

Misuse of topical corticosteroids on the face: A cross-sectional study among dermatology outpatients

Abhijeet Kumar Jha, Rajesh Sinha, Smita Prasad

Department of
Dermatology, STD and
Leprosy, All India Institute
of Medical Sciences,
Patna, Bihar, India

ABSTRACT

Background: Topical corticosteroids (TC) are being misused widely on the face without a prescription from the dermatologist. **Aim:** To evaluate the misuse of TC-containing preparations on the face and the adverse effects due to its application. **Materials and Methods:** A questionnaire-based analysis was done among patients attending the dermatology outpatient department of a tertiary care hospital between March 2014 and March 2015. Patients with various facial dermatoses were asked about their current use of topical preparations and on further followup questioning, those who revealed the use of TCs (25g or more) continuously or intermittently for a minimum duration of four weeks were included in the study and observed for local adverse effects. **Results:** A total of 410 patients were observed, 306 were females (74.6%) and 104 were males (25.3%). One hundred and seventy-eight patients (43.4%) used topical steroids alone, 124 (30.2%) used creams containing TC, hydroquinone, and tretinoin, 108 (26.3%) used creams containing a combination of TC, antibiotic, and/or antifungal. One hundred and seventy-six patients (42.9%) bought TC or TC containing creams over the counter on their own, without the prescription of a dermatologist, 35 (8.5%) were recommended TC by a beautician (beauty parlors), 82 (20%) by their friends, family members, or neighbors, 75 (18.2%) by a non-dermatologist practitioner, and 42 (10.2%) by a dermatologist. **Limitations:** The sample size was small. **Conclusion:** Dispensing of TCs must be regulated in India; they should only be issued against a doctor's prescription.

Key words: Misuse, combination cream, topical steroids

INTRODUCTION

TCs have been used for decades to treat various dermatological disorders due to their wide range of action. As TCs are freely available over the counter in India, they are prone for misuse without the dermatologist's prescription, increasing the risk of local and systemic side effects. Betamethasone valerate has been the favoured over the counter TC, the misconception being that it is a magical fairness and antiacne cream.

MATERIALS AND METHODS

A questionnaire-based analysis was done among patients attending dermatology outpatient department of a tertiary care hospital between March 2014 and March 2015. Prior approval of the Institutional Ethics Committee, and consent of patients was obtained.

Inclusion criteria

Patients using 25g or more of TC for 4 weeks or more were included in the study over the face.

Usage of a minimum of 25g (irrespective of the number of tubes used) of TC continuously for a minimum duration of two weeks was considered as continuous use.

Use of a minimum of 25g, (irrespective of the number of tubes used) of TC intermittently

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Address for

correspondence:

Dr. Abhijeet Kumar Jha,
Department of
Dermatology, STD
and Leprosy, All
India Institute of
Medical Sciences,
Patna, Bihar, India.
E-mail: drabhijeetjha@gmail.com

over the past four weeks was considered as intermittent use.

Use of TC without proper indication was considered as inappropriate use.

Exclusion criteria

Patients suffering from polycystic ovarian disease, Cushing's syndrome, chronic alcoholism, depression, or drug intake who may have features that resemble the side effects of TC.

RESULTS

Of the total 410 patients observed, 306 (74.6%) were females and 104 (25.3%) were males. One hundred and seventy-eight patients (43.4%) used topical steroids alone, 124 (30.2%) used creams containing TC, hydroquinone and tretinoin, 108 (26.3%) used creams containing a combination of TC, antibiotic, and/or antifungal. The various strengths of TCs used by patients is detailed in Table 1.

One hundred and seventy-six patients (42.9%) bought TC or TC containing creams over the counter on their own, without the prescription of a dermatologist, 35 (8.5%) were recommended TC by a beautician (beauty parlors), 82 (20%) by their friends, family members, or neighbors, 75 (18.2%) by a non-dermatologist practitioner, and 42 (10.2%) by a dermatologist [Tables 1-3].

One hundred and thirty-eight patients (33.6%) in the age group of 20–29 years used TC [Table 3]. Out of 306 female patients, 119 (29%) were housewives, and 70 (17%) were school or college-going. The most common reason for patients' use of TC on the face was as a fairness cream in 146 patients (35.6%), melasma in 87 patients (21.2%), as antiacne cream in 84 patients (20.4%), as depigmenting agent in 42 patients (10.2%), redness reducing agent in 30 patients (8.2%), and for hypopigmentation in 11 patients (2.6%).

Localized adverse effects were noted [Table 2]. Steroid-induced acne [Figure 1] was seen in 176 patients (42.9%), followed by hypopigmentation [Figure 2] in 58 patients (14.1%), steroid dependency in 45 patients (10.9%), atrophy in 38 patients (9.2%), steroid induced erythema in 34 (8.2%) [Figure 3], perioral dermatitis in 21 patients (5.1%), [Figure 4], steroid induced rosacea [Figure 5] in 28 patients (6.8%) hirsutism [Figure 6] in 12 patients (2.9%) and others, such as hyperpigmentation [Figure 7].

DISCUSSION

TCs first came into existence more than 50 years ago, marking the most important milestone in dermatologic therapy owing

Table 1: Use of various strengths of topical corticosteroids by patients

Topical corticosteroids	Class	Total number of patients (%)
Betamethasone valerate	Class 3 (potent)	84 (20.4)
Clobetasol propionate	Class 1 (superpotent)	20 (4.8)
Mometasone fuorate	Class 4 (midstrength)	41 (10)
Fluticasone propionate	Class 5 (midstrength)	10 (2.4)
Hydrocortisone	Class 7 (least potent)	7 (1.7)
Others		16 (3.9)
Steroid combination cream containing antifungal and/or antibacterial agent		108 (26.34)
Mometasone or flucinolone plus hydroquinone and tretinoin		124 (30.24)

Table 2: Localised adverse effects seen on the face due to misuse of topical corticosteroids

Adverse effects	Number of patients (%)
Acne	176 (42.9)
Telangiectasia	30 (7.3)
Hypopigmentation	58 (14.1)
Steroid dependency	45 (10.9)
Tinea incognito	17 (4.1)
Atrophy	21 (5.1)
Folliculitis	13 (3.1)
Erythema	34 (8.2)
Perioral dermatitis	21 (5.1)
Rosacea	28 (6.8)
Hirsutism	12 (2.9)

Table 3: Total number of patients age group wise

	Number of patients
Age group	
1-9 years	24
10-19 years	102
20-29 years	138
30-39 years	78
40-49 years	40
50-59 years	28
Duration of continuous or intermittent use	
Up to 3 months	142
3-6 months	102
6-9 months	54
9-12 months	41
>1 year	71

to potent anti-inflammatory and antiproliferative effects.^[1] Due to its varied mode of action, TC has been a cornerstone in the treatment of a few facial dermatoses. Since the TC are widely and easily available over the medicine counters,



Figure 1: Steroid-induced acne



Figure 3: Steroid-induced erythema

recommended by beauticians, friends, or neighbors. There has been a misconception about TC as fairness creams and antiacne agents. They are frequently used without a dermatological consultation. Even where dermatologists prescribe TC for an indicated facial dermatosis, there is risk of some patients using TC for prolonged periods, developing delayed local adverse effects. Similar studies have been reported from China^[2,3] and Iraq.^[4] During the last few years a number of articles focusing on the issue have been published from India.^[5-14]



Figure 2: Steroid-induced hypopigmentation



Figure 4: Perioral dermatitis with hyperpigmentation

In a study from India by Saraswat *et al.*, 433 patients were found to be using TC for facial dermatosis, 321 patients were female, which was similar to our study where out of 410 patients 306 were females⁵. The reason behind this was probably more cosmetic concern and misconception that TC is a fairness or antiacne cream. In our study the most common adverse effect was acne. Of the 433 patients in the study group by Saraswat *et al.*, 36% were of the age range of 21–30 years, similar to our study where 33.6% belonged to the age range of 20-29 years. The commonest adverse effect of TC in both studies was acne. However, only 42.9% developed TC-induced acne in our study as compared to 57.5% in a study by Saraswat *et al.* Table 4 describes the comparison between the study conducted by Saraswat *et al.* versus our study. Out of 410 patients, TCs/combination cream were dispensed over the counter in 176 patients; betamethasone valerate alone were dispensed in 92 patients (22.4%) as fairness cream/antiacne cream, Kligman formula in 43 patients (10.4%) for melasma/other hyperpigmented lesion, and TC containing antifungal/antibiotic cream in 41 patients (10%) for tinea faciei/other facial dermatoses.



Figure 5: Steroid induced rosacea



Figure 6: Hirsutism



Figure 7: Steroid-induced hyperpigmentation

The adverse effects of TC are atrophy, telangiectasia, striae, hypopigmentation, hyperpigmentation, steroid rosacea, steroid acne, steroid induced folliculitis, tinea incognito,

Table 4: Comparison between study by Saraswat et al.^[5] and our study

Parameter	Saraswat et al. ^[5]	Our study
Total number of patients (n)	433	410
Age group	21-30 years (n=156; 36%)	20-29 (n=133; 33.6%)
Duration of continuous or intermittent use (n)	Highest number up to 3 months (142)	Highest number 1-3 months (117)
Localized adverse effects (%)		
Steroid-induced acne	57.5	42.9
Telangiectasia	14.8	7.3
Atrophy	13.4	5.1
Hypopigmentation	9	14.1
Folliculitis	-	3.1
Erythema	-	8.2
Rosacea	7	6.8
Tinea incognito	6.7	4.1
Hirsutism	6.3	2.9
Perioral dermatitis	8.4	5.1
Recommendation for using topical steroids	50.2 (by friend, peer or relative)	42.9 (pharmacist or their staff at medicine counter)

perioral dermatitis, tachyphylaxis, and hirsutism. Topical steroids can rapidly induce an acneiform eruption.^[15-18] All topical steroids have been shown to cause skin atrophy, albeit to a variable degree.^[19,20] This phenomenon is reflected in increased transparency and shine of the skin, as well as the appearance of striae.^[21,22] Steroid-induced rosacea has been commonly associated with topical fluorinated corticosteroids.^[9] There are approximately 700,000 chemists in India.^[14] The latest National List of Essential Medicines (NLEM) of 348 drugs, updated in 2011, (revised 2014) has included only one topical steroid, betamethasone dipropionate^[23] The team of experts invited by the Government of India to participate in preparing the NLEM of 2011 included only one dermatologist.^[23]

CONCLUSION

In our study, pharmacists or their staff had recommended use of topical steroids to 176 patients (42.9%), which raises serious concern. In India there should be a regulation of dispensing TCs and should only be given based on doctor's prescription. Strict regulation regarding only prescription-based dispensing of TCs must be put into practice.

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.

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Conflicts of interest

There are no conflicts of interest.

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