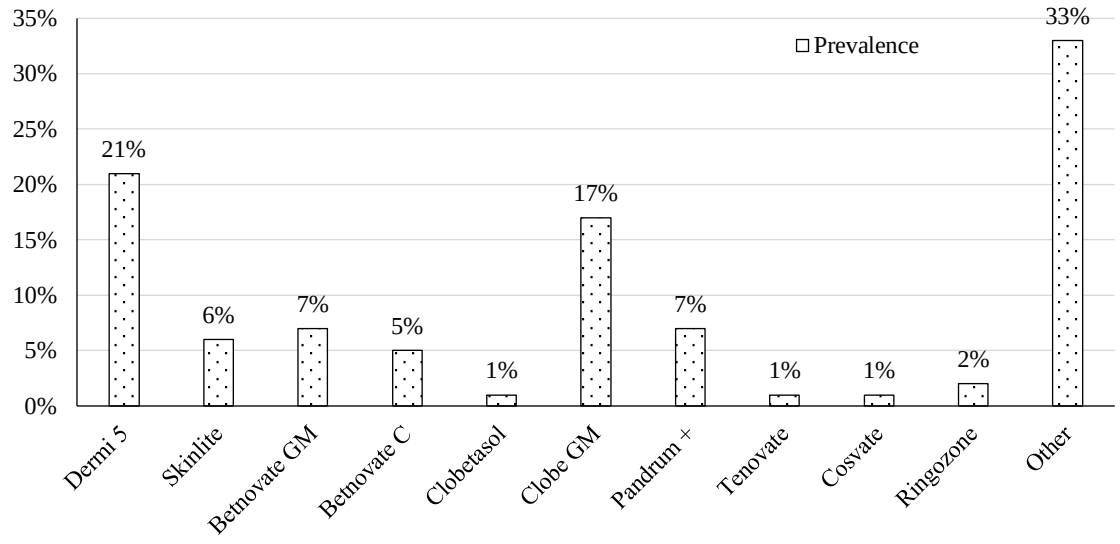

Figure 7. Steroid cream-wise distribution.

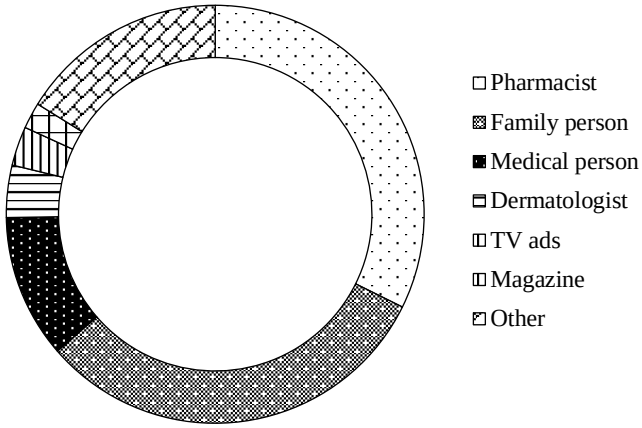

Figure 8. Source of information.

Duration of Recovery

Documented data reveals that 5 months or more time is required to cure steroid modified lesions of Tinea infection. About 36% of patients collected had cured their infection after 5 months of continued medication with consultation of dermatologist. Patient counselling has great impact on patients as observed in this patients. Patient counselling done verbally with help of leaflet, available in Dermat OPD.

Ideally this infection cure within 2-3 months of continuous medication (Figure 9).

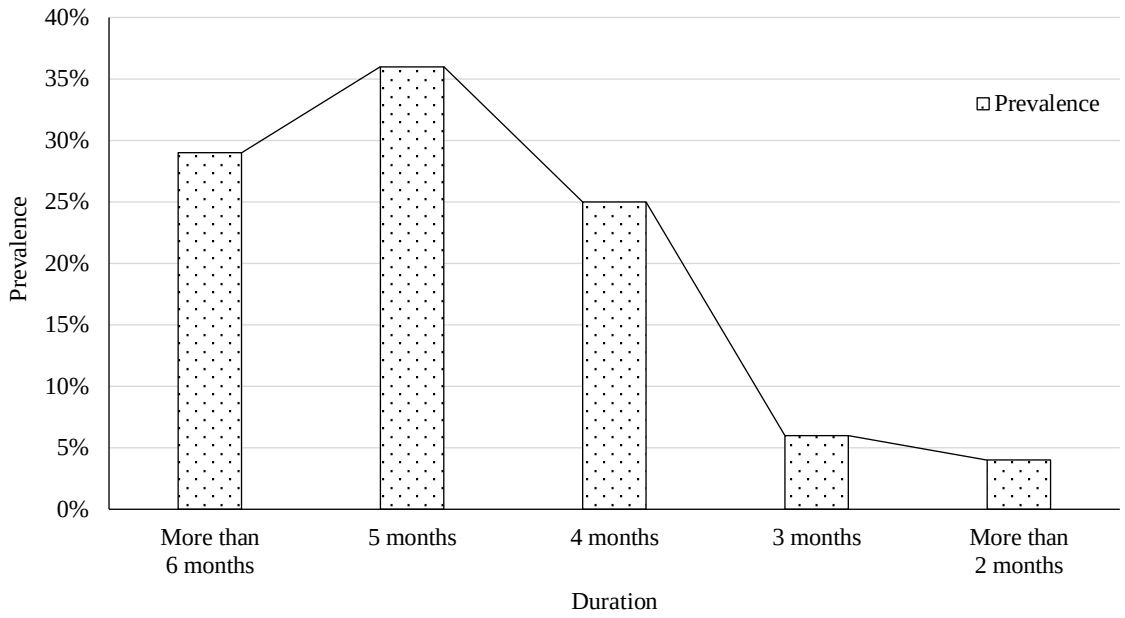

Figure 9. Duration of recovery-wise distribution.

PATIENT COUNSELING

Patient counseling is very important process regarding guidance to patients for use of steroid in fungal infection some point to be followed during conducting counseling:

1. *Tinea infections:*
   i. Tinea is a fungal infection.
   ii. Steroids can worsen fungal infections.
2. *Follow antifungal treatment:*
   i. Use prescribed antifungal medication as directed.

   ii. Do not use steroids without consulting your healthcare provider for infected areas.
3. *Steroid abuse:*
   i. The damage happen due to uncontrolled use of steroids.
4. *Potential side effects:*
   i. Steroids may cause skin thinning and other side effects.
   ii. Report unusual reactions to your healthcare provider promptly.
5. *Complete the full course:*
   i. Finish the entire course of antifungal medication, even if symptoms improve.
   ii. Prevents the infection from returning.
6. *Consult your healthcare provider:*
   i. If you have concerns or questions, contact your healthcare provider for guidance.
   ii. Steroids should be used cautiously in tinea infections.

DISCUSSION

The chief seduction of TCs lies in the rapidity of symptomatic relief in almost any dermatosis. Misused of TC is Tinea patients is main point of our study to determine the severity and gravity of his problem. This misused of TC is may be due to regulation lacunae at various level of medication handlings. Many of this patients do not consult with dermatologists initially, even after used of steroid advised by their friends, family and neighbor. After use of steroid the disease get exaggerated, that forced them to visit dermatologists.

There was abundant increased in the occurrence of recurrent and severe dermatophytosis due to misuse of potent topical steroid creams. As there is no gender prevalence for development of tinea infection but this study showed more prevalence in male patient may because of some social restriction female patient are reluctant to report such infections. A similar study of Thakur *et al.* in 2019, shows the highest prevalence of topical steroid abused in male patients (63%) than female patient (37%) [3]. The age group between 20–40 years had higher incidence of infection as they are more working and come in close contact most of community population. There is high percentage of unemployed peoples that used topical steroid, because of absence of proper education and awareness regarding use of steroid and this OTC medication is easily available to people without any prescription. Most of patients belongs from urban area as they reported more to the Dermat OPD.

Tinea is a communicable disease with infected area so married peoples and hosteller are more involved in close sharing of clothes and things are more infected. Symptoms are mostly associated with classical signs as itching, rash, round lesions, etc. The more prevalent form of Tinea infection reported was Tinea cruris (groin), followed by Tinea corporis (body) than other any form of infection. This may be due lack of awareness regarding hygiene and daily cleanliness. Patient was aware of preventive measures for tinea and use of topical steroid. A study of Thakur in 2019 shows the result regarding the most common form of tinea obtained having highest prevalence for T. Corporis (61.20%) followed by T. Cruris for (24.43%) [3].

Documented data showed that main culprit behind the abundant sell of topical steroid OTC was pharmacist. They own about 50% of problem because of poor regulatory command of governing bodies. In India salespersons at chemist counters are considered as equal to doctors by many lay persons. This arise from a theory that salespersons knows about drugs than a doctor. It is necessary to educate pharmacist regarding the adverse effect of steroid in such patients of tinea. A similar study of Kothiwal, et.al in 2017 showed data that pharmacist was chief culprit for misuse of steroid in tinea which accounts about steroid and account about 50.4% [4].

The most commonly used steroid creams contains Clobetasol, betamethasone, and others drugs. In our study the most used cream is Dermi5 contains Clobetasol. A similar study of Dr. Kothiwal et al

(2017), on topical steroid modified tinea shows that clobetasole is principal offending agent in the formulation and account for 34.8% [4].

During this duration of treatment, patient was observed repeatedly with periodic interval and it observed that patient counselling has great impact on recovery period of steroid modified tinea (Tinea Incognito). Majority of patients used these formulations for long duration without consultation because of its property of quick relief and aggravations of symptoms on its discontinuation. Phenomenography the similar analysis was used by the som jitendra et al, helps us to understand social and environmental factors involved in the steroid misuse [9, 10].

The patient counseling has its own effect on patient adherence to the medication. It improve the recovery response toward damage. The prevalence of topical steroid modified tinea Patients was found to be 89% in study period. The incidence rate of patients with topical steroid modified tinea is 68%. A similar study of Verma on epidemiological study on steroid modified tinea shows the current reported prevalence was 61.5% [6]. Agarwal et.al in 2014 also reported that disease of tinea in 300 patients and the prevalence was 62.5% [5].

CONCLUSION

Our analysis substantiates the prevalent frequency of diverse combinations of corticosteroid cream employed in instances of Tinea infection. By employing phenomenographic research and incorporating patients' own quotes, we gain significant insights on the application of steroid creams [10]. Additionally, it provides information regarding the selling of steroid creams without a prescription, known as over-the-counter (OTC) sales. This practice has the potential to exacerbate the illness and contribute to a higher occurrence of the disease. people with a documented history of continuous steroid cream administration may develop Dermatophytosis at several sites, suggesting that the use of steroids can worsen the course of the disease in infected people [11]. The major culprit has been identified as the pharmacist, and the dangerous drug in question is clobetasol. A study has found that the utilization of topical steroids in the management of tinea carries significant risks as a result of unethical procedures involved in their manufacturing, distribution, sales, prescription, and patient usage. Offering patient counseling helps improve this situation by spreading awareness within the community. It is crucial to enforce strict restrictions for the sale and production of steroid creams. By engaging in studying, we acquire the knowledge necessary to offer patients precise instructions on the proper usage of creams and educate them about any possible adverse consequences. The suggested theme is “Promoting awareness and action against the inappropriate use of topical steroids [14, 15].”

Statement of Informed Consent

Informed consent was obtained from all patient for being included in the study.

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