

# A hospital-based observational study of steroid abuse patients in a tertiary care centre in South India

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## Abstract

**Background** Topical corticosteroid misuse has become a common problem because of the wrong prescription, dubious marketing by pharmaceutical companies and free availability of these medicines as OTC drugs. This causes various morphological changes on face.

**Objective** To document the cutaneous features of steroid abuse on face.

**Methods** This was a study of 100 steroid abuse patients who attended the dermatology OPD in a tertiary care centre from October 2018 to February 2019. A detailed history of all patients which included age, sex, socio-economic conditions, educational status and occupation were noted. The history of corticosteroid therapy, regarding the type, its potency, and duration of therapy, purpose of use, benefits and the source of its use were recorded. Morphological changes of skin of all the patients were noted by a dermatologist.

**Results** In this study, 60% were females, rest were male. Most of them were in the age group of 11-20 years (53%). Educational status revealed that only 5% were illiterates. Common indication of misusing TC was melasma (53%). Patients were using TC as per advice from friends (39%), registered medical practitioners (20%), self-recommendation and relatives each (16%), medical shops (7%) and beautician (2%).

**Conclusion** Acneiform eruption (47%) was the commonest and atrophy (2%) and telangiectasia (2%) were the least common adverse effects noted following the use of TC. Creating awareness of adverse effects of TC among patients as well as non-dermatologist doctors and stringent action against use of TC as OTC drug is necessary to restrain this steroid abuse menace.

## Key words

Steroid, abuse, acneiform eruption.

## Introduction

Topical corticosteroids (TC) have been in use for treating various skin diseases for over half a century.<sup>1</sup> Meanwhile TC misuse has also

become a common problem because they are freely available as over the counter drugs in India and are being used without dermatologists' prescription. Misuse of TC on face causes various morphological changes on skin with rebound phenomenon after its withdrawal.<sup>2</sup> Although, TC suppresses the inflammatory papules and pustules, patients may flare when it is withdrawn, thus leading to continued use of it.<sup>1</sup> This set the vicious cycle of steroid misuse, causing cutaneous side effects (SE) such as

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acneiform eruption, erythema, telangiectasia and atrophy. Most bothersome SE is cutaneous atrophy as it is usually permanent. The aim of the study was to document the cutaneous features of steroid abuse on face.

## Materials and Methods

This was a cross-sectional study of patients affected with steroid abuse attending dermatology out patient department in a tertiary care hospital from October 2018 to March 2019. Inclusion criteria for this study were patients with signs and symptoms of steroid abuse and who had a history of use of TC on face continuously (more than 4 weeks) or intermittently (for duration more than 3 months) as anti-acne or fairness cream.

Patients suffering from Cushing's syndrome, chronic alcoholism, drug addiction or those who were pregnant were excluded from the study.

A detailed history was taken from all the patients. It included age, sex, socio-economic conditions, occupation, and duration of signs and symptoms of disease. A questionnaire was elicited in pre-designed proforma. It included history of corticosteroid therapy, regarding the type of steroid used, its potency, duration of therapy, purpose, benefits and the source of its use. Morphological changes of skin of all the patients were noted by a dermatologist.

A written consent was obtained from all the participants. The study was approved by the institutional ethical committee.

## Results

Of 100 patients affected with steroid abuse, 60% were females and others were male. Majority of them were in the age group of 11-20 years (53%), followed by 33% in 21-30years and 14% in 31-40 years. About 60% of patients were from rural areas, rest from urban area. An analysis of education level among patients showed only 5% illiterates, 25% graduates, 21% completed pre-university education, 11% and 38% had studied till primary and secondary education respectively.

Among 100 patients enrolled in this study, 47% were students, followed by 27% housewives, 13% labourers, 10% businessmen, 2% farmers and 1% driver by occupation. Approximately 42% patients belonged to lower socio-economic class followed by 34% in middle, 12% in lower-middle, 10% in upper-middle and only 2% in upper class as per modified B G. Prasad Socio-economic Classification.

Majority of the patients (83%) have used TC in combinations with antifungals, anti-bacterials or antipruritic agents; others have used various TC alone. Details of various TC used are shown in **Table 1**. An enquiry into the source of prescription revealed 39% patients were advised by friends, followed by 20% quacks, 16% each by relatives and self-prescription, 7% pharmacists and 2% beauticians. Only 23% patients were aware about the use of TC either by their relatives or friends. Most of the patients (59%) have used the TC for less than three months and 11% have used it for more than a

**Table 1** Number of patients using various topical steroids.

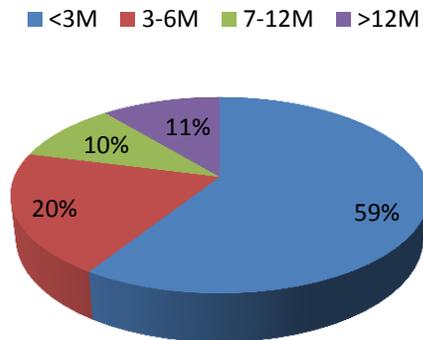
<i>Topical steroid</i>	<i>No. of patients used (%)</i>
Panderm plus (Clobetasol propionate, neomycin sulphate & miconazole nitrate)	23
Betnovate-GM cream (betamethasone valerate, gentamicin & miconazole nitrate.)	22
Betnovate cream (betamethasone valerate)	17
Cosvate-G (clobetasol propionate & gentamicin)/ other clobetasol combinations	14
Skinlite (hydroquinone, tretinoin & mometasone furoate)	13
Melacare cream (hydroquinone, tretinoin & mometasone furoate)	11

**Table 2** Adverse effects of topical steroids among patients.

Sr No.	Side effects	Percentage of patients
1.	Acneiform eruption	47
2.	Erythema	37
3.	Burning/ stinging sensation	36
4.	Tightening of face	21
5.	Hypertrichosis	9
6.	Xerosis	5
7.	Pigmentation	4
8.	Atrophy	2
9.	Telangiectasia	2

year. Among these 11% patients who used TC for more than a year, 2 patients have used it as long as 10 years. **Figure 1** shows the duration of usage of TC among patients. Of 100 patients, 72% have applied TC once daily, 24% twice daily and only 4% thrice in a day.

The various purposes for which TC used by patients were as follows in the decreasing order of frequency: melasma or hyperpigmentation of face 53%, acne 47%, used as fairness cream 14% and other purposes (9%) such as for the treatment of dermatitis, polymorphic light eruption and psoriasis. Of the 100 patients who used TC, 34% patients felt improvement in acne lesions, 31% had no benefits, 18% and 21% patients felt improvement in their fairness and melasma lesions respectively.



**Figure 1** Distribution of patients as per the duration of use of topical steroid.

The patients developed symptoms of steroid abuse 2 weeks after stoppage of TC application in 54% patients, 2-4 weeks in 17%, 5-12 weeks in 17% and more than 12 weeks in 7%. A few patients (5%) developed lesions while still using TC. Around 60% patients were not using any other medications apart from TC, while 40% patients used either oral or other topical medications. Approximately 52% patients felt that they were habituated to TC use; 58% had difficulty while working because of symptoms. Only 68% patients felt repentance for using TC, while other felt it as non-problematic.

The various morphological changes developed following the TC abuse are shown in **Table 2**. Acneiform eruption was the commonest manifestation seen in 47% of patients. The least common presentations were atrophy and telangiectasia seen in 2 each. Other manifestations were xerosis, burning sensation, hypertrichosis and pigmentation (**Figure 2**). Out of 100 patients, 53% had single manifestation; rest had the combination of two or more clinical features.

**Discussion**

Glucocorticosteroids continue to be among the most commonly prescribed anti-inflammatory



**Figure 2** Clinical photo of hyperpigmentation with hypertrichosis.

agents in dermatology. Corticosteroid addiction is generally seen on the face because of misuse of TC as anti-acne or fairness cream.<sup>3</sup> They are not only misused by quacks, non-dermatologists but also by patients themselves. TC abuse is rampant in our population. The reason for this varies from wrong prescription, unconvinced marketing by pharmaceutical companies, free availability of these medicines as OTC drugs, and lack of regulations regarding the manufacturing of irrational combinations. Patients who become addicted have acne, rosacea, perioral dermatitis, or telangiectasia and continue treatment for fear that the condition may flare up when treatment is withdrawn.<sup>2</sup>

Large number of patients was in the age group of 11-20 years in this study, which is comparable with studies conducted in China.<sup>4,5</sup> This could be because of this tender age, when younger generation become conscious of their appearance and start taking care of it.

In this study, 20% patients were using TC on recommendation by the general practitioners and 7% obtained it from medical shops. Rest 71% of patients were advised to use TC by relatives, friends or self-prescription which correlates with a study conducted in North India.<sup>6</sup> In the study by Saraswat *et al.*<sup>7</sup> 41% of the patients were advised by a doctor. Approximately 60% patients in this study were from rural areas, thus indicating the lack of awareness of TC side effects and lack of proper medical care in the rural setup.

In this study, the most common indication for misusing TC was melasma (53%) followed by acne (47%), as a fairness cream (14%) and others (9%) such as contact dermatitis, polymorphic light eruption and tinea infection. This was in accordance with a few studies which showed fairness and skin lightening as the most common condition for misuse of TC.<sup>7,8</sup> In

contrast to this, a study by Nagesh *et al* showed acne as the common condition for misuse of TC.<sup>9</sup>

The commonest side effect observed were acneiform eruption (**Figure 3**) and erythema (37%), which are consistent with the other studies.<sup>5,8</sup> Prolonged and continuous use of TC can cause 'red face' which presents clinically as diffused erythema with/ without papules, pustules and sometimes nodules with telangiectasia. This occurs as a result of accumulation of nitric oxide, a potent vasodilator and other metabolites.<sup>10</sup> In this study, 77% patients were unaware of the side effects of TC that they were using.

Majority of the patients in this study were using potent topical steroid which was similar to the other studies.<sup>2,3,11,12</sup> Various topical steroids used by the patients either singly or in combinations are as shown in **Figure 4**. Common use of TC is attributed to the immediate magical response as fairness cream, easy availability without the need of prescription and cheaper cost.



**Figure 3** Acneiform eruption.



**Figure 4** Various topical steroids in combination with antifungal, antibacterial or antipruritic agents.

## Conclusion

Melasma was the common indication for the misuse of TC in this study. Acneiform eruption was the commonest and atrophy and telangiectasia were the least common adverse effects noted following the use of TC. Proper information regarding the side effects of TC to the patients and improving health care facilities in rural setup are the measures needed to curtail this steroid abuse menace. Other steps to be taken include stern actions against the manufacturing of irrational combinations and use of TC as OTC drugs.

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