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MISUSE OF TOPICAL CORTICOSTEROIDS ON FACE: A HOSPITAL BASED CLINICOEPIDEMIOLOGICAL STUDY

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Abstract

Background: Misuse of topical corticosteroids (TCS) results in several cutaneous adverse effects. The facial skin is especially vulnerable to these effects, owing to its thinness. Therefore, this study was conducted to assess the burden of TCS abuse on the face as well as its sequelae. Aim: To assess the clinicoepidemiological profile of patients misusing TCS and evaluate the various factors contributing to it.

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Methods: All the patients presenting to the dermatology OPD were screened by asking for application of any topical medication on face. Those who were found to be using TCS inappropriately as per clinical diagnosis were included in the study and their details were recorded in a proforma for analysis and interpretation of data.

Results: A total of 163 patients were included in the study, including 84 males and 79 females. Maximum (44.79%) number of patients belonged to the age – group of 21-30 years. The most common steroid was betamethasone valerate (42.33%) followed by clobetasol propionate (34.97%). The most common primary dermatosis was acne vulgaris (43.55%) followed by melasma (26.38%). The duration of use varied from one week to several years. The most common cutaneous adverse effect was flare of acne and comedone formation (55.83%) followed by topical steroid-dependent facies (TSDF) in 34.36% cases.

Limitations: Several patients in whom the composition of the used products could not be identified, were excluded from the study, thereby decreasing the actual number of patients with TCS abuse.

Conclusion: Misuse of TCS is common on face, resulting in several adverse effects. Regulation over sale of TCS preparations and education of prescribers about their potential adverse effects is needed.

Key words: Topical corticosteroids, abuse, topical steroid-dependent facies (TSDF), adverse effects, face.

Introduction

Misuse of topical corticosteroids (TCS) is common in India. Unrestricted sale and lack of adequate knowledge about TCS are largely responsible for it. Inappropriate use of TCS results in several cutaneous and sometimes, even systemic adverse effects.[1] The facial skin, on account of its lesser thickness, is extremely vulnerable to these adverse effects.[1,2] Therefore, this study was carried out to determine various adverse effects of TCS on face and various factors associated with it.

Materials and Methods

All patients presenting to the dermatology OPD, who were found to be using TCS containing products on face inappropriately, were included in the study. The relevant details were recorded in a proforma for analysis and interpretation of data. The data were analyzed using the chi-square test and p value < 0.05 was considered to be significant. The study duration was three months.

Results

A total of 163 patients were included in the study, including 84 males and 79 females (Table 1). Amongst these patients, 140 (85.89%) had applied TCS on face alone, while the remaining had applied on other body parts as well. The most common primary dermatosis was acne (71; 43.56%), followed by melasma and other pigmentary disorders (43; 26.38%), while 20 (12.27%) patients had been using these products without any disease (Table 2). The duration of use varied from 1 week to several years (Table 3). The most common TCS compound in the study was betamethasone valerate (69; 42.33%) followed by clobetasol propionate (57; 34.97%) [Table 4]. The composition of various products used by patients is shown in table 5. Various cutaneous adverse effects on facial skin are depicted in table 6 and figures 1 – 5.

Age Group (in years)	M	F	Total	Percentage
0 - 10	1	0	1	0.61
11 - 20	40	26	66	40.49
21 - 30	34	39	73	44.79
31 - 40	4	12	16	9.81
41 - 50	2	2	4	2.45
51 - 60	3	0	3	1.84
Above 60 yrs	0	0	0	0.00
Total	84	79	163	100.0

Table 1: Age and sex distribution of patients with TCS abuse

Primary dermatosis	M	F	TOTAL	Percentage
Acne vulgaris	41	30	71	43.56
Melasma and other pigmentary disorders	17	26	43	26.38
Dermatophytosis	20	7	27	16.56
Nil	6	14	20	12.26
Herpes simplex	0	1	1	0.61
Varicella scars	0	1	1	0.61
Total	84	79	163	100.0

Table 2: Primary dermatoses for which TCS preparations were being used.

Duration of use	M	F	TOTAL	PERCENTAGE
< 1 WEEK	2	2	4	2.45
1 WEEK TO 1 MONTH	33	24	57	34.97
1 – 3 MONTH	23	13	36	22.09
3 – 6 MONTH	19	16	35	21.47
6 – 12 MONTH	4	11	15	9.20
>1 YEAR	3	13	16	9.81
TOTAL	84	79	163	100.00

Table 3: Duration of TCS abuse.

Compound	M	F	T	PERCENTAGE
CLOBETASOL PROPIONATE	37	20	57	34.97
BETAMETHASONE VALERATE	26	43	69	42.33
MOMETASONE FUROATE	16	14	30	18.40
BECLOMETHASONE DIPROPIONATE	5	0	5	3.06
HYDROCORTISONE ACETATE	0	2	2	1.22
TOTAL	84	79	163	100.00

Table 4: Topical corticosteroid compound in the products.

COMPOSITION	M	F	TOTAL	PERCENTAGE
Only steroid	5	9	14	8.59
Steroid + antibiotic	22	30	52	31.90
Steroid + antifungal	2	0	2	1.22
Modified Kligman formula	16	15	31	19.01
Steroid + antifungal + antibiotic (3 drug)	8	6	14	8.59
4 drug combination	31	15	46	28.22
Miscellaneous	0	4	4	2.45
Total	84	79	163	100.00

Table 5: Composition of products used by patients.

Adverse effect	M	F	Total
Acneiform eruption/comedones/flare of acne	53	38	91
TSDF	15	41	56
Modified dermatophytosis	20	7	27
Hypertrichosis	0	8	8
Telangiectasia	2	5	7
Pigmentary change	6	6	12
Others	4	4	8

Table 6: Cutaneous adverse effects noted in the study.

Discussion

Easy availability of TCS preparations, even without a prescription, has resulted in their widespread misuse in India. Various studies focusing on cutaneous adverse effects of TCS compounds have been conducted in India.[3–6] Since facial skin is relatively thinner, it is more vulnerable to these adverse effects.

In previous Indian studies, [4 - 6] proportion of females has been reported to be relatively higher, but in the present study, it was found to be almost equal (M: F:: 1.063). This can be attributed to overall low attendance of females in OPD, as well as, it might reflect increased cosmetic concern amongst males too, thus

Figure 1: Aggravation of acne and comedone formation

making them vulnerable to misuse of various products available in the market. This fact is further substantiated by the fact that the most common affected age-group was 21-30 years; an age-group which is commonly concerned about one's appearance.

The most common primary dermatosis in the present study was acne followed by melasma. This is in accordance with a previous study [6] conducted in Punjab. Although some patients (12.27%) had been using TCS as a part of routine skin care, without any skin disease, the proportion of such patients was relatively small in the current study.

Figure 2: Telangiectasia on face.

The most commonly used TCS compound noted in the study was betamethasone valerate followed by clobetasol propionate. Similar results were reported by Jha et al.[4] Further analysis of product composition revealed that steroid with antibiotic combination was the most commonly (31.9%) used followed by an irrational 4 drug combination containing clobetasol, ofloxacin, ornidazole and terbinafine (28.22%). Modified Kligman formula was being used by 19.01% cases.

The most common adverse effect noted in the study was aggravation of acne, comedone formation or acneiform eruption followed by topical steroid – dependent facies (TSDF) and steroid modified dermatophytosis.

TSDF is a relatively newer entity in context of TCS induced local

Figure 3: Hypertrichosis with modified Tinea faciei.

adverse effects, described in 2008.[2] It is defined as the semi-permanent or permanent damage to the skin of the face precipitated by the irrational, indiscriminate, unsupervised, or prolonged use of TCS resulting in a plethora of cutaneous signs and symptoms and psychological dependence on the drug.[2] Various terms were initially coined for these cutaneous signs and symptoms such as dermatitis rosaceiformis steroidica, red skin syndrome and steroid-induced rosacea-like dermatitis.[7-9] In the

Figure 4: Topical steroid – dependent facies.

present study, TSDF was noted in approximately one-third cases. These patients presented with complaints of facial erythema, which was either persistent or aggravated with sun exposure, burning, itching, stretching sensation, scaling and thinning of skin. These symptoms were promptly relieved on self application of TCS and recurred on stopping, which forced the patients to use them again and again, thus creating a vicious cycle of TCS abuse and dependence. Here the classical history of prompt improvement on reapplication of TCS points towards steroid dependence.

Figure 5: Steroid modified Tinea faciei.

Previous studies indicate that self-medication, trust on chemist and advice of family and friends, along with ignorance of non-dermatologist prescribers contribute to misuse of TCS.[5, 10-12] These prescribers usually try to cover up all possible etiologies as the diagnosis is not known, thus prescribe irrational combinations. Also, we need to note that the cost of rational products for the treatment of acne, melasma and dermatophytosis is relatively very high.[12] Thus, prompt relief in symptoms at a lower cost allures the patients to use these products again and again. Lack of adequate dermatologists across the country and lack of awareness about adverse effects of topical medications has resulted in massive misuse of TCS preparations.

Conclusion

Misuse of TCS is rampant across India. Adequate regulation to stop the sale of TCS preparation as OTC drug is the need of the hour. At the same time, prescribers need to be made aware of the possible consequences of using TCS inappropriately. Further, a stronger referral system to the dermatologist needs to be developed.

Limitations

Several patients in whom the composition of the used products could not be identified, were excluded from the study, thereby decreasing the actual number of patients with TCS abuse.

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