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Original Research Article

Self administration of topical steroids in face: A cross-sectional study from a tertiary care hospital in Northeast India

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ABSTRACT

Background: Topical steroid (TS) creams are easily available in pharmacies all over India, as OTC (over the counter) drugs. So are easily being misused even without the dermatologist's prescription, which leads to side effects pertaining to the lack of awareness about the contraindications and adverse effects of the topical steroids.

Materials and Methods: This was a cross-sectional, questionnaire-based study, conducted from July 2021 to December 2021, at the outpatient Department of Dermatology, Venereology and Leprosy, of a tertiary care hospital in North East India. Patients of both sexes (males and females), 15 years onwards were included in this study who presented with any kind of facial dermatoses resulting from use of topical steroid on face.

Results: Out of 300 patients who misused TS, majority were females (72%). The most common brand used was Betnovate C which contained betamethasone (0.1% w/w) & clioquinol (3% w/w). The average duration of use was less than 6 months (51%), shortest being 15 days and longest being 4 years. The most common reason for misuse was acne (38%) followed by fairness (22%) and the most common effect observed after misuse was acne form eruptions (25%) followed by dyspigmentation (16%). Most of the users had attained education till primary school. Abuse was commonly from purchase of the drug OTC or from pharmacists.

Conclusion: As steroid abuse is increasing alarmingly, awareness about its various adverse effects becomes necessary.

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1. Introduction

TSDF is defined as the temporary or permanent damage to the skin of the face aggravated by the unreasonable, nonselective, unsupervised, or long-term use of TCs resulting in a plethora of cutaneous signs and symptoms and psychological dependence on the drug.¹ Facial epidermis is comparatively thinner as compared to the rest of the body which results in increased percutaneous absorption of drugs. Also, face has a profuse blood supply which increases incidence of side effects.² The functionality of the most widely used topical therapeutic agent by dermatologists, has

become a double-edged sword with increasing prevalence of misuse, leading to catastrophic consequences.¹

2. Materials and Methods

This was a cross-sectional, questionnaire-based study, conducted from July 2021 to December 2021, at the outpatient Department of Dermatology, Venereology & Leprosy, of a tertiary care hospital, North East India. The participants had given their consent to participate in the study before filling out the questionnaire. The questionnaire included the demographic data of the participants (age, gender, nationality, place of residence, marital status, education, and employment status). Then, it was followed

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by questions about the usage of TCs- detailed clinical history of steroid application, source of prescription, reason of misuse and the presenting side effects. It was followed by detailed examination for side effects of TS like acne, erythema, telangiectasia, dyspigmentation, hypertrichosis etc.

2.1. Inclusion criteria

1. All the patients above 15 years, consenting for the study irrespective of gender
2. Patients who have applied TC more than 2 weeks without consultation of a dermatologist leading to its side effects.

2.2. Exclusion criteria

1. Individual who were unwilling to participate.
2. Pregnant and lactating patients.
3. Patients who were on oral steroids for any reason.
4. Patients who were on topical CS's on face prescribed by a dermatologist for any facial dermatoses.
5. Patients with conditions which can have similar changes similar like TSDF (example- Cushing's syndrome or polycystic ovaries).

3. Results & Observations

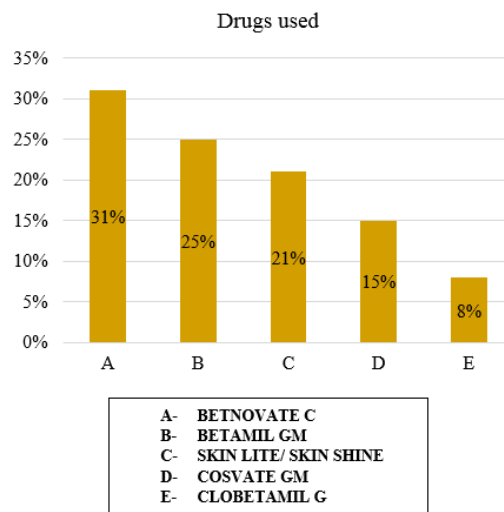
Out of 300 patients who misused topical steroids, majority were females (72%). Maximum patients were in the age group 26-35 years. The most common brand used was Betnovate C which contained betamethasone (0.1% w/w) & clioquinol (3%w/w). The average duration of use was less than 6 months (51%), shortest being 15 days and longest being 4 years. The most common reason for misuse was acne (38%) followed by fairness (22%) & the most common effect observed after misuse was also acne form eruptions (25%) followed by erythema (17%). Most of the users had attained education till primary school. Abuse was commonly from purchase of the drug OTC or from pharmacists.

Table 1: Age wise distribution

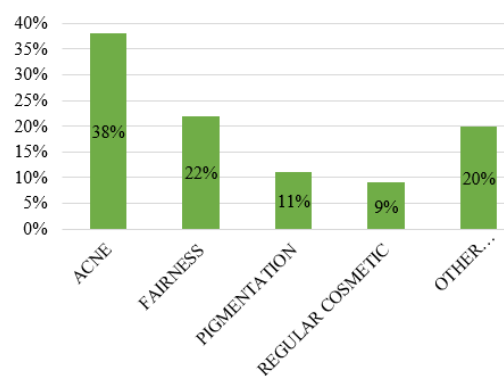
Age Group (in Years)	No. of Patients	Percentage (%)
15-25	78	26
26-35	162	54
36-45	36	12
46-55	18	6
>55	6	2
Total	300	100

OTC supply of topical steroid creams mainly by the pharmacist (41%) remains the leading cause for unsupervised application of steroid on face in our study.

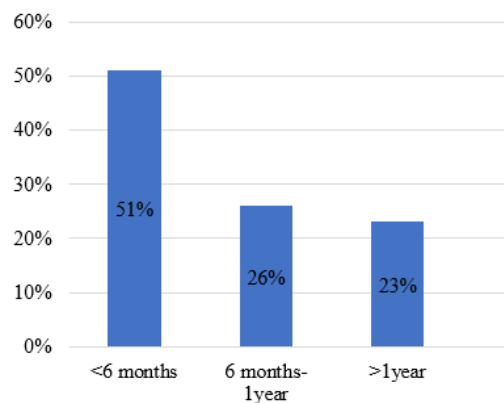
Out of 300 patients used TCS on face for Acne. Graph 1



Graph 1: Betnovate C was the most abused brand by 93 patient's (31%)



Graph 2: Reason for steroid application



Graph 3: Duration of steroid application

Table 2: Gender wise distribution

Number of males	84
Number of females	216
Total	300

Table 3: Education level of the patients

Education	Number of patient's	Percentage
Illiterate	30	10%
Primary school	174	58%
Secondary/high school or above	96	32%
Total	300	100%

Table 4: Source of prescription

Source of prescription	Number of patient's	Percentage (%)
Over the counter/ pharmacist	123	41
Quacks	66	22
Relatives/friends	57	19
Doctors (Non Dermatologists)	36	12
Social media influencers/ads	18	6
Total	300	100

Table 5: Brand of topical steroid

Brand	Composition
Betnovate C	Betamethasone (0.1% w/w)+ clioquinol (3% w/w)
Betamil Gm	Betamethasone Dipropionate + Gentamicin + Miconazole Nitrate
Skinlite/ Skinshine	Hydroquinone+ Tretinoin+ mometasone furoate
Cosvate Gm	Clobetasol Propionate+ Gentamicin+ Miconazole Nitrate
Clobetamil G	Clobetasol Propionate+ Gentamicin

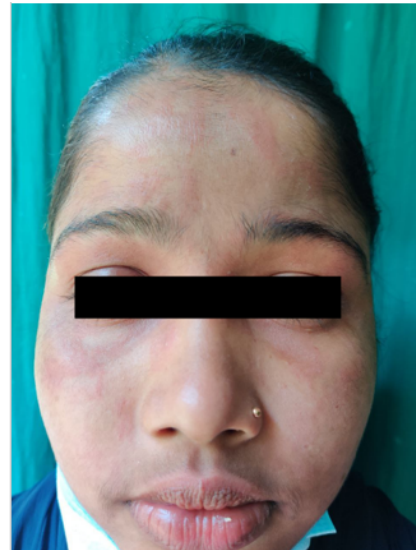
153 patients applied steroid on face less than 6 months & 69 patients applied for more than 1 year, maximum duration being 4 years in our study.

Table 6: Type of skin lesions observed on presentation to OPD

Type of skin lesion	Number of patient's	Percentage (%)
Acne form eruptions	75	25
Rosacea like feature	36	12
Atrophy	24	8
Telangiectasia	27	9
Hypertrichosis	24	8
Dyspigmentation (hypo/hyperpigmentation)	48	16
Erythema	51	17
Tinea incognito	15	5

Most common adverse effect noted were steroid induced acne in 25% of patients (75 in number).

T.incognito was found in only 5% patients (15 in number)

**Fig. 1:** TS induced T.Faciei**Fig. 2:** TS induced hyperpigmentation, telangiectasia, atrophy

4. Discussion

In India, the first case series on topical corticosteroid abuse was published in the year 2006. Thereafter, many authors have tried to focus on the jeopardy caused by its misuse.² As the easy availability and accessibility of topical corticosteroids with various combination offers rapid symptomatic relief so its overuse is common. This was described more than 30 years ago as “serious” in a classic



Fig. 3: Steroid induced acne vulgaris



Fig. 5: Steroid induced hyperpigmentation



Fig. 4: Steroid induced rosacea like picture



Fig. 6: Steroid induced erythema and atrophy

paper by Kligman and Frosch.³

In this study, maximum number of patients belonged to the age group of 26-35 years which is in concordance with the study done by Nyati A et al⁴ and Saraswat et al.⁵

Most of our patients had received educational qualification less than primary school.⁶

Out of 300 patients enrolled in our study, 216 (72%) were females and 84(28%) were males. Our study was in accordance with other national and international studies.^{2,7,8}

The most common prescription source for steroid application was from OTC by the recommendations by the chemist in 41% of patients in our study. And most

commonly abused topical steroid was betamethasone & clioquinol combination cream. similar to studies done in India by Saraswat A et al., Bornali Dutta et at.^{5,8,9}

Duration of application of steroid cream was less than 6 months in our study and most of the other studies as well.^{4,8}

The most common cause of steroid application in our study was due to acne (38%) and most common adverse effect noted post application of steroid was also acne form eruptions. (25%) as seen in other studies.^{4,10}



Fig. 7: Topical steroid induced hypopigmentation

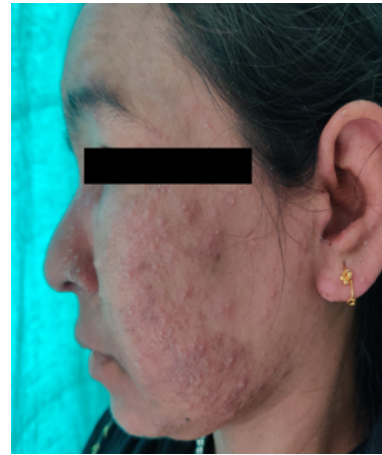


Fig. 10: applied steroid for T.Faciei lead to acne form eruptions



Fig. 8: T.Faciei aggravated by TS application



Fig. 11: Hyperpigmented macules



Fig. 9: Topical steroid induced hyperpigmentation

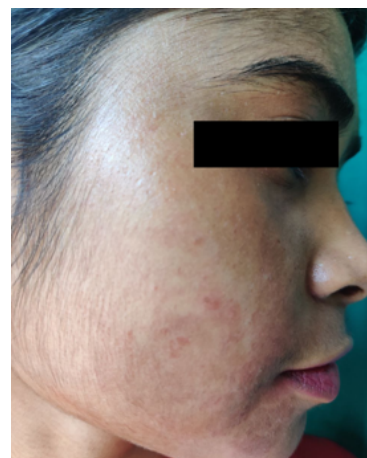


Fig. 12: Topical steroid induced hirsutism and dyspigmentation

5. Conclusion

Topical steroids of different potency are very widely and easily available in almost every pharmacy of India. Such an easy access to this drug has increased abuse to a great extent leading to many local, systemic as well as psychological side effects. The situation is further worsened due to lack of proper legislations and laws regarding selling of steroid formulations over the counter. In this study, we had tried to discover the awareness among the patients, the demographic pattern, and also common side effects of TC use in the face.¹¹

6. Recommendations

All healthcare providers need to be sensitized about the dangers of topical corticosteroid misuse, especially on the face. Stronger implementation of existing laws is required to limit public access and advertising of TC in any form.

7. Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

8. Abbreviations

TS: Topical Steroid; TSDF: Topical Steroid Damaged Face; OTC: Over The Counter.

9. Conflict of Interest

None.

10. Source of Funding


None.


References

1. Lahiri K, Coondoo A. Topical steroid damaged/dependent face (TSDF): An entity of cutaneous pharmacodependence. *Indian J*

- Dermatol.* 2016;61(3):265–72. doi:10.4103/0019-5154.182417.
2. Varshney D, Dhillon D. 2020. a study on clinical profile of topical steroid damaged face (TSDF). *Int J Sci Res.* 2020;9(2):78–80. doi:10.36106/ijrsr.
3. Kligman AM, Frosch PJ. Steroid addiction. *Int J Dermatol.* 1979;18(1):23–31. doi:10.1111/j.1365-4362.1979.tb01905.x.
4. Nyati A, Singhal AK, Yadav D, Sharma MK. Topical steroid abuse on face: A prospective study from a tertiary care centre of north India. *Int J Res Dermatol.* 2017;3(3):433–41.
5. Saraswat A, Lahiri K, Chatterjee M, Barua S, Coondoo A, Mittal A, et al. Topical corticosteroid abuse on the face: A prospective, multicenter study of dermatology outpatients. *Indian J Dermatol Venereol Leprol.* 2011;77(2):160–6.
6. Thomas M, Wong CC, Anderson P, Grills N. Magnitude, characteristics and consequences of topical steroid misuse in rural North India: An observational study among dermatology outpatients. *BMJ open.* 2020;10(5):e032829. doi:10.1136/bmjopen-2019-032829.
7. Lu H, Xiao T, Lu B, Dong D, Yu D, Wei H, et al. Facial corticosteroid addictive dermatitis in Guiyang City, China. *Clin Exp Dermatol.* 2010;35(6):618–21. doi:10.1111/j.1365-2230.2009.03761.x.
8. Mahar S, Mahajan K, Agarwal S, Kar HK, Bhattacharya SK. Topical corticosteroid misuse: the scenario in patients attending a tertiary care hospital in New Delhi. *J Clin Diagn Res.* 2016;10(12):FC16–20. doi:10.7860/JCDR/2016/23419.8986.
9. Dutta B, Rasul E, Boro B. Clinico-epidemiological study of tinea incognito with microbiological correlation. *Indian J Dermatol Venereol Leprol.* 2017;83(3):326–31. doi:10.4103/ijdv.IJDVL_297_16.
10. Dhafiri MA, Alali AB, Alghanem ZA, Alsaleh ZW, Boushel EA, Alali ZB, et al. Topical Steroid Damaged Face: A Cross-Sectional Study from Saudi Arabia. *Clin Pract.* 2022;12(1):140–6. doi:10.3390/clinpract12010018.
11. Pal D, Biswas P, Das S, De A, Sharma N, Ansari A, et al. Topical steroid damaged/dependent face (TSDF): A study from a tertiary care hospital in Eastern India. *Indian J Dermatol.* 2018;63(5):375–9. doi:10.4103/ijid.IJD_218_17.

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