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To Study The Psychosocial Patterns In Topical Steroid Abuse Patients

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Abstract

Background: Topical steroids are one of the most widely prescribed and freely available over-the-counter therapeutic formulations in daily practice. They lead to rapid improvement and desired effects and hence, are likely to be used even without a prescription leading to various side effects.

Materials & Methods: This was a cross-sectional questionnaire-based study conducted from June 2022 to December 2022, at the Outpatient Department of Dermatology, Venereology and Leprosy of a tertiary care centre. All patients of >18 years of age attending OPD with a history of topical steroid abuse in the last one year were included in the study.

Results: Out of 200 patients who abused topical steroids, females preponderance were seen (F:M=2.1:1). The most common age group was 30-45 years (45%). Majority of the patients used the steroid for a duration of 6 months- 1 year (72%). 91% patients were not aware about the molecule and its side effects. 96.5% patients were found to be dependent on topical medication. The steroid most commonly applied was clobetasol propionate (32%) followed by mometasone (25.5%). 59% of patients had applied the formulation over the face while the rest had applied it over other body sites as well. The source of recommendation was self in most of the patients (38%). The major reason for its misuse was dermatophytosis (34.5%) followed by melasma (34%).The most common adverse effect observed was erythema (34.5%) followed by photosensitivity (15.5%).

Conclusion: Topical steroids have been abused by patients on their own or by pharmacists, Ayurvedic/ Homeopathic doctors and general physicians for various reasons. There is a need to create awareness among patients and medical fraternity. Necessary measures are required to be taken by the concerned authorities to stop absurd prescribing practices in the community and to keep check on over the counter availability of drugs.

Keywords: Abuse, misuse, topical steroids, adverse effects

Introduction

The introduction of steroids in dermatology is considered to be the most significant landmark in dermatological disorders.[1] Topical steroids are being widely used by various dermatologists and general physicians for providing symptomatic relief in various dermatoses.[2] In addition to their anti-inflammatory action, they have anti-proliferative and immunosuppressive properties as well.[3] This very usefulness of the drug has become a double-edged sword causing vulnerable population for its constant abuse and misuse giving rise to various side effects, including local, systemic and psychological side effects.[1] Local side effects include striae, telangiectasia, stellate pseudo-scars, hypopigmentation, fragile skin, ulceration, purpura, impaired wound healing, and facial hypertrichosis. [4]

In recent times because of social media advertisements, fair skin has been considered a mark of beauty, so some young adults use topical steroids as a skin-lightening agent to achieve the unrealistic goal of better appearance which is a matter of concern for dermatologists across the globe.[5,6] In a country like India, the easy availability of various corticosteroid molecules and poor access to dermatologists makes the situation even worse.[2] Pharmaceutical companies selling every medicine, whether OTC(over the counter) or not further perplex this scenario.[2,5] There are studies which have tried to highlight the various side effects induced by steroid abuse over the face, but its misuse as a cream for any skin problem at any given site is common.[7]

The aim of this study was to assess the frequency of misuse of topical corticosteroids, the reason behind it, the common issues resulting from it and to create awareness among the people about it.

Materials And Methods

This was a cross-sectional observational study conducted in a tertiary care hospital in the outpatient department of dermatology over a 6 months period from June 2022 to December 2022. The Institutional Ethics Committee clearance was obtained before starting the study and their written informed consent was obtained before enrolment. All patients aged >18 years of age irrespective of gender attending dermatology OPD with a history of topical steroid abuse in the last one year were included in the study. A preformed questionnaire was distributed to the participants. It included the demographic data (age, sex, socio-economic conditions, occupation), history of corticosteroid therapy, the type of steroid used, its potency, duration of therapy, indication for using the drug, benefits, the prescription source, awareness about the molecule used, history of withdrawal symptom upon stopping the drug and adverse effects. Morphological changes in the skin related to abuse of steroids of all the patients were noted by a dermatologist.

Inclusion Criteria

1. All the patients above 18 years, consenting to the study irrespective of gender.
2. Patients selected were those who had either applied topical steroid inappropriately (for conditions in which steroids are not indicated) and for longer duration without medical supervision for certain skin problems and presented with side effects of these drugs as chief complaints.

Exclusion Criteria

1. Individuals who were unwilling to participate.
2. Patients who were on oral steroids for any reason.
3. Patients with conditions which can have similar changes similar like total steroid-dependent facies (for example- Cushing's syndrome or polycystic ovaries).

Results

Out of 200 patients affected by steroid abuse, 68% were females and 32% were males. The majority of them were in the age group of 30-45 years (45%) with a mean age of 36.74 ± 12.08 (years). 64% of patients belonged to rural areas and 36% of patients to urban areas. Majority of patients (60%) were home maker followed by labourer (21%) [Table 1]. A major group of patients used steroids for a duration period of 1-6 months (72%), followed by 6 months -1 year (17%), >1 year (7.5%) and < 1 month (3.5%). The mean duration of use was 6.5 months [Table 2]. 59% of patients had applied steroids over the face and 41% over other sites of the body. 60.5% of patients had used the topical steroid twice to thrice a day and the rest (35.5%) had used it only once a day. Family members of 28.5% of patients were also using the same formulation. 89% patients were found to be literate. 91% patients were not aware about the molecule and its side effects.96.5% patients were found to be dependent on topical medication. There was an immediate benefit observed after the application of steroids in 78.5% of patients. A large proportion of patients (77.5%) had used steroids alone, 15.5% of patients had used them as a combination of mometasone, hydroquinone and tretinoin and 3.5% of patients had used them along with antibiotics [Table 4]. The steroid molecule used most commonly was clobetasol propionate (36%) followed by mometasone furoate (25.5%) and betamethasone valerate (23.5%) [Table 3]. An enquiry into the source of prescriptions revealed, 38% were using self prescription, 33.5% by pharmacists, 11.5% by general physicians, 7.5% by dermatologists and 5.5% by friends/ family / relatives [Table 5]. The various underlying dermatoses or

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problems for which topical steroid was used were dermatophytosis (34.5%), melasma (34%), acne vulgaris (14%), vulval pruritis (4%), eczema(3%), psoriasis (2%), photodermatitis (1%) and others (3%) like eccrine hygrocystoma, pyogenic granuloma and lichen planus pigmentosus [Table 6]. Adverse effects were documented and the most common among them was erythema (58%), followed by rebound phenomenon in 24.5%, and photosensitivity in 15.5%. There was an aggravation of existing lesions in 12.5% and pigmentary changes in 10.5% of patients [Table 7].

Tables :

Table 1: Epidemiologcal characteristics of the patients abusing topical corticosteroids.

Parameters	**No. of patients**	**percentage**
Age groups (years)		
18-29	64	32%
30-44	90	45%
45-60	38	19%
>60	8	4%
Mean age	36.74 ± 12.08	
Gender		
Male	64	32%
Female	136	68%
Residence		
Urban	128	64%
Rural	72	36%
Education		
Literate	178	89%
Illiterate	22	11%
Occupation		
Home maker	120	60%
Labourer	42	21%
Student	22	11%
Farmer	5	2.5%
Shopkeeper	5	2.5%
Teacher	4	2%
Unemployed	2	1%

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Table 2: Distribution of patient depending on duration of use of topical steroids

Duration (month) of use	No. of patients	Percentage
< 1 month	7	3.5%
1-6 month	144	72%
6-12 month	34	17%
>12 month	15	7.5%

Table 3: Distribution of patients according to the abused corticosteroids .

Steroid molecule	Potency	No of patients	Percentage
Clobetasol propionate cream	I	72	36%
Betamethasone valerate cream	II	47	23.5%
Beclomethasone dipropionate cream	II	14	7%
Fluticasone Propionate cream	V	5	2.5%
Mometasone furoate cream	IV	51	25.5%
More than 1 steroid		10	5%

Table 4:Distribution of patients according to the contents of topical steroid preparation.

Type of formulation used	No of patients	Percentage
Steroid alone	155	77.5%
Mometasone+Hydro quinone+Tretinoin	31	15.5.%
Steroid+ Antibiotics	4	2%
Mixed combination	3	1.5%
Steroid+Indigenous	7	3.5%

Table 5: Source of recommendation in patients using topical corticosteroids of face

Source of recommendation	No of patients	Percentage
Dermatologist	15	7.5%

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General physician	23	11.5%
Ayurvedic/Homeopathic doctors	8	4%
Pharmacy	67	33.5%
Self	76	38.0%
Family/Friends/Relatives	11	5.5%

Table 6: Indication of topical steroid abuse in the patients.

Indication	No. of patients	Percentage
Superficial dermatophytosis	69	34.5%
Melasma	68	34%
Acne vulgaris	28	14%
Vulval pruritis	8	4%
Eczema	6	3%
Psoriasis	4	2%
Photodermatitis	2	1%
Balanoposthitis	2	1%
Others	6	3%
Multiple indications	6	3%

Table 7: Adverse effects of topical steroid abuse by the patients.

Adverse effects	No of patients	Percentage
Erythema	**116**	**58%**
Telangiectasia	**19**	**9.5%**
Photosensitivity	**31**	**15.5%**
Pruritis	**26**	**13%**
Pigmentary changes(hypo and hyperpigmentation)	**21**	**10.5%**
Atrophy	**16**	**8%**
Striae/purpura	**9**	**4.5%**
Follicultis	**9**	**4.5%**
Acneiform eruption	**20**	**10%**

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Xerosis	**4**	**2%**
Rosacea	**4**	**2%**
Rebound phenomenon(Addiction)	**49**	**24.5%**
Aggravation of existing lesions	**25**	**12.5%**

® Because of multiple adverse effects , the sum of the percentage is above 200

Table 8 : Parameters assessed in our study in comparison with various other previous studies.

Parameters	**Saraswat A et al. (2011)**	**Sinha A et al (2016)**	**Nyati A et al (2017)**	**Varshney I et al (2019)**	**Kar S et al (2022)**	**Our study**
Sex predominance	Females (74%)	Females (52%)	Females (72.6%)	Males (54.3%)	Females (72%)	Females (68%)
Age group	21-30y	20-30y	21-30y	11-30y	26-35y	30-45 y
Duration of use	1-3 months(27 %)	>1 year (50%)	1-3 months (33%)	1-6 Months(36%)	<6months (51%)	1-6 months(72%)
Frequency of application	Not mentioned	Once a Day (52%)	Not mentioned	Twice daily (84%)	Not mentioned	Twice thrice daily (60.5%)
Site of application	Study done on only face	Face (98%) Other site (2%)	Study done on only face	Not mentioned	Study done on face only	Face (59%)
M/C Steroid molecule of abuse	Betamethasone Valerate (58.9%)	Not Mentioned	Beta-methsone valerate (52%)	Clobetasol Propionate (62.6%)	Beta-methasone valerate (31%)	Clobetasol propionate (36%)
Source of recommendation	Friends (50%)	Self (80%)	Pharmacist (42.5%)	Quacks (31.9%)	Pharmacist (41%)	Self/friends /family (43.5%)
Indication for use	General face Cream (29%)	Fairness Cream (74%)	Melasma (57.9%)	Dermato-phytosis (59.5%)	Acne (38%)	Superficial dermatophytosis (34.5%)
Adverse effect	Acne (57.5%)	Not	Acneform	Tinea	Acneform	Erythema

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	Mentioned	eruption (53.7%)	incognito (41.5%)	eruption (25%)	(58%)

Figure Legends:

Figure 1: Steroid induced erythema and hypertrichosis in a patient of melasma.

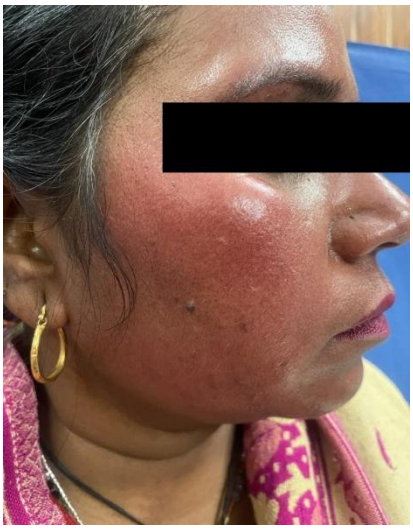

Figure 2: Steroid induced striae present over thigh in a patient of tinea corporis.

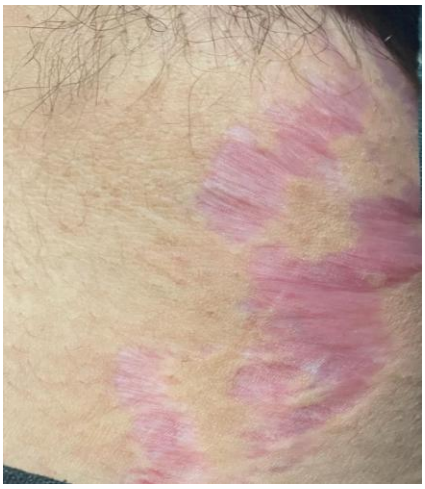

Figure 3: Steroid induced atrophy (wrinkling and thinning of skin) and purpura present over hands.

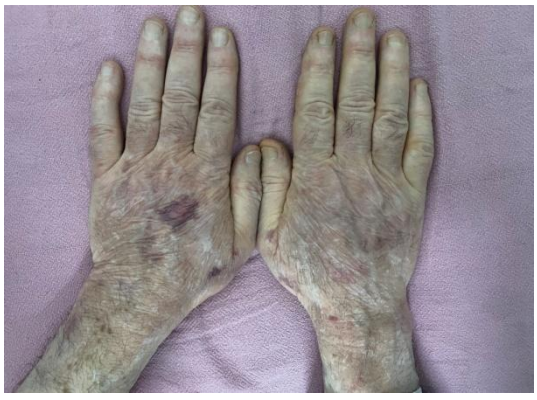

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Figure 4: Acneform eruption in a 24 year old female due to topical corticosteroid abuse

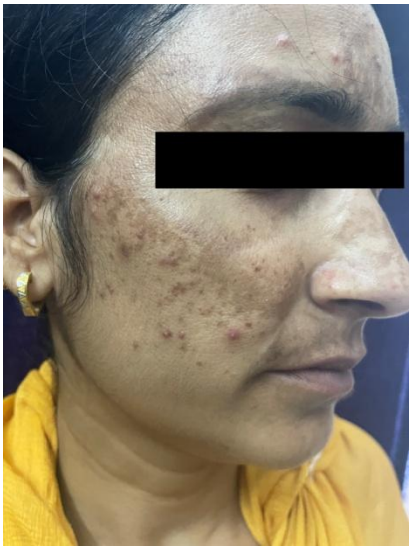


Figure 5: Steroid induced erythema, telangiectasia and purpura over breast.

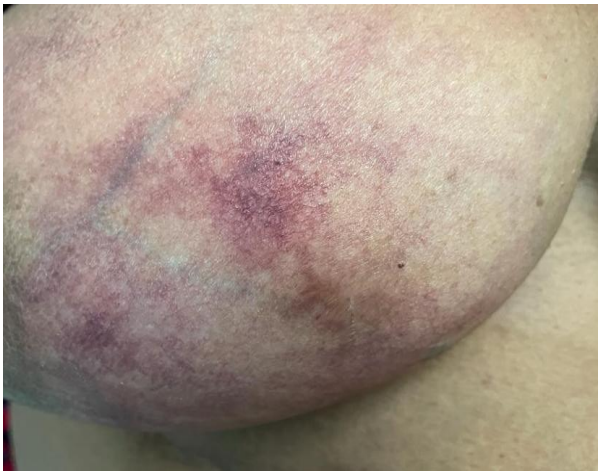
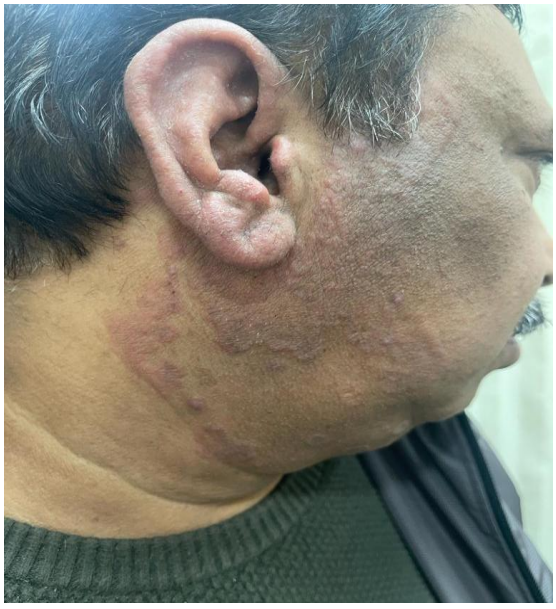


Figure 6: Tinea incognito present over face



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Discussion

The topical steroid introduced for the first time in 1952 to treat dermatitis was hydrocortisone.[8] Since then, they continue to play an important role in various dermatoses via their anti-inflammatory, antipruritic, and antiangiogenic properties.[3] Subsequent use of potent steroids made a way into the era of medicine.[15] Steroid abuse has become an emerging topic of concern in dermatology clinics.[6] After the first case series which was published in 2006 many authors in India have tried to enlighten this issue.[9] In our study we have focused not only on steroid abuse done as a skin-lightening agent over the face but also their misuse in providing symptomatic relief in various dermatoses, the most common being Dermatophytosis which was consistent with results of other studies. [8,10] This noticeable finding was due to the fact that the study was not only limited to the face but also included other sites. Topical steroid containing antifungal creams are being widely using in India which have only role in providing symptomatic relief for itching and not eliminating the fungus, thus causing resistance.[6] Other prevailing indications for steroid abuse are melasma, acne vulgaris, psoriasis and as fairness cream. [12,9,11,6,13] In a study by Pal D et al. (2.66:1) and Swaroop MR et al. (1:0.4) females outnumbered males, similar to present study (F:M=2.1:1) as females are more concerned regarding their appearance than males.[2,12] The most common age group in our study was the 30-45 years of age group similar to the study by Kar S et al.[9] The likely explanation for findings in the present study is that apart from the face, a good number of patients were using steroids at other sites like the groin, axilla, hands and feet. In other studies, most of the patients belonged to the younger age group because of social media influence and prompt response of steroids as a fairness cream. [8,14] Duration of application of topical steroid was mostly seen within a period of 1-6 months which was consistent with other studies.[8,9] This could be because sudden discontinuation of steroids leads to withdrawal reaction and worsening of existing skin condition. Therefore people tend to apply topical steroids for a longer duration. The steroid used most commonly in our study was clobetasol propionate (36%), this was in accordance with studies done by Varshney I et al, Seth NK et al. [8,10] Most of the studies recorded betamethasone valerate as the culprit drug.[7,12,13] High-potency steroids are more frequently abused than low-potency molecules as it provides rapid symptomatic relief and better results outcome causing patients to use them more often. Most patients in our study had taken the formulation on their own or as a recommendation from pharmacist similar to other studies.[5,13] Ongoing tempting advertisements and peer pressure influence people for purchasing topical steroids on their own without going through a dermatologist's prescription. 11.5% and 7.5% of patients were using steroids on the prescription of general physicians and dermatologists respectively. There is a constant pattern of prescribing topical formulations containing steroids along with antifungals and antibiotics by general physicians. A large proportion of patients were using only steroid formulation while the rest of them were using it in combinations. The combination cream (mometasone, hydroquinone and tretinoin) was the frequent one. Among the various adverse effects that were observed after the application, 58% had erythema which was similar to the study done by Chohan SN et al, Kar S et al, and Swaroop MR et al.[3,9,11] Other side effects noted were rebound phenomenon, photosensitivity and pigmentary changes. This study reveals that the free availability of all topical corticosteroid without a prescription has allowed many of these brands to become domiciliary names. Patients are unaware of the risks posed by these products and they continue to use them for long duration before seeking help from dermatologists. We have also noticed that even correct prescriptions are being misused by getting repeated refills from the pharmacists.

Conclusion

The present study has tried to highlight the issue of topical corticosteroid abuse in our region, especially concerning fungal infections. Easy availability, low cost, over-the-counter prescriptions by quacks and pharmacists, the lack of awareness among people and poor accessibility to specialist services are the major contributing factors to this catastrophe. Unrealistic beauty expectations, unreasonable advertisements by pharmaceutical companies and branding of steroid molecules as fairness creams have further complicated the situation in the Indian scenario. There is a need to spread awareness at multiple levels involving patients, pharmacists and doctors for proper usage of these molecules. Strict legislation

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should be made and implemented by the authorities to keep a check on over-the-counter sales of these formulations. Conscious efforts should be made by the dermatologist to educate the patients as well as general practitioners about the type of drugs and their side effects.

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