

‘Too Much of anything is Bad’- Topical Corticosteroid Misuse on the Face

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Abstract: A major concern for dermatologists in the last decade has been the inappropriate use of topical corticosteroids, especially over the face, resulting in preventable, unsightly side effects. **Objectives:** We aim to determine the pattern and relative frequency of facial cutaneous adverse effects caused due to misuse of topical corticosteroid containing preparations. **Materials and Methods:** A single contact, descriptive clinical trial including 110 patients with history and signs suggestive of topical corticosteroid abuse on the face, presenting to the out-patient department of dermatology in a tertiary hospital. **Results:** Most frequent indication for use was acne vulgaris (57.3%), followed by pigmentary dermatoses (21.8%), the incidence of which is correlating statistically with the age group, i.e., ≤ 25 years and > 25 years, respectively, demonstrating the maximal use, mostly under the influence of their peers/relatives (44.5%), in this study. The commonest topical preparation exploited was betnovate, containing betamethasone valerate 0.1% (65.4%), belonging to the potency class III. Most patients started experiencing problems after application of the concerned product between 1 and 6 months (45.4%). Major related symptoms complained of were discomfort on sun exposure (67.2%) and itching on withdrawal (61.8%) and, 5 most common signs observed on the Topical Steroid Damaged Face (TSDF) were hypertrichosis (63.6%), acneiform eruptions (62.7%), hyper/ hypopigmentation (42.7%), cutaneous atrophy (40%) and erythema (34.2%). **Conclusion:** Topical corticosteroid misuse is an ever rising issue that needs to be recognized around the globe and rectified consistently through education of the general public, medical and paramedical personnel and pharmacists and by discouraging their over-the-counter dispense, especially as beauty products.

Keywords: Topical Steroid Damaged Face (TSDF), Dermatology.

I. INTRODUCTION

Corticosteroids (CS) are an important class of naturally occurring and synthetic steroid hormones that affect virtually every aspect of human physiology. They are a common part of the prescriptions, sometimes in physiological doses and sometimes for pharmacological therapy. [1]

Although, it is this very usefulness of the drug which has become a double edged sword and made it vulnerable to now an alarming proportion with constantly rising instances of abuse and misuse leading to serious local, systemic, and psychological side effects. [2]

The topical corticosteroids (TCs) are among the most commonly prescribed medication in an out-patient dermatology setting. [3] This is largely due to their ability to effectively treat several difficult dermatoses, through their anti-pruritic, anti-inflammatory, anti-proliferative and pigment-lightening activity on the skin. [4] Over the years, it has become increasingly apparent that topical corticosteroids are being abused by dermatologists, general physicians and patients themselves. [3] This is mostly because they produce rapid alleviation of unpleasant signs and symptoms on the skin. [4]

As potent topical corticosteroids are easily available over the counter at a low price, their misuse has been noticed among the general population, producing many adverse effects.[4] In view of this escalating, recently documented problem, the present study was conducted to determine the pattern and relative frequency of facial cutaneous adverse effects caused due to misuse of topical corticosteroid containing preparations, in patients attending the out-patient department of dermatology in a tertiary hospital.

II. MATERIALS AND METHODS

This is a prospective, questionnaire based, clinical study of a 110 patients with history and signs suggestive of topical corticosteroid misuse, conducted at an out-patient department of Dermatology, Subharti Medical College and Hospital, Meerut, Uttar Pradesh, India, during the period October 2015 to September 2016.

The studied variables include demographic profile of the patients, indication for primary use, details about the exploited topical corticosteroid, source of recommendation of use, and the related symptomatology and signs suggestive of topical steroid damaged/dependent face (TSDF).

Exclusion criteria: Patients with history of use of systemic corticosteroids and systemic diseases known to cause androgenetic imbalance, were excluded.

III. RESULTS

Of 110 patients included in the study, majority of the patients presenting with facial abuse, 50.9%, aged between 19 to 25 years, with male to female ratio, equating to almost 1 (Table I). Most patients i.e. 81.8% were literate with at least some level of institutional education. Most frequent reason for topical corticosteroid application was found to be acne vulgaris, noted in 57.3% of cases, followed by various pigmentary concerns in 21.8% (Table II). The correlation of indication of primary use with age of the participants was found to be statistically significant ($p < 0.01$) inferring misuse of TCs for acne vulgaris being more common in individuals less than or equal to 25 years of age and those more than 25 years abusing it mostly for different pigmentary conditions.

Betamethasone valerate 0.1%, available over the counter readily as betnovate, belonging to the mid strength potency class III, was the most exploited topical steroid in the current study, in 65.4% of cases. More than one product was used by many patients (Table III). Maximum number of patients gave the history of using the concerned product intermittently (63.6%), once a day (73.6%), using less than one finger tip unit amount of the product (60%) (Table IV). 45.4% of the patients reported applying the TC containing preparation for an interval between 1 to 6 months of duration (Table V).

In an attempt to trace the source of advice for the unsuitable use of topical corticosteroids, it was found that in our study, the most common source arose from within the family or neighbourhood, i.e. in 44.5% of cases, followed by on prescription by non-dermatologists in 20% (Table VI). Symptoms suggestive of TC abuse on the face at the time of presentation, encountered frequently included, discomfort on sun exposure in 67.2%, itching on temporary cessation of application, noted in 61.8%, flushing in 39%, dryness face in 34.5%, and burning in 30.9% of cases (Table VII). The incidence and pattern of facial cutaneous dermatoses was studied under 10 subheadings, of which, 5 most commonly seen were hypertrichosis in 63.6%, acneiform eruption in 62.7%, hyper/hypopigmentation in 42.7%, cutaneous atrophy in 40% and erythema in 34.5% of patients (Table VIII). More than one symptom and sign was observed in some patients. Long term side effects like hypertrichosis, cutaneous atrophy and telangiectasia were more prevalent in patients applying TCs for more than 3 months duration, however not statistically significant.

IV. DISCUSSION

As once rightly quoted 'too much of anything is bad' by a Roman playwright, Terence, overzealous, over-the-counter availability and subsequent inappropriate use of topical corticosteroids has led to recent recognition of an entity 'Topical Steroid Damaged/Dependent Face (TSDF) which is described as the semi-permanent or permanent damage to the skin of the face precipitated by the irrational, indiscriminate, unsupervised, or prolonged use of topical corticosteroids resulting in a plethora of cutaneous signs and symptoms and psychological dependence on the drug.[5]

Craze for fairness of skin is age old in our country. In the recent years, it has reached an epidemic level. Up till now, females were craving for fairness. [6] At present, even males have also joined the bandwagon, as also evident in the

present study with female to male ratio almost equating to 1. According to Ammar F.Hameed [7], pigmentary concerns and a longing for fairer skin were main motivators for the abuse of topical corticosteroids, while, in our study, acne vulgaris in 57.3% followed by pigmentary concerns in 21.8% were the most frequent reasons of TC use by individuals mostly ageing between 19 to 25 years.

In various studies conducted in the recent past addressing this ever rising issue, betnovate as famously traded, containing betamethasone valerate 0.1%, with mid-strength potency has remained a constant culprit, used by 65.4% of cases in the current study, where the majority used it for at least a month's period. Beauty parlours as in a study by Ammar F. Hameed [7] were the main source of recommendation for topical steroid use, which is in contrast to our data where spread of the wrong word within the family (44.5%) and a non-physician recommendation according to Saraswat et al predominated the source of exploitation. [8]

Misuse of topical corticosteroids can result in both local and much rarer, systemic side effects. In our study, various local cutaneous dermatoses to topical steroid abuse on the face included hypertrichosis as excessive hair growth over the malar and mandibular regions in 63.6%, monomorphic acneiform eruption in 62.7%, pigmentary changes in 42.7%, epidermal/dermal atrophy manifesting as thin, shiny, translucent appearance of the skin, seen in 40%, diffuse facial erythema in 34.5%, which occurs both as a side effect and due to temporary cessation of TC use, accompanied by telangiectasia in 33.6%, exacerbation or induction of infections, predominantly dermatophytic infection, noted in 17.2% of patients. A few cases (4.5%) of steroid induced milia and a single case of perioral dermatitis were also observed in our study. Many patients reported to the OPD with complaints of discomfort on sun exposure on prolonged use (67.2%) and itching on momentary withdrawal of the offending product (61.8%), symptoms very much suggestive of topical corticosteroid damaged face.

V. CONCLUSION

Topical corticosteroids are principally used for their anti-inflammatory, anti-proliferative and immunosuppressive properties for a wide variety of dermatological conditions. However, their prolonged and indiscriminate use, especially on the face, rather than reviving it, can result in a condition termed as 'topical steroid damaged/dependent face (TSDF)'.

This study conducted in a region of western Uttar Pradesh was an attempt to raise awareness among the patients as well as their accompanying attendants of the dangers of inappropriate use of corticosteroids; to counsel them thoroughly of the need to break the vicious cycle of misuse-temporary cessation-continued abuse; to treat and to advise them the ways to photo-protect their steroid damaged face.

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APPENDIX - A

TABLE:

TABLE I: Age distribution of the study group.

AGE OF THE STUDY GROUP	NUMBER OF PATIENTS	%
<19 (Adolescence and below)	27	24.5
19-25 (Early adulthood)	56	50.9
26-40 (Young adulthood)	26	23.6
41-60 (Middle adulthood)	1	0.9

TABLE II: Primary indication of use of topical corticosteroid containing product by the study group

INDICATION	NUMBER OF PATIENTS	%
ACNE VULGARIS:	63	57.3
INFECTIONS:	15	13.6
Fungal- Tinea faciei	14	12.7
Viral- Warts	01	0.9
PIGMENTARY CONDITIONS:	24	21.8
Melasma	12	0.11
Hyperpigmentation Face (As a fairness cream)	12	0.11
OTHERS:	08	7.2
Xerosis	07	6.3
As a routine moisturizer	01	0.9

TABLE III: Characteristics of the exploited topical corticosteroid

COMMERCIAL NAME*	NAME WITH % OF THE CORTICOSTEROID CONTAINED IN THE PREPARATION:	POTENCY CLASS OF THE TOPICAL CORTICOSTEROID	NUMBER OF PATIENTS	%*
Clobeta Gm/ Clob G/Panderm Plus/ Caster Nf/ Tenovate/ Lobate Gm/ Medisalic/Terbinaforce Plus	Clobetasol Propionate 0.05%	I (Ultra potent)	47	42.7
Betnovate(N/C/Gn/Gm/S)/ Quadriderm	Betamethasone Valerate 0.1%	III (Mid-strength)	72	65.4
Skinlite/Skinbrite/Skinshine	Mometasone Furoate 0.1%	IV (Mid-strength)	17	15.4

*More than one product was used by some patients.

TABLE IV: Frequency, mode of use, and the amount of the product in terms of Finger Tip Unit (FTU) by the study group

FREQUENCY (PER DAY)	NUMBER OF PATIENTS	%	MODE OF USE	NUMBER OF PATIENTS	%	AMOUNT USED (FTU)*	NUMBER OF PATIENTS	%
ONCE	81	73.6	INTERMITTENT*	70	63.6	<1	66	60
TWICE	26	23.6	CONTINUOUS	40	36.3	1-2	41	37.2
≥ THRICE	03	2.7				3-4	2	1.8
						>4	1	0.9

*Finger Tip Unit (FTU) is defined as the amount of ointment, cream or other semi-solid dosage form expressed from a tube with a 5mm diameter nozzle, applied from the distal skin-crease to the tip of the index finger of an adult.

TABLE V: Duration of application of the concerned topical corticosteroid by the study group

DURATION OF APPLICATION	NUMBER OF PATIENTS	%
1 week to 1 month	22	20
>1 month to 6 months	50	45.4
>6 months to 1 year	9	8.18
>1 year	29	26.36

TABLE VI: Source of recommendation of the misuse

SOURCE	NUMBER OF PATIENTS	%
Dermatologist (For Instance, For Unrelated Dermatoses)	07	6.36
Non Dermatologist	22	20
Beautician	03	2.72
Medical Store	14	12.72
Friend/Relative	49	44.5
Any Other Media(TV, Radio)	03	2.72
Self-Administration	12	10.9

TABLE VII: Symptomology related to topical steroid misuse on the face.

SYMPTOM	NUMBER OF PATIENTS	%*
Itching	68	61.8
Burning	34	30.9
Flushing	43	39.0
Dryness	38	34.5
Aggravation On Sun Exposure	74	67.2

*More than one symptom was experienced by some patients.

TABLE VIII: Incidence of various adverse effects induced by topical corticosteroid abuse on the face in the study group

SIGNS	NUMBER OF PATIENTS	%*
Erythema	38	34.5
Acneiform Eruption	69	62.7
Telangiectasia	37	33.6
Cutaneous Atrophy	44	40.0
Hypertrichosis	70	63.6
Hyper/Hypopigmentation	47	42.7
Perioral Dermatitis	01	0.9
Contact Dermatitis	00	0.0
Infections (Fungal, Bacterial, Viral)	19	17.2
Any Other (For example, Milia)	05	4.5

*More than one sign was observed in some patients.

APPENDIX – B

FIGURES:



Fig. 1: Hypertrichosis.



Fig. 2: Steroid modified acne.



Fig. 3: Rebound erythema on temporary cessation of topical steroid application.



Fig. 4: Steroid induced cutaneous atrophy and telangiectasia.