RESEARCH
www.commprac.com
ISSN 1462 2815

CROSS-SECTIONAL STUDY ON THE PREVALENCE AND MISUSE OF TOPICAL STEROIDS IN DERMATOLOGY

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DOI: 10.5281/zenodo.12067663

Abstract

Introduction: Topical steroids are widely used in dermatology for the treatment of various skin conditions, including eczema, psoriasis, and dermatitis. This study aims to investigate the prevalence and patterns of topical steroid misuse among patients visiting the dermatology outpatient department of a tertiary care center in Tamil Nadu. **Material and Methods:** The methodology employed in this descriptive cross sectional study aimed to assess the prevalence and patterns of topical corticosteroid (TCS) misuse among dermatology patients. The study was conducted over a period of three months. The study population comprised 100 patients who visited the dermatology outpatient department (OPD) and had used topical corticosteroids for a duration of 15 days or more. Inclusion criteria for the study encompassed patients using corticosteroid cream, ointment, or lotion available in medical stores on their face or body, with continuous or intermittent use over a period of 15 days or more. Exclusion criteria involved patients with comorbidities such as polycystic ovary syndrome, Cushing's disease, thyroid disorders, diabetes, and those on oral corticosteroids. **Results:** Clobetasol propionate 1% cream was the most used corticosteroid (70%), followed by Betamethasone valerate cream (26%). Clop GM™, Panderm +™, and Dermi 5™ were the most commonly used topical medications, while Terbinaforceplus™ and Betnovate™ were less frequent. The most prevalent adverse effect was the rebound phenomenon (31%), followed by hypopigmentation (18%) and atrophy (15%). Steroid-induced acne was reported in 13% of cases, while Hirsutism and Rosacea occurred at frequencies of 6% and 2% respectively. No adverse effects were observed in 3% of cases, and Perioral dermatitis was reported in 1% of cases. **Conclusion:** Long-term and continuous use of TCS can result in a wide range of side effects, each of which may manifest in a different clinical manner.

Keywords: Misuse, Topical Steroid, Side Effects, Long-Term.

INTRODUCTION

Topical steroids are widely used in dermatology for the treatment of various skin conditions, including eczema, psoriasis, and dermatitis.[1] While they can be effective when used appropriately under medical supervision, their misuse and overuse have become significant concerns in clinical practice. The misuse of topical steroids has emerged as a critical issue in dermatological practice, leading to a range of adverse effects such as steroid-induced skin atrophy, telangiectasia, steroid addiction, and rebound phenomenon.[2] Ensuring the appropriate use of topical steroids is paramount to safeguarding patient health and minimizing the risk of adverse effects and complications. By identifying instances of misuse, healthcare providers can intervene early and provide education and guidance to patients. Effective dermatological care requires accurate diagnosis, appropriate treatment selection, and patient education.

Misuse of topical steroids can lead to treatment failures, exacerbation of skin conditions, and unnecessary healthcare costs.[3] By addressing misuse, healthcare providers can improve the quality of care delivered to dermatology patients.

Topical steroid misuse not only affects individual patients but also has broader public health implications. It contributes to the development of antibiotic resistance, impacts healthcare resources, and can lead to the emergence of complex dermatological issues that require specialized management.[4,5] Dermatologists, dermatology residents, and other healthcare professionals involved in skin care need ongoing education and training on the appropriate use of topical steroids. This study can provide valuable insights into educational gaps and opportunities for enhancing clinical practice guidelines and training programs. The rationale for this study lies in the growing recognition of the adverse effects and complications associated with inappropriate use of topical steroids, highlighting the need for better understanding, monitoring, and management of their usage in dermatological practice. This study aims to investigate the prevalence and patterns of topical steroid misuse among patients visiting the dermatology outpatient department of a tertiary care center in Tamil Nadu.

MATERIAL AND METHODS

The methodology employed in this descriptive cross sectional study aimed to evaluate the prevalence and patterns of topical corticosteroid (TCS) misuse among dermatology patients. The study was conducted over a period of three months. The study population comprised of 100 patients who visited the dermatology outpatient department (OPD) and had used topical corticosteroids for a duration of 15 days or more.

Inclusion criteria for the study encompassed patients using any cream, ointment, or lotion available in medical stores on their face or body, with continuous or intermittent use over a period of 15 days or more. The patients were screened with a specific question regarding their current use of such products and confirmed the presence of corticosteroids based on prescription information, used tubes, or by showing popularly used preparations. Exclusion criteria involved patients with comorbidities such as polycystic ovary syndrome, Cushing's disease, thyroid disorders, diabetes, and those on oral corticosteroids. Written informed consent was obtained from all participants in the local language script.

Data analysis was performed using Excel spreadsheets to calculate frequencies and percentages, and SPSS software version 26 was utilized for further statistical analysis.

RESULTS

Among the surveyed individuals, Clobetasol propionate 1% cream was the most commonly used, with a usage frequency of 70% of the respondents. This indicates a high preference or prescription rate for this particular corticosteroid cream. Betamethasone valerate cream followed with a usage frequency of 26%, indicating a significant but lesser preference compared to Clobetasol propionate. Mometasone furoate 0.1% cream and Betamethasone cream had lower usage frequencies at 3% and 5%, respectively, suggesting they are less commonly used or prescribed in this population. Overall, the data provides insights into the relative popularity or

prescription rates of these corticosteroid creams in the surveyed population, with Clobetasol propionate being the most frequently utilized option (Table 1).

Table 1: Distribution of Most Commonly Abused TCS among the Study Participants (N=100)

Sl.No	Variable	Frequency	Percentage
1	Mometasone furoate 0.1% cream	3	3%
2	Clobetasol proprionate 1% cream	70	70%
3	Betamethasone cream	5	5%
4	Betamethasone valerate cream	26	26%

Among the surveyed individuals, Clop GM™ had the highest frequency at 17%, followed closely by Panderm +™ at 16%, and Dermi 5™ at 14%. Fourderm™ and Quadriderm™ were used with similar frequencies at 13% and 10%, respectively. Terbinaforceplus™ and Betnovate™ had lower frequencies at 8% and 7%, respectively. This data suggests that Clop GM™, Panderm +™, and Dermi 5™ are the most commonly used topical medications in this population, while Terbinaforceplus™ and Betnovate™ are used less frequently (Table 2).

Table 2: Distribution of Most Commonly used Steroid Brands among the Study Participants (N=100)

Sl.No	Variable	Frequency	Percentage
1	Clop GM™	17	17%
2	Panderm +™	16	16%
3	Dermi 5 ™	14	14%
4	Fourderm™	13	13%
5	Quadriderm™	10	10%
6	Terbinaforceplus ™	8	8%
7	Betnovate™	7	7%

Among the reported adverse effects, the most prevalent is the rebound phenomenon, occurring in 31% of the cases, indicating a significant occurrence of this phenomenon following corticosteroid use. Hypopigmentation and Atrophy follow closely with frequencies of 18% and 15%, respectively, highlighting the impact of corticosteroids on skin pigmentation and tissue thinning. Other observed adverse effects include Striae (13%), No adverse effects observed (13%), Steroid-induced acne (3%), Hirsutism (3%), Rosacea (2%), Perioral dermatitis (1%), and Telegiectasia (1%). These findings emphasize the varied adverse effects associated with topical corticosteroid use, with rebound phenomenon, hypopigmentation, and atrophy being the most frequently reported in this population (Table 3).

Table 3: Distribution of Most Common Consequences of TCS Abuse in General (N=100)

Sl.No	Variable	Frequency	Percentage
1	Hypopigmentation	18	18%
2	Straie	13	13%
3	Rosasea	2	2%
4	Steroid induced acne	3	3%
5	Atrophy	15	15%
6	Rebound phenomenon	31	31%
7	Hirsutism	3	3%
8	Perioral dermatitis	1	1%
9	Telegiectasia	1	1%
10	No adverse effects observed	13	13%

Among the reported adverse effects, the most prevalent is steroid-induced acne, occurring in 13% of the cases. This is followed by the rebound phenomenon, Hirsutism, and Rosacea, each with frequencies of 6%, 2%, and 2% respectively. No adverse effects were observed in 3% of the cases, indicating a relatively lower occurrence of adverse effects in this subgroup. Perioral dermatitis was reported in 1% of the cases. These findings offer a nuanced view of the adverse effects observed, with steroid-induced acne being the most commonly reported adverse effect, followed by rebound phenomenon and other less frequent effects such as Hirsutism and Rosacea (Table 4).

Table 4: Distribution of Most Common Consequences of TCS Abuse on Face (N=100)

Sl.No	Variable	Frequency	Percentage
1	Rebound phenomenon	6	6%
2	Hirsutism	2	2%
3	Perioral dermatitis	1	1%
4	Rosasea	2	2%
5	No adverse effects observed	3	3%
6	Steroid induced acne	13	13%

DISCUSSION

The main reason TCS is misused is because it quickly alleviates symptoms in nearly all dermatoses. When a patient can simply obtain an unlimited number of refills for a single prescription from their neighborhood pharmacy, it exacerbates the problem and has a range of negative repercussions.[7] This problem, which was characterized as "serious" in a landmark study by Frosch et al. over 30 years ago, affects a lot of nations.[8] Iraq, China, and a number of different places in India have all been documented as having conducted research along these lines. Since then, TCS has garnered a reputation among the general community as an anti-acne, anti-blemish, and fairness cream, particularly in nations where the majority of the population is comprised of darker-pigmented ethnicities.[9]

In our study the data reveals that Clobetasol propionate 1% cream is the most commonly used corticosteroid cream, with a usage frequency of 70%. This high frequency indicates a strong preference or prescription rate for Clobetasol propionate among the surveyed individuals. In contrast, Betamethasone valerate cream follows with a usage frequency of 26%, suggesting a significant but lesser preference compared to Clobetasol propionate. The lower usage frequencies of Mometasone furoate 0.1% cream (3%) and Betamethasone cream (5%) indicate that they are less commonly used or prescribed in this population. Among topical medications, Clop GM™, Panderm +™, and Dermi 5™ are the most commonly used, with frequencies of 17%, 16%, and 14% respectively. Fourderm™ and Quadriderm™ are used with similar frequencies at 13% and 10%, respectively. Terbinaforceplus™ and Betnovate™ have lower frequencies at 8% and 7%, indicating their less frequent use compared to the others.

It was discovered in an Iraqi study that 7.9% of the people who attended the dermatology clinic had abused TCS. The study was carried out by Al-Dhalimi and colleagues.[10] In a study conducted in China by Lu et al., the prevalence was found to be 28.5%. However, in a study conducted by Nagaraj et al.[6], the prevalence was found to be 35.8%, which is a remarkable high. This can be explained by the fact that the

prevalence of tinea in this coastal region is increased many folds during the rainy season. The majority of these cases are treated by TCS, which is not a known indication due to the lack of availability of dermatologists.[7]

In the investigations conducted by Al-Dhalimi et al[10]. and Liu et al[11]., a female preponderance was observed since TCS was primarily reported on the face. On the other hand, our analysis revealed a male preponderance due to the fact that tinea is more frequently observed in males. Clobetasol was the most commonly misused medication in the Iraqi study, accounting for 42.1% of all cases. In the study conducted by Al-Dhalimi et al[10], betamethasone was the most commonly abused medication, accounting for 50% of all cases. In our study, clobetasol was abused approximately 73.5% of the time.

In our study the higher frequencies of certain corticosteroid creams and topical medications suggest a preference or prescribing tendency among healthcare professionals. Factors influencing these preferences could include efficacy, safety profile, availability, cost, and patient-specific factors such as skin type and condition severity. Understanding usage patterns can aid healthcare professionals in making informed decisions regarding the selection of corticosteroid creams and topical medications.[12] It also highlights the need for monitoring and managing potential side effects associated with these treatments. The most common adverse effect observed in the study conducted by Al-Dhalimi et al[10] was facial acne, which accounted for 36.4% of the subjects. In another study, the most common adverse effect was facial acne, which accounted for 57.5 percent of the subjects. In a study conducted by Nagaraj et al.[6],the most common consequence of TCS abuse was rebound phenomenon, which accounted for 30 percent, followed by hypopigmentation, which accounted for 17.25 percent, because it was primarily used for tinea.

In our study, the data reveals a range of adverse effects associated with topical corticosteroid use, with the rebound phenomenon being the most prevalent (31% frequency). This indicates a significant occurrence of rebound effects following corticosteroid treatment. Hypopigmentation (18%) and Atrophy (15%) are notable adverse effects, highlighting the impact of corticosteroids on skin pigmentation and tissue thinning. Other observed adverse effects include Straie (13%), Steroid-induced acne (3%), Hirsutism (3%), Rosacea (2%), Perioral dermatitis (1%), and Telegiectasia (1%). Healthcare professionals need to monitor patients for potential adverse effects associated with corticosteroid use, especially considering the high prevalence of rebound effects, hypopigmentation, and atrophy observed in this population. Patient education and counselling regarding the potential adverse effects of corticosteroid creams are crucial to ensure informed decision-making and adherence to treatment plans.

CONCLUSION

Long-term and continuous use of TCS can result in a wide range of side effects, each of which may manifest in a different clinical manner. The recovery process is challenging since there is a phenomena known as rebound that occurs after TCS is stopped. It is typically recommended that gradual withdrawals of TCS be performed in conjunction with the addition of treatment that is adequate to the current clinical issue in order to achieve a favourable clinical outcome.

LIMITATIONS

The study's limitations include a small sample size and single-center setting, which limit the generalizability of the findings to other populations and regions. Additionally, the reliance on patient self-reporting introduces recall bias, as patients may not accurately remember the duration, frequency, or specific types of topical corticosteroids used.

References

1) Rathi SK, D'souza P. Rational and ethical use of topical corticosteroids based on safety and efficacy. Indian J Dermatol. 2012;57:251–9.

2) Dey VK. Misuse of topical corticosteroids: A clinical study of adverse effects. Indian Dermatol Online J. 2014 Oct;5(4):436-40.

3) Coondoo A. Topical corticosteroid misuse: The Indian scenario. Indian J Dermatol. 2014;59:451–5.

4) Stern RS. The pattern of topical corticosteroid prescribing in the United States, 1989-1991. J Am Acad Dermatol. 1996;35(2 Pt 1):183–6.

5) Kumar AM, Noushad PP, Shailaja K, Jayasutha J, Ramasamy C. A study on drug prescribing pattern and use of corticosteroids in dermatological conditions at tertiary care teaching hospital. Int J Pharm Sci Rev Res. 2011;9:132–5.

6) Nagaraj R, Nagaraj SH. Topical steroids more abused than used! A cross- sectional study in the outpatient department of dermatology in a tertiary care centre in coastal Karnataka. Int J Res Dermatol 2020;6:57-61.

7) Nnoruka E, Okoye O. Topical steroid abuse: Its use as a depigmenting agent. J Natl Med Assoc. 2006;98:934–9.

8) Kligman AM, Frosch PJ. Steroid addiction. Int J Dermatol. 1979;18:23-31.

9) Saraswat A, Lahiri K. Topical corticosteriod abuse on face: a prospective, multicenter study of dermatology out patients. IJDVL. 2016;77(2):160-6.

10) Al-Dhalim MA, Aljwahiri N. Misuse of topical corticosteroids. A clinical study from an Iraqi hospital. Eastmediterr health J. 2006;12:847-52.

11) Liu ZH, Du XH. Quality of life in patients with steroid dermatitis before and after treatment. J Eur Acad Dermatol Venereol. 2008;22:663-9.

12) Mahe A, Ayward FG, Dangou JM. Skin diseases associated with cosmetic use of bleaching products in women from Dakar, Senegal. Br J Dermatol. 2003;148:493-500.