

A Study of Clinical Profile of Patients Presenting with Topical Corticosteroid Induced Facial Dermatoses

Abhineetha Hosthota^{1*}, BC Chandan², Bhargavi Chitturi², Afreena Nilofer², Ankitha Ramesh², Abhishek Bharti²

¹Professor, Department of Dermatology, Venereology & Leprosy, The Oxford Medical College Hospital & Research Centre, Bangalore

²Junior Resident, Department of Dermatology & Venereology, The Oxford Medical College Hospital & Research Centre, Bangalore

*Corresponding Author:

Abhineetha Hosthota, Professor, Department of Dermatology, Venereology & Leprosy, The Oxford Medical College Hospital & Research Centre, Bangalore

E-MAIL: abhineethahosthota@yahoo.com



COPYRIGHT: ©2023 (Abhineetha Hosthota) et al. This is an open-access journal, and articles are distributed under the terms of the Creative Commons Attribution License CC-BY 4.0. (<https://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and reproduction in any medium, provided the original authors and source are credited.

Date of Submission: 16/05/2024

Date of Review: 26/06/2024

Date of Acceptance: 07/12/2024

ABSTRACT

Introduction: The injudicious use of Topical corticosteroid (TC) over the face has resulted in various complications, encountered day to day. Indian market is flooded with more than 18 different steroid molecules. **Methodology:** A hospital-based cross-sectional study was conducted on 170 patients at a tertiary care centre. A pre-structured proforma was used to collect socio-demographic details of the subjects with facial dermatoses due to TC misuse for more than 2 weeks. **Results:** The commonest age group affected was 20-21 years (78.2%) with mostly females (70.6%). Frequent indication for application of TC was melasma (50.0%), Acne (24.1%) and others. Subjects (40.6%) brought a combination of TCs over the counter as a suggestion from friends & relatives. Cutaneous findings of TSDF were exacerbation of pre-existing melasma (41.2%). **Conclusion:** The results of this study underline the need of strict laws. Further, awareness creation among patients and primary care physicians should be given prime importance to prevent the epidemic.

KEYWORDS: Facial dermatoses, Topical Corticosteroid, Drug dependence, Acne vulgaris, Melasma

INTRODUCTION

Topical Steroid Induced facial Dermatoses (TSDF) is defined as the semi-permanent or permanent damage to the skin of the face caused by the irrational, indiscriminate, unsupervised, or prolonged use of Topical Corticosteroid (TCs) resulting in a number of cutaneous signs and symptoms and psychological dependence on the drug.^[1] TSDF is a form of drug dependence which is defined as an adap-

tive state that develops from repeated drug administration, and upon stopping drug use results in withdrawal signs and symptoms.^[2] Dependence to TC mainly occurs due to chronic misuse of the drug. The patient becomes psychologically and physically dependent on the drug. Attempts to withdraw the drug result in rebound or flare of symptoms causing immense distress to the patient so that the patient continues using TC and refuses to withdraw the drug. The most common site of TC addiction is the face.^[3]

In India TC misuse on face was first reported in the year 2006.^[4] After observing steep increase in the number of cases of TC misuse on face resulting in dependence of steroid, the entity was labeled as "Topical steroid-dependent/damaged face".^[5] Kligman and Frosch in 1979 coined the term "steroid addiction." Reports of TC addiction on the face were published in subsequent decades under different names such as dermatitis rosacea formis steroidica, red skin syndrome and steroid-induced rosacea-like dermatitis.^[6-8]

The face being the most visible part of the human body makes it vulnerable to the ill-effects of beauty consciousness, comments, and "medical advice" from laymen throughout life and injudicious use of various substances and drugs such as cosmetics and drugs such as TCs.^[9] Facial skin is thinner & sebaceous glands are larger when compared to other parts of the body causes increased percutaneous absorption of drugs. All this makes face more susceptible to the ill-effects of environmental factors such as sunlight and pollution, friction due to cleaning and rubbing, and application of drugs and cosmetics.^[1]

TCs have an anti-inflammatory, anti-proliferative, immunosuppressive, anti-pruritic, atrophogenic,

melanopenic, and sex-hormone-like effect on the skin, and hence are useful in hyper-proliferative, inflammatory, and immunologic disorders.^[10] Topical corticosteroids are prescribed for the treatment of many inflammatory skin conditions and today represent the drug of choice for the treatment of most of the dermal inflammatory disease. Judicious use of TC on face depends on various factors like indication, potency of the drug, age of the patient and duration, amount and frequency of application.^[11]

Due to an unsupervised, indiscriminate or prolonged use of TCs of any potency on the face over an unspecified period of time. TCs induced facial dermatoses are characterized by various signs and symptoms. So, this study is done to evaluate the magnitude of topical corticosteroid induced facial dermatoses as a public problem and reasons for its misuse among patients, which helps to create awareness among the patients as well as the general public and to improve the quality of life in such patients.

MATERIALS AND METHODS

This hospital-based cross-sectional study was conducted from March 2021 to September 2022 in the outpatient department of Dermatology, Venereology, and Leprosy at a tertiary care centre in Bengaluru, India, following the STROBE guidelines. The study aimed to evaluate facial dermatoses induced by topical corticosteroid misuse among patients attending the outpatient clinic.

Study Population: A total of 170 patients were enrolled, with the sample size determined based on the prevalence of topical corticosteroid-induced dermatoses observed in preliminary outpatient records.

Inclusion and Exclusion Criteria: Subjects aged 18 years and above of both genders who had been misusing topical corticosteroids on their face for a duration of two weeks or more were included. Patients were excluded if they were using systemic corticosteroids or had comorbidities such as Cushing's syndrome or Polycystic Ovarian Disease.

Ethical Approval and Consent: The study protocol was reviewed and approved by the institutional ethical committee. Written informed consent was obtained from all participants before their inclusion in the study.

Data Collection: Detailed histories and socio-demographic data were collected using a pre-structured proforma. A thorough cutaneous examination was conducted for each patient, and photographic documentation was performed for relevant cases while ensuring patient confidentiality by omitting identifiable features.

Variables Studied: The primary variable was the presence of facial dermatoses due to topical corticosteroid misuse. Secondary variables included socio-demographic factors, duration, and type of corticosteroid use.

Bias Minimization: Consecutive patients meeting the inclusion criteria were enrolled to minimize selection bias.

Information bias was reduced by using standardized data collection instruments and procedures.

Data Analysis: Data were entered into Microsoft Excel and analyzed using SPSS software, version 22. Categorical data were expressed as frequencies and proportions, while continuous data were presented as mean and standard deviation.

RESULTS

In this study the most common age group affected were between 20-21 years (78.2%) and females (70.6%) outnumbered males (29.4%). Majority of the subjects were from rural areas (61.2%) with lower socio-economic class (91.8%) and married (76.5%). Subjects had were literate (49.4%) and 63.5% were employed.

The most common indication for application of topical steroids in the study subjects were Melasma (50.0%), Acne (24.1%), Fairness (10.6%), Hyperpigmentation (7.6%), Xerosis (4.7%), Hypopigmentation (2.4%) and Tinea (0.6%). Majority of the subjects brought TCs over the counter (40.6%) for their use. The next common source of medication was from friends of subjects (34.1%), followed by relatives (12.9%), General Practitioner (11.8%) and Dermatologist (0.6%).

We found the most common cutaneous finding of TSDF was exacerbation of pre-existing melasma (41.2%) followed by acneiform eruptions (39.4%), erythema (28.2%), Hypertrichosis (18.8%), xerosis (7.6%), Hypopigmentation (2.9%), Telangiectasia (2.4%) and Photosensitivity (1.2%). Patients commonly used ingredients in combination TCs are Hydroquinone 2% + Mometasone Furoate 0.1% + Tretinoin 0.025% (31.2%). The next common ingredients were Betamethasone 0.1% + Clotrimazole 3% (28.7%). Class II corticosteroids were misused most frequently (70.6%). (Figure 1) In the study majority of patients presented with lesions (80.6%) like pigmentation, acne. (Table 1)

Clinical presentation	No.	Percent
Itching	43	25.3%
Burning Sensation	15	8.8%
Photosensitivity	27	15.9%
Facial Hair	3	1.8%
Redness	32	18.8%
Lesions (Pigmentation, Acne)	137	80.6%
Dryness	4	2.4%

Table 1: Various Clinical presentation among the study subjects (N=170)

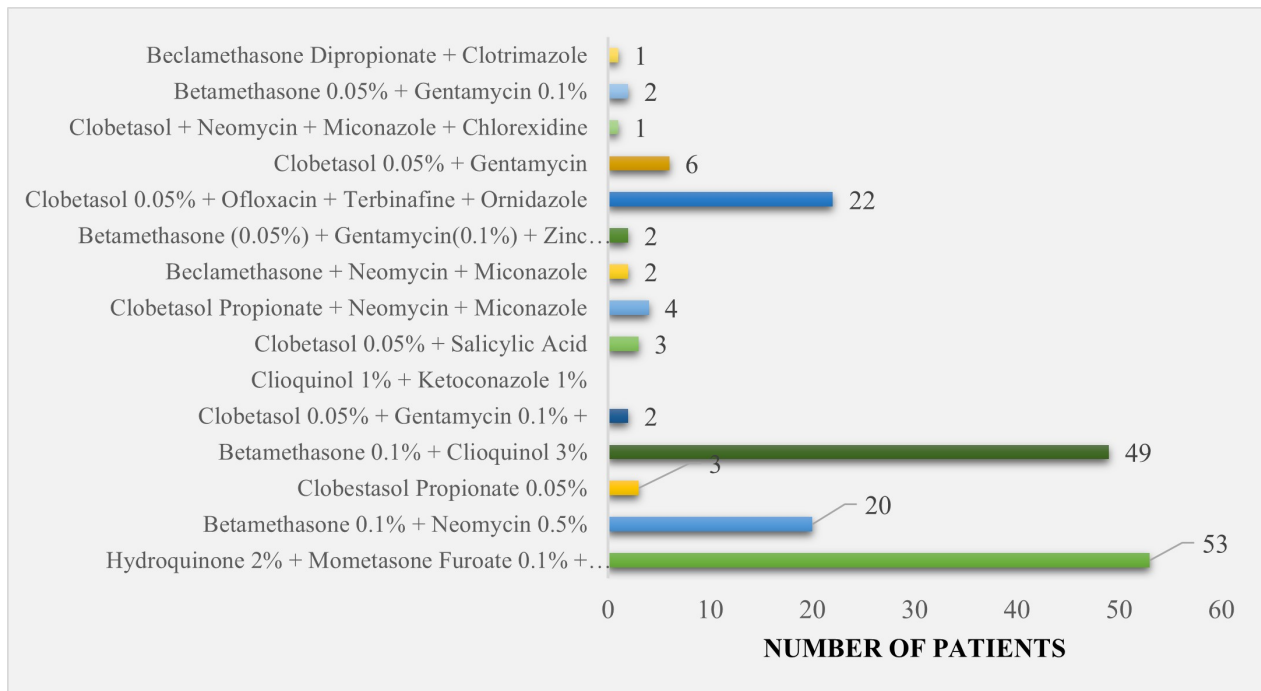


Figure 4: Distribution of the study subjects based on ingredients used in the TCs

DISCUSSION

TCS are of vital importance in treating various dermatological conditions. In the constantly emerging therapeutic era in aesthetic dermatology TC use has emerged since their introduction in 1951. [12] The discovery of glucocorticosteroids opened new doors for the discovery of similar & better molecules, thus revolutionised the use followed by misuse of TC's, rampantly adding to the burden of steroid related adverse effects. [12] This added burden is by both prescribing clinicians and the patients themselves as it gives immediate relief to most of the cutaneous signs and symptoms. Thus, TCS abuse has become a common problem faced by dermatologists globally. [13]

The profile of a patient of TCs abuse in our study was a young, female, illiterate or matric pass, using the formulation with full faith and confidence for Melasma/pigmentary disorders, acne or as a fairness cream. Even on development of adverse effects, the subjects were in mode of denial similar to the observations by Bains P et al. [14] and Manchanda et al. [13]. Various other studies by Hameed, Bhat et al., and Saraswat et al. reported a maximum number of patients in the age group of 21–30 years. [10, 15] This is congruent with our observation. [5, 9, 11] In contrast Manchanda et al noted the maximum number of patients belonging to the age group of 11–20 years, out of which 41 were below 18 years. Acne was the most common indication for steroids, hence, the predominance of younger age group in their study. [13]

We found facial pigmentation was the common reason for the TSD. This result highlights the pursuit of the Indian population for a fair, clear skin which reinforces the

conditioning of 'fair is beautiful'. This fair skin obsession publicized by social media has led to skin lightening products occupying a major stake in the Indian dermatological market. As reported by Nnoruka et al. in 2006, topical TCS has been commonly used as depigmenting agents over the face in dark-skinned individuals, and their availability over the counter in most Asian and African countries added to this misuse. [16]

In our study the main burden of responsibility to prescribe steroids was on paramedical personnels, family and friends in concordance with a study by Sharma et al. [12] This reflects the unethical advertisements & distribution of topical steroids and gap in our drug dispensing policies. Saraswat et al. observed the use of potent and superpotent steroid in majority, and our study demonstrated maximum use of Class II & Class III TC's. [10] Potent TCS was prescribed as treatment of choice for various dermatoses but, due to the initial instant results, majority of the patients continue to use them on various parts of the body for cutaneous symptoms without further consultation from a dermatologist. Withdrawal of TCS results in rebound erythema due to release of cytokines, along with vasodilatation and accumulation of nitric oxide, resulting in erythema, pruritus, and burning sensation. [13]

Acneiform eruptions were the most common side effect encountered in our Study & by Manchanda et al, whereas Bhat et al. observed steroid-induced rosacea to be the most common. [13] Systemic side effects such as adrenal axis suppression, diabetes, and hypertension have been reported after topical application over larger area of the body, and these are rare side effects were not observed in



Figure 1: Acneform Eruptions



Figure 2: Facial Hyperpigmentation



Figure 3: Exfoliation

our study on TSFD.

The factors which result in this epidemic of this problem includes: easy availability of TCs Over the counter, obsession of fair skin, lack of awareness about the cutaneous & systemic side effects, lack of consultation with a dermatologist and inadequate control policies over chemists by governing authorities. This study emphasises the magnitude of the TSFD problem and heightens the need for creating awareness among the general population about the inappropriate usage & its serious side effects by using TCs.

CONCLUSION

TCs abuse is more common in the younger generation and among females who in the quest for good looks and fairness buy TCs over the counter and use it indiscriminately. Rural area populations where there is a lack of qualified dermatologist for many common dermatoses are another vulnerable group. Easy availability of TCs at affordable price as over the counter and due to lack of access to specialist doctors owing to their low income, majority of them ended up consulting a chemist from local dispensary or a quack practicing modern medicine, leading to misuse of TCs.

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.
2. Substance-Related and Addictive Disorders. In: *American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders.* Arlington, VA: American Psychiatric Association; 2013. p. 481–484.

3. Dey VK. Misuse of topical corticosteroids: A clinical study of adverse effects. *Indian Dermatol Online J.* 2014;5(4):436–476. doi:10.4103/2229-5178.142486.
4. Rathi S. Abuse of topical steroid as cosmetic cream: A social background of steroid dermatitis. *Indian J Dermatol.* 2006;51(2):154–159. doi:10.4103/0019-5154.26949.
5. Coondoo A. Topical corticosteroid misuse: The Indian scenario. *Indian J Dermatol.* 2014;59(5):451–456. doi:10.4103/0019-5154.139870.
6. Basta-Juzbasic A, Subic JS, Ljubojevic S. Demodex folliculorum in development of dermatitis rosaceiformis steroidica and rosacea-related diseases. *Clin Dermatol.* 2002;20:135–175. doi:10.1016/s0738-081x(01)00244-9.
7. Rapaport MJ, Rapaport V. The Red Skin Syndromes: Corticosteroid addiction and withdrawal. *Expert Rev Dermatol.* 2006;1:547–61.
8. Rathi SK, Kumrah L. Topical corticosteroid-induced rosacea-like dermatitis: a clinical study of 110 cases. *Indian J Dermatol Venereol Leprol.* 2011;77(1):42–48.
9. Ambika H, Sujatha VC, Yadalla H. Topical corticosteroid abuse on face: A prospective study on outpatients of dermatology. *Our Dermatol Online.* 2014;5:5–8.
10. Saraswat A, Lahiri K, Chatterjee M, Barua S, Coondoo A, Mittal A. Topical corticosteroid abuse on the face: A prospective, multicenter study of dermatology outpatients. *Indian J Dermatol Venereol Leprol.* 2011;77:160–166.
11. Rathi SK, Souza D, P. Rational and ethical use of topical corticosteroids based on safety and efficacy. *Indian J Dermatol.* 2012;57:251–260.
12. Sharma R, Abrol S, Wani M. Misuse of topical corticosteroids on facial skin. A study of 200 patients. *Journal of dermatological case reports.* 2017;11(1):5–5.
13. Manchanda K, Mohanty S, Rohatgi PC. Misuse of topical corticosteroids over face: A clinical study. *Indian Dermatology Online Journal.* 2017;8(3):186–186.
14. Bains P. Topical corticosteroid abuse on face: a clinical study of 100 patients. *Int J Res Dermatol.* 2016;2(3):40–45.
15. Hameed AF. Steroid Dermatitis Resembling Rosacea: A Clinical Evaluation of 75 Patients. *ISRN Dermatol.* 2013;p. 491376–491376.
16. Nnoruka E, Okoye O. topical steroid abuse: Its use as a depigmenting agent. *J Natl Med Assoc.* 2006;98:934–943.

How to cite this article: Hosthota A, Chandan B, Chitturi B, Nilofer A, Ramesh A, Bharti A. **A Study of Clinical Profile of Patients Presenting with Topical Corticosteroid Induced Facial Dermatoses.** *Perspectives in Medical Research.* 2024;12(3):45-49
DOI: [10.47799/pimr.1203.08](https://doi.org/10.47799/pimr.1203.08)