Topical Steroid Damaged/Dependent Face (TSDF): A Study from a Tertiary Care Hospital in Eastern India

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Abstract

Background: Awareness against abuse of topical corticosteroids (TC), especially over the face, has been going on for last 5 years in India. In spite of that we are getting lots of cases in our hospitals. Aims: The aims of this study were to ascertain the demographics, magnitude and clinical features of TC misuse on the face among the dermatology outpatient department (OPD) attendees and to analyze its causes. Methods: This study was conducted in a tertiary care medical center of eastern India. Patients with relevant facial dermatoses were asked about their current use of topical formulations and confirmed to be TSDF were included in the study. Results: A total of 748 patients with facial dermatoses were screened, of which 271 (36.22%) were using TC. Of them mostly young adults between 20 and 29 years (37.10%) were using TC. Average duration between starting of use of medication and the onset of symptoms was 5 months. Ninety-eight (36.16%) patients were using topical corticosteroid for the treatment of acne and 74 (27.30%) were using as depigmenting cream. About 108 (39.85%) patients bought medicine over the counter being recommended by pharmacist/shop owner. Rosacea like features with photosensitivity was the most common adverse effect found in 79 (29.15%) patients whereas comedonal acne/acne exacerbation were found in 68 (25.09%) patients. Most of them (227, 83.76%) were unaware about the side effects of steroids. Conclusions: TC misuse in patients with facial dermatoses is still quite common even after efforts to grow the awareness among population.

Key Words: Abuse, awareness, topical steroid-damaged face

Introduction

Topical corticosteroids (TCs) provide rapid symptomatic relief in almost all inflammatory dermatoses. That is why it is one of the most widely prescribed topical drugs, which have been in use for about six decades till date. It was first introduced by Sulzberger and Witten in 1952 as compound F (hydrocortisone). As an effective anti-inflammatory agent, it gives rapid relief for the patients from different inflammatory dermatoses even from most of the infective conditions (e.g., dermatophyte infection, candidiasis, and viral exanthem) for short-term use. Even some side effects of TC lead to make it more popular in a large group of patients such as hypopigmentation, and also flushing of the skin. In the Indian market, TC is easily available; pharmacists are using it as over-the-counter (OTC) medicine. Hence, misuse and prolonged use of the medicine without medical supervision particularly on the face produce different adverse effects such as steroid rosacea, acniform eruption, hypertrichosis, demodicidosis, steroid addiction, dermatitis rosaceaformis steroidica, and red face syndrome. Red face syndrome is a condition where any attempted cessation of the application of TC on the face after prolonged use, leads to rebound erythema, burning, and scaling on the face. This type of condition is also named as “Topical steroid damaged/dependent face (TSDF).” In the Indian market, different corticosteroid molecules, ranging in potency and activity from low to super potent, are available for topical use. Increase incidences of abuse and misuse of TC lead to serious local, systemic, and psychological side effects. Such misuse occurs more with TC of higher potency and on softer areas of the body particularly the face. Easy availability of TC and poor access to dermatologist make the situation worse in India. The situation is further complicated by the inadequate control on medicine shops by the authorities, whereby each and every medicine, whether OTC or not, can be sold...
without any prescription. TC misuse is well known and has been the subject of studies mainly from African and Asian countries.\[6,7,8\] Even developed countries like the USA are facing this problem.\[9\] Recently, few case series has been published on this problem from India.\[5,10,11\]

In this study, we had tried to find out the awareness among the patients, the demographic pattern, and also common side effects of TC use in the face.

Materials and Methods
This study was conducted in a tertiary care hospital Outpatient Department of Dermatology in eastern India. The Institutional Ethics Committee clearance was obtained before starting the study and written informed consent was obtained from the participants or their guardians before enrollment. Over a 6-month period from July 2016 to December 2016, all the patients attending dermatology outpatient department with relevant facial dermatoses such as facial erythema, papular eruption, acneiform eruption, unwanted facial hair, and complaint of facial burning sensation were included in the study. They were asked about their current use of topical formulations and if there be any TC, it was recorded as TSDF.

Patients aged 10 year and above and of both sexes were included in this study. They were asked according to the preformed questionnaire which helped to find the demographic variables, characteristics of TC use, prescription source, and adverse effects of TC. Patients above 10 years who were having any facial dermatosis were enquired about any topical application, and if found so, we tried to find out the brand name of the cream/ointment by asking or seeing the prescription or used tube. If we found that creams/ointments contain any form of TC, it was considered as a TSDF patient. We also enquired about the awareness of the patient about TC use.

Those who were unwilling to give consent and those who have comorbidities that resembled/could cause changes similar to TC side effects (e.g., polycystic ovaries/Cushing’s syndrome/thyroid disorders) were excluded from the study. Minors <10 years of age were also excluded from the study.

Results
A total of 748 patients with facial dermatoses were screened, of which 271 (36.23%) were using TC. We found that females outnumbered males (2.66:1) in using topical steroids probably because of the fact that they were more concerned in the fairness and beauty than males. We divided the age of the patients into 4 groups as 10–19 years, 20–29 years, 30–39 years, and above 40 years. Of them, mostly young adults between 20 and 29 years (37.10%) were using TC, and their cause of application was mainly for acne. Next came the age group between 30 and 39 years (33.58%) who were mostly concerned about melasma and hyperpigmentation [Table 1].

Ninety-eight (32.47%) patients were using TC for the treatment of acne, and 52 (19.11%) were using as fairness cream. There was an interesting fact that a good number of patients even did not consider topical steroid containing cream/ointment as a medication and they used it as a regular night cream (10.70%) [Table 2].

Duration of the usage of these creams in our study varied from 1 month to 9 years. The average time between the start of the use of medication and the onset of symptoms was 5 months.

| Table 1: Age and sex distribution |
|----------------------------------|
| Age group (years) | Male | Female | Percentage | Male:female |
|-------------------|------|--------|------------|------------|
| 10-19             | 12   | 39     | 18.9       | 1:3.25     |
| 20-29             | 32   | 68     | 36.9       | 1:2.1      |
| 30-39             | 17   | 75     | 33.9       | 1:4.41     |
| >40               | 13   | 15     | 10.3       | 1:1.5      |
| Total             | 74   | 197    | 100        | 1:2.66     |

| Table 2: Underlying causes for topical corticosteroid use |
|---------------------------------------------------------|
| Cause of application | Number of patients (%) |
|----------------------|------------------------|
| Acne                 | 98 (36.16)             |
| Melasma              | 74 (27.30)             |
| Fairness             | 52 (19.11)             |
| Other causes         | 18 (6.64)              |
| Regular night cream  | 29 (10.70)             |

| Table 3: Source of recommendation for use of topical corticosteroid |
|------------------------------------------------------------------|
| Source                             | Number of patients (%) |
|------------------------------------|------------------------|
| Dermatologist                      | 6 (2.27)               |
| Doctors other than dermatologist   | 19 (7.01)              |
| Quack                              | 49 (18.08)             |
| Pharmacist                         | 108 (39.85)            |
| Friends/relatives                  | 82 (30.25)             |
| Others                             | 7 (2.58)               |

| Table 4: Local side effects of prolonged topical corticosteroid use |
|------------------------------------------------------------------|
| Skin change                                | Number of patients (%) |
| Acneiform eruption                        | 68 (25.09)             |
| Rosacea/photosensitivity                  | 79 (29.15)             |
| Atrophy/teleangiectasia                   | 54 (20)                |
| Hypertrichosis                            | 44 (16.23)             |
| Hyperpigmentation                         | 26 (9.59)              |
| Multiple side effects                     | 75 (27.67)             |
A pharmacist or medical shop owner was the most responsible person who recommended patient to use TC. One hundred and eight (39.85%) patients bought medicine from OTC by the recommendation of a pharmacist. About 30.25% patients were using TC as suggested by some friends or relatives who were also using the same. We found that 6 patients (2.27%) continued topical steroid for prolonged period without supervision being prescribed by qualified dermatologist for some other reason [Table 3].

Most of the patients, 227 (83.76%), were unaware about the side effects of the topical steroids. Rosacea-like features with photosensitivity were the most common adverse effect found in 79 (29.15%) patients whereas comedonal acne/acne exacerbation was found in 68 (25.09%) patients. Seventy-five (27.67%) patients developed overlapping side effects like acneiform eruption with photosensitivity with hypertrichosis [Table 4] [Figures 1-7].

The British National Formulary employs a four-point scale of potency for topical steroids: mild, moderate, potent, and very potent. We followed that classification and halobetasol propionate, clobetasol propionate, fluocinolone, and their combinations with salicylic acid, hydroquinone, gentamycin, and neomycin were grouped as potent and very potent TC and betamethasone dipropionate, beclomethasone dipropionate, and betamethasone valerate, mometasone, and their combination with some other components were clubbed together in a group called “mid-potent steroids,” and all others were clubbed into another group called “low-potent steroids.” In our study, we found majority of the patients (59.77%) were using mid-potent steroids; potent and very potent steroids were used by 31.36% patients. Only 24 patients were found who had used low-potent steroids [Table 5].

The commonly used creams were more than one molecule combination. Commonly used brand names were Betnovate C, Betnovate N, Clop G, Cosvate G, Cosvate GM, Lobate GM, Cloben G, Panderm, Quadiderm, Fourderm, Skinlite, Melacare, Melalite, Noscar, etc., More patients were using a combination of two drugs (64.2%) than three drugs (45.0%) or single molecule (11.81%) [Table 6]. The most preferred brand was Betnovate C or Betnovate N. Almost every patient of TSDF at least heard about it.

Discussion
Corticosteroids are one of the most widely prescribed topical drugs. However, rampant misuse and abuse in the face through years lead to plethora of symptoms and signs which is known as topical steroid-damaged/ dependent face (TSDF).

The problem is worsened when a patient easily gets a refill of a single prescription from a local chemist, and even without prescription, eventually leading to the production of adverse effects, dependence, or addiction to TCs.

In our study, we found 36.23% of patients with facial dermatoses had already been using TCs when they had contacted a specialist whereas in a large study conducted by Saraswat et al., it was reported to be 15%. The Iraqi study reported that 7.9% of the patients of the dermatology clinic attendees use TCs before contacting a specialist. In our study, most patients were young female who used a corticosteroid-containing cream recommended by a chemist or a friend or relative to get rid of acne vulgaris but Saraswat et al. showed young female patients were mainly using the cream for beauty, fairness, or general skin-care purpose without any underlying skin ailment for months at a stretch.

Most TC abusers in the Iraqi study were in the 10–19 years of age group, whereas in our study, we found that most patients were in the 20–29 years of age group which is similar to the study of Saraswat et al. However, our and Saraswat et al’s data were limited to facial use, whereas the Iraqi study reported TC abuse anywhere on the body. Acne was the

### Table 5: Type of topical corticosteroid used by the patients

| Potency of steroid       | Number of patients (%) |
|--------------------------|------------------------|
| Potent and super potent  | 85 (31.36)             |
| Mid-potent               | 162 (59.77)            |
| Low potent               | 24 (8.85)              |

### Table 6: Type of topical formulation used by the patients

| Formulation   | Number of patients (%) |
|---------------|------------------------|
| Single        | 32 (11.81)             |
| Two drugs     | 174 (64.21)            |
| Three drugs   | 40 (14.76)             |
| More than three drugs | 25 (9.22)             |

Figure 1: Photosensitivity and telangiectasia and acneiform eruption after prolonged use of potent topical steroid
most common adverse effect seen in our study which was similar to some other studies. A large spectrum of TC adverse effects on the face was seen in our study [Figures 1-7]. The common side effects seen in our study were photosensitivity and rosacea-like features, acneiform eruption, atrophy, telangiectasia, and hypertrichosis. Many patients developed multiple side effects at a time. These were similar to other studies. In our study, almost 9.28% of the patients had received TC prescriptions from healthcare providers, whereas
this figure was 40% in Saraswat et al. study, 49.5% in Nagesh et al. study, and 28% in a Chinese study. In the present study, we found that the most common source of the drug was advised by the pharmacists.

Most of the subjects were using mid-potent TCs in our study, which was in concordance with prior studies from other countries.\textsuperscript{[6-8,12,14,15]} Betamethasone valerate alone or in combination was used by our patients, and Betnovate-C and Betnovate-N were the most common brand names.

The mometasone-hydroquinone-tretinoin combination skin lightening formula was used by 14.76% of patients in our study in contrast to Saraswat et al. who found the combination in a larger number of patients. Almost all the patients in our study who were using these combinations had been recommended by a nonphysician.

**Conclusion**

TC misuse in patients with facial dermatoses is still quite common after extensive efforts to increase the awareness among population. A reason may be the awareness program is not reaching the ground level, and it needs government participation along with dermatologists. Every health-care personnel along with chemist should take some responsibility to reduce the use of unsupervised and prolonged use of TC.

**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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