

## ORIGINAL ARTICLE

## MISUSE OF TOPICAL CORTICOSTEROIDS ON FACIAL SKIN

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**Background:** Topical corticosteroids are being misused all over the world due to their easy availability leading to various adverse-effects. This study was conducted to assess the magnitude of the problem and side-effects of topical corticosteroids application over the face. **Methodology:** This is a hospital based cross-sectional descriptive study was conducted at Shahida Islam Teaching Hospital and Medical Complex, Lodhran, over a period of 6 months from Jun to Nov 2018. The inclusion and exclusion criterion were defined and patients were questioned on a structurally designed preformed questionnaire and examined clinically. The data was processed using SPSS-20. **Results:** A total of 220 patients were included in the study, out of which 160 patients were females. Age of the patients ranged from 8 to 40 years. Most of the patients (84, 38.2%) applied steroid only for fairness while others used it for the treatment of acne, melasma, tinea and other dermatoses. Most of the patients (168, 78%) used steroids on the advice of non-doctors. Multiple adverse effects like erythema, burning, itching, telangiectasia, hypertrichosis, tinea incognito, photosensitivity and skin atrophy were noted. Among those who developed side effects, 98 (44.5%) patients developed Topical Steroid Dependent Face (TSDF). **Conclusion:** Topical corticosteroids are misused most commonly for fairness and other skin conditions by doctors and non-doctors without proper consultation by dermatologists. Stronger regulations and more stringent policies for the manufacture and sale of over the counter drugs are recommended. Public awareness can help to address the problem.

**Keywords:** Topical corticosteroids, Misuse, Topical steroid dependent face, TSDF, Acne, Melasma

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## INTRODUCTION

Topical corticosteroids are widely used to treat various dermatological disorders. They were first introduced in 1952 as compound F or hydrocortisone.<sup>1</sup> Their clinical effects are mainly due to their strong anti-inflammatory, vasoconstrictive, anti-proliferative and immunosuppressive properties.<sup>2</sup> The introduction of more potent topical corticosteroids has increased the incidence of its side effects.<sup>3</sup> Meanwhile, misuse of topical corticosteroids especially over the face has increased, which has further increased the incidence of side effects.<sup>3,4</sup> Topical corticosteroids when applied over the face produce peculiar adverse effects like steroid induced rosacea, itching, acneform eruptions, telangiectasia, dyspigmentation, hypertrichosis, tinea incognito and atrophy.<sup>5</sup> A new entity known as topical steroid dependent face has been introduced which includes the aggravated vascular symptoms like erythema and burning sensation occurring on attempted cessation of topical corticosteroid application.<sup>4,6</sup>

The situation has been aggravated in Pakistan by inappropriate prescriptions and availability of all potent topical corticosteroids as over the counter drugs. Topical corticosteroids misuse is well known and has been studied in various countries of Africa<sup>6,7</sup>, Asia and even in USA<sup>5,7-11</sup>.

This study was conducted to highlight the magnitude of the problem in our population and assess

common side-effects of topical corticosteroids abuse over the face.

## PATIENTS AND METHODS

This study was conducted at Shahida Islam Teaching Hospital and Medical Complex, Lodhran, Pakistan, over a period of 6 months from Jun to Nov 2018. The Institutional Ethical Committee clearance was taken before starting the study and written informed consent was obtained from participants.

The sample size was calculated by Raosoft sample size calculator keeping confidence interval of 90% and margin of error 5%. Patients of any age and either sex, with history of topical corticosteroids application over face for more than 1 month were included in the study. Patients who did not consent and patients with history of pre-existing atopic dermatitis, seborrheic dermatitis, and contact dermatitis before the initiation of steroids and patients with comorbidities like Polycystic Ovarian Syndrome and Cushing's Syndrome were excluded.

Details regarding patient's demographics, use of steroids, duration, indication, prescription source and adverse effects like erythema, burning, itching, acneform eruptions etc. were asked about on a preformed questionnaire. Complete examination regarding side-effects was performed. Findings were analysed and results were calculated using SPSS-20.

## RESULTS

A total of 220 patients were included in the study, out of which 160 patients were females and 80 were males. Age of the patients ranged from 8 to 40 years with mean age  $24 \pm 7$  years. Maximum numbers of patients (114) were in the age group 21–30 years, followed by 66 patients in age group 11–20 years. (Table-1).

**Table-1: Age demographics**

Age Group	Number	Percentage
0–10	4	1.8
11–20	66	30.0
21–30	114	51.8
31–40	36	16.5

More than half of the patients, i.e., 140 (63.6%) were educated while 80 (36.4%) were uneducated (not able to read and write, نساخوانده). Duration of topical corticosteroids application ranged from 4 weeks to 5 years. Most of the patients consulted the dermatology OPD due to the appearance of side effects. More than half (120, 58%) patients had applied topical corticosteroids of moderate potency while 60 (24%) had used ultra-potent steroids like clobetasole, and 40 (24%) misused mild corticosteroids.

The most common purpose for which the topical corticosteroids were used included fairness in 84 (38.2%) patients while others used them to treat various other dermatological disorders like acne, melasma and tinea fasciei, and 10 (4.3%) patients used them to treat undiagnosed skin conditions. (Table-2).

**Table-2: Indications for use of steroids**

Indications	Number	Percentage
Fairness	84	38.2
Pigmentation	60	27.0
Acne	56	26.2
Fungal infections	10	4.3
Undiagnosed dermatoses	10	4.3

Details regarding the source of prescription showed that 168 (78%) patients applied topical corticosteroids on the advice of non-doctors and among them, a large number (80, 38%) used it on the advice of friends and family. Other 52 (22%) used it on the advice of doctors, and out of them, only 12 (3.5%) got them advised by dermatologists. (Table-3).

**Table-3: Steroids prescribers**

Prescribers	Number	Percentage
Friends and family	80	38.0
Beauty parlours	54	24.5
General practitioners	40	18.5
Pharmacist	30	13.6
Dermatologist	12	3.5
Others	4	1.9

Multiple adverse effects of steroids application were noted in the patients including erythema, burning, itching, telangiectasia, hypertrichosis, tinea incognito, photosensitivity and skin atrophy. Among those who

developed side effects, 98 patients (44.5%) developed an increase in the symptoms like erythema, burning sensations and itching on stopping the topical application thus representing the newly developed condition termed as Topical Steroid Dependent Face (TSDF). (Table-4).

**Table-4: Side effects of steroids application**

Side effects	Number	Percentage
Itching	198	90
Erythema	154	70
Acneform eruption	143	65
TSDF	98	44.5
Photosensitivity	77	35
Telangiectasia	40	18.2
Dyspigmentation	33	15
Tinea incognito	25	11.4
Hypertrichosis	22	10
Skin wrinkling & Atrophy	20	9
Rosacea	11	5

## DISCUSSION

The discovery of glucocorticoids in 1950s had revolutionized the treatment of various dermatological disorders but at the same time, their potential of masking the inflammatory reaction and their potential for decreasing the melanin production resulting in fair skin colour, led to their abuse, specially over the face and thus has enhanced the burden of steroid related side effects. We assessed the misuse of topical corticosteroids over the face as was done in other studies conducted in India, China and Iraq.<sup>2,3,8</sup>

In our study, majority of the patients were females (160, 72.72%) and the most common presenting age group was 21–30 years which was similar to many other studies from Asia.<sup>3,10</sup>

Regarding indications for use, 38.2% of the population in our study used topical corticosteroids just for the fairness and beauty; this is in accordance with the results of a large study conducted by Saraswat who observed that 28.5% of the patients applied steroid over the face for months at a stretch only for beauty and as a general face cream without any underlying dermatosis.<sup>5</sup>

Topical corticosteroids are also misused by the general physicians as they provide quick relief of symptoms in infective conditions. In our study, 40 (18.5%) patients were prescribed topical corticosteroids by the general practitioners.<sup>12</sup> Majority (78.1%) of the patients were using topical corticosteroids on the advice of non-doctors, out of which 38% were using steroids on the advice of friends and family members. These results are in agreement with the observations of a similar study conducted by Manchanda which showed that 30% of patients applied topical corticosteroids on the suggestion of their friends.<sup>3</sup>

Our study showed that majority (120, 58%) of patients used moderately potent topical corticosteroids.

However, Saraswat observed that majority of the patients used ultra-potent topical corticosteroids.<sup>5</sup>

As the patients get initial rapid relief of symptoms, patients usually continue to use topical corticosteroids without further prescription of the doctors and develop multiple adverse effects.<sup>9</sup> Our patients showed a broad spectrum of adverse effects which include erythema, burning, itching, acneiform eruptions, dyspigmentation, hypertrichosis, and skin atrophy. Multiple patients showed more than one side-effects. Most common side effect observed was itching in 198 (90%) cases, followed by erythema and acneiform eruptions, which are similar to the results of the study conducted by Manchanda *et al*.<sup>3</sup> Discontinuation of the prolonged steroid application leads to rebound erythema, burning sensation scaling over the face. This is termed as topical steroid dependent face (TSDF). Our study showed that 44.5% of patients had developed steroid dependent face comparative to the study conducted by Manchanda *et al*.<sup>3</sup> However, Jha *et al*<sup>4</sup> and Saraswat<sup>5</sup> reported a lower percentage of patients developing this condition that is 15% and 10.9%.

## CONCLUSION

Misuse of topical corticosteroids is a huge problem in our community. They are most commonly used for fairness without proper medical advice and without any pharmaceutical recommendations regarding indications and dosage. Stronger regulations and more stringent policies regarding manufacture and sale of over-the-counter drugs are required. Education of the general public and paramedical staff can help to address the problem.

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