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Original Article

The study on clinical pattern of topical steroid induced dermatoses

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Abstract

Backgroun Corticosteroids misuse and overuse leads to many cutaneous adverse effects mainly on face.

Objective To study the various clinical changes associated with steroid induced dermatoses.

Methods Cross sectional study of 300 patients presenting with dermatoses secondary to topical corticosteroid application attending dermatology OPD at our tertiary care centre during the period of one year from November 2018 to October 2019 was done. A detailed history including characteristics of topical corticosteroid use, duration of use, prescription source and adverse effects were thoroughly evaluated. A thorough examination of the patient, detailed cutaneous examination by a dermatologist including skin biopsies were performed when necessary. Photographs of the patient were taken.

Results In our study 52.7% were female patients and the rest were males. Majority belonged to the age group of 15 -30 years (50.7%). The commonest chief complaint was itching (75.7%), with the commonest site affected being groin (63.3%), followed by face (33%). The commonest of prescription was from quacks (27%), followed by pharmacists (19.3%) with the commonest underlying condition for which topical steroids were prescribed was dermatophytoses (71%). Minimum duration of abuse was 2 days and maximum 2 years.

Conclusion In our study, younger individuals of both genders were affected. Groin and face were the commonly affected sites with itching and burning sensation being the most common complaints. Most common adverse effects were scaling (69.3%) followed by hyperpigmentation (16.7%). Clobetasol propionate(56.3%) with other components (antifungal and antibiotic) was the mostly abused topical steroid by predominantly quacks, pharmacist and other practitioners for dermatophytoses (71%). Based on the above observations of topical steroid abuse, it is imperative to make an effort for its legal and ethical use through proper prescriptions. It is very essential to educate and counsel the patient about the significance of its proper use, the harm from its overuse and the danger of it's over the counter use especially as a cosmetic agent.

Key words
Topical corticosteroids, steroid induced damage.

Introduction

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Topical corticosteroid is one of the most widely used therapeutic agents in modern dermatology for various diseases in different age groups of patients.[1] Use of these drugs require thorough knowledge and in depth understanding of the principles of topical therapy.[2] Corticosteroids misuse or overuse leads to many cutaneous adverse effect.[3] Pharmacists along with several

other non-medical advisors and over the counter easy availability of topical steroids compound to this problem. Hence it is imperative to make an effort for its legal and ethical use through proper prescriptions.[4] It is very important to educate the patient about the significance of its proper use, the harm from its overuse and the danger of it's over the counter use especially as a cosmetic agent.[5] Topical corticosteroid-induced rosacea-like dermatitis (TCIRD) is an entity which starts after long and improper application of topical corticosteroid and the rebound phenomenon which appears after discontinuation of its use on the face.[6] Topical steroid‑dependent face (TSDF), i.e., flushing or rebound erythema, burning, itching, and dryness/ scaling is a commonly encountered complication on withdrawal of indiscriminate, long‑term use of potent topical steroids on face, apart from other associated side effects such as acneiform eruptions, perioral dermatitis, hypertrichosis, demodicidosis, steroid addiction, dermatitis rosacea-formis steroidica, red face syndrome and background erythema.[7,8]

Methods

Our study was a cross sectional study involving patients with dermatoses secondary to topical corticosteroid application presenting in dermatology OPD at our tertiary care centre during the period of one year from November 2018 to October 2019. In each case the investigator ascertained the content of the topical application was as a corticosteroid. After obtaining an informed written consent, detailed history was taken and clinical examination of all patients was done along with review of medical documents for primary diagnosis, investigations and medication history and detailed history including characteristics of topical corticosteroid use, prescription source and adverse effects were evaluated. Our inclusion criteria included patients with history of topical steroid application and those who gave written informed consent. Patients who did not give consent to the study and cases where the topical application in use could not be confirmed as a corticosteroid were excluded from the study.

Results

Among the total 300 patients diagnosed with topical steroid abuse, 158 (52.7%) were female and 142 (47.3%) males. There was no statistical difference in proportion of steroids abuse between both the sex (p=0.35). The mean age of patients was 30.4±13.93 years (range, 2-89 years). Majority belonged to the age group of 15-30 years (50.7%) followed by 30-45 years (30.0%).

Patients presenting complaints were itching (75.7%), burning (16.3%), pimples (11.7%) and darkening of applied area (7%). The source of prescription of topical steroids is given in **Table 1**. Commonest underlying condition for steroid abuse was dermatophytoses (71%) of all types such as tinea corporis, cruris, faciea and incognito. The other underlying conditions were acne vulgaris (15%), melasma/ hyperpigmentation (10.7%) contact dermatitis (1.3%), pyoderma (1%), polymorphic light eruption (0.6%) and scabies (0.3%). Groin (63.3%), face (33%), chest (22%) and buttock (18.7%) were the commonly involved site while other sites such as abdomen, back, hand, leg and axilla was less than 10%. Minimum duration of abuse was 2 days and maximum 2 years.

Table1 Source of prescription of topical steroids among the study patients (N=300).

Source	*Frequency (%)*
Quacks	81 (27.0)
Pharmacist	58 (19.3)
Ayurveda practitioners	45 (15.0)
Allopathic doctors	40 (13.3)
Homeopathic practitioners	33 (11.0)
Relatives and friends	23 (7.7)
Beautician (salon)	20 (6.7)

Table 2 Composition of topical steroids used by the study participants (N=300).

Composition	*Frequency (%)*
Clobetasol propionate	169 (56.3)
Betamethasone valerate	96 (32.0)
Mometasone furoate	35 (11.7)
Other components	
Gentamycin	156 (52.0)
Miconazole	124 (41.3)
Tolnafate	72 (36.0)
Clotrimazole	72 (36.0)
Hydroquinone	70 (23.3)
Ofloxacin	56 (18.7)
Ornidazole	56 (18.7)
Terbenafine	56 (18.7)
Neomycin	53 (17.7)
Hydroxyquinolone	15 (5.0)
Tretinoin	15 (5.0)

Table 3 Adverse effects following topical steroids abuse (N=300).

Adverse effects*	Frequency (%)
Scaling	208 (69.3)
Hyperpigmentation	50 (16.7)
Telangiectasia	49 (16.3)
Hypertrichosis	48 (16.0)
Erythema	45 (15.0)
Striae	33 (11.0)
Pustules	32 (10.7)
Atrophy	16 (5.3)

*More than one adverse effect present among the patients

Most of the patients had used the topical steroid for 1-3 months (67.7%) followed by less than 1 month (23.3%), 3-6 months (7.7%) and more than 6 months (1.3%).

The composition of topical steroid and the other components used by the patients is given in **Table 2**. Most of the topical steroids belonged to potency of class I (56.3%), followed by class IV (32.2%) and class II (11.7%). Characteristics finding on examination was scaling, hyperpigmentation, telangiectasia, hypertrichosis, striae, atrophy and pustules **(Figure 1, 2 & 3)**. Adverse effects documented in the present study are given in **Table 3**.

Discussion

Topical steroids is commonly used in most of the dermatological clinics in India.[4] A study on prescription pattern in dermatology OPD, found that 28.4% of all prescription contained a topical steroids.[1] It has been used to treat various skin conditions such as psoriasis, atopic dermatitis, lichen planus, lichen simplex chronicus, discoid lupus erythematosus, vitiligo, melasma, urticaria, etc. and even for certain undiagnosed skin rash by dermatologists and general physicians.[9] Its application leads to quick resolution of signs and symptoms due to their anti-inflammatory properties, unfortunately this is also the same reason which causes adverse effects.[10] Several studies have documented the abuse of topical steroids.[1,4,5,6,11,12]

Our study did not find significant difference between female and male presenting with topical steroid abuse. Other studies[5,6,13] found female had higher proportion of abuse than male, but the study participants included only those with steroid abuse involving only face.

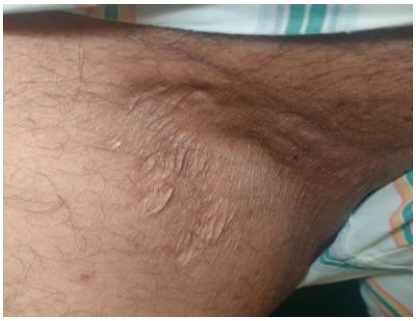

Figure 1 multiple striae with atrophy over crural fold.

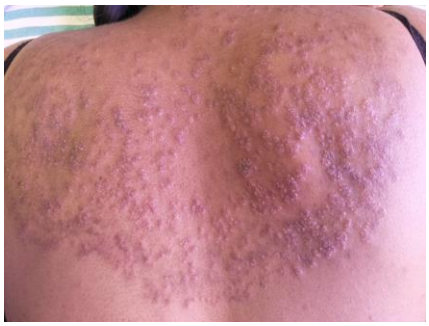

Figure 2 Large erythematous plaque studded with papules and pustules over upper back.

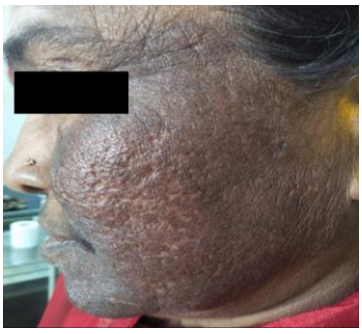

Figure 3 Hyperpigmented plaque with erythema and hypertrichosis over cheek and forehead.

A study by Meena et al.[14] which included steroid abuse of all body surface, found a greater proportion of male affected than female. From analyzing these studies we can suggest that steroid abuse of face is common among female while that of the rest of the body sites are more involved in males. Further research has to be done to confirm these findings.

Several studies[11,13-17] and ours have found, the younger age group (between 11 to 30 years) predominantly presenting with steroid abuse. The indication for misuse among this age group has being mainly due to its use as a skin lightening agent. But in our study, various types of fungal infection were the main indication. Due to this reason groin (63%) was the predominantly affected site followed by face, chest and buttock.

Practicing quacks (27%) were major source of prescribing topical steroids leading to drug abuse in the present study followed by pharmacist (19%), ayurvedic (15%), allopathic (13%) and homeopathic (11%) doctors. Less than 10% were suggestion from friends, relatives and beauticians. Some studies [14, 16] report pharmacist to be mainly responsible while other stated relatives and family members.[5,6,13,15]

A study by Nagesh et al.[18] found general physician to be mainly responsible for topical steroid misuse. These findings highlight the fact that the cause of steroids abuse is not only restricted to the para-medical or lay person but even qualified physician misuse the drug. There is a need to create awareness among all the stakeholders, such as physicians, pharmacists and patients to prevent its misuse.

Overall, the average duration of topical steroid abuse in our study was less than 6 months for most of the study patients and similar finding have been documented in many others studies.[5,13,14,17,18] Few studies[6,16] have stated the duration to be between 6 to 12 months while another study by Bhat et al.[15] found the average period of steroid abuse to be more than one year.

In our study, Clobetasol propionate was the most common cause of topical steroid abuse, similar to studies done in India[13,14] and Iraq.[11] Other studies[5,6,15] have reported Betamethasone valerate is misused more frequently. Other components frequently used in combination were gentamycin, miconazole, tolnaftate and clotrimazole. A study by Varshney et al.[17] also reported the similar combination of topical steroids with antibiotics and antifungal.

Systemic side effects like Cushing's disease, femoral head osteonecrosis, and cataracts are rare with topical steroids and its occurrence depends on the potency, site and duration of application. High potency steroid should be applied only twice a day for a maximum of 4 weeks. Moreover transcutaneous penetration is more in body parts with thin epidermis such as eyelids, periorbital area, axilla, groin and genitalia.[19] We identified no systemic side effects of topical steroid abuse in our study. Among the local effects, scaling (70%) of the skin was most common followed by hyperpigmentation, telangiectasia, hypertrichosis and erythema. Similar findings have been documented in other studies with varying proportion[5,14,18,17] The adverse reactions are mostly reversible to some extent upon discontinuation, except for atrophic striae, which are not reversible.[9] Managing these side effect is a big challenge for dermatologist since sudden discontinuation of topical steroid can lead to flare up of the condition. In such situation, for mild cases can be treatment with mild topical steroids given in tapering fashion while severe cases need oral anti-inflammatory, antibiotics with or without topical metronidazole.[6] In our experience most of the patients improved with

the gradual or abrupt tapering and eventually complete cessation of use of the topical steroid depending on its potency and duration of use. Symptomatic treatment of dryness, burning sensation, pruritus, stinging, redness, acneiform eruptions and photosensitivity, improved with bland emollients, soothing calamine and aloe vera preparations, topical metronidazole, topical calcineurin inhibitors, topical antibiotics, topical anti acne medications and sunscreen. In severe cases systemic agents like tetracyclines, antihistamines, isotretinoin, and non-steroidal anti-inflammatory drugs were given and eventually treated the underlying cause for which the patient applied the topical steroid in the first place.

Conclusion

Our study concludes that younger individuals of both gender present with topical steroid induced dermatoses. Groin and face were the commonly affected sites with complaints of itching and burning sensation. Clinical examination found scaling, hyperpigmentation, telangiectasia and hypertrichosis of the affected area. Clobetasol with other components (antifungal and antibiotic) was the mostly abused topical steroid by quacks, pharmacist and other practitioners. Fungal infection was the main indication for abuse. Since our study is hospital based, it might not depict the true clinical scenario in the community and hence we suggest the need for large scale study including the sales of these topical steroids without prescription to understand the abuse of these drugs and its consequences.

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