

Topical Steroid Abuse - A Persisting Dilemma - A Case Study of 200 Patients

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Abstract: *Topical corticosteroids have an immense value in modern dermatological practice due to its ability treat various acute, chronic and severe dermatoses. However the misuse of topical steroids have become rampant in the present clinical scenario in developing countries and various complications due to its misuse is becoming prevalent these days and becoming a menace to treat for Dermatologist, especially when used for prolonged period of time. We conducted a study to access the misuse of topical steroids, along with the source of such medication and to observe the commonly seen side effects and indications used by the patient. The results we found were quite alarming. The cutaneous side effects encountered included atrophic changes like telengectasias, striae, purpura, bruising, ulceration, impaired wound healing, exacerbation of infections like tinea incognito, aggravation of cutaneous candidiasis/demodex, crusted scabies, reactivation of Kaposi sarcoma, miscellaneous effects like perioral dermatitis, hypertrichosis, hyperpigmentation, hypopigmentation, photosensitization, rebound flare-up (psoriasis). Majority of the patients had acquired the TCS over the counter for the wrong indication and used it for long duration with well manifested adverse effects. These patients were unaware of the contents of the topical applications nor its side-effects. Another disturbing fact that was deduced from the study is the shift in trend towards more rampant misuse of ultra-potent steroids and irrational combinations containing them. To tackle this problem we stress upon the importance of appropriate, validated prescription and rational dispensing of the drug which is of key importance, as lapses in any of these often attributes to its side effect profile.*

Keywords: Topical steroids, steroid misuse, tinea incognito, striae

1. Introduction

Topical corticosteroids have an immense value in modern dermatological practice due to its ability treat various acute, chronic and severe dermatoses which often gives a quick response in otherwise disorders causing significant prolonged morbidity.

They are available in various formulations and varying strengths and potency. An appropriate, validated prescription and rational dispensing of the drug is of key importance, as lapses in any of these often attributes to its side effect profile.

The cutaneous side effects encountered include atrophic changes like telengectasias, striae, purpura, bruising, ulceration, impaired wound healing, exacerbation of infections like tinea incognito, aggravation of cutaneous candidiasis/ demodex, crusted scabies, reactivation of Kaposi sarcoma, miscellaneous effects like perioral dermatitis, hypertrichosis, hyperpigmentation, hypopigmentation, photosensitization, rebound flare-up (psoriasis).¹

Corticosteroid addiction is seen commonly on the face where patients have acne, rosacea, perioral dermatitis or telengectasia continues to take the treatment due to the fear of up flare ups on attempts of cessation.²

Many studies have been carried out in the past and ongoing to understand the magnitude of the problem of topical steroid related adverse effects, all of which highlight the alarming increase in the amount of abuse and misuse of topical steroids.^{3,4} It is the need of the hour from the dermatological fraternity to keep reassessing the scenario as most of these patients are unaware of the risks posed by the

inadvertent use of topical corticosteroids and they seek help from doctors after prolonged periods of such misuse when the adverse effects have well manifested with dermatologists usually being the last resort.

2. Objectives of the Study

To study the various clinical presentations of dermatoses induced by topical corticosteroids.

3. Methodology

Patients presenting to the outpatient clinic from 1st December 2016 to 31st December 2017 were screened. A total of 200 cases presenting with dermatoses resulting secondary to application of a topical corticosteroid during the mentioned time period was inducted into the study. In each case the contents of the topical application used as a corticosteroid was ascertained. Patients with pre-existing comorbidities that can resemble or could cause changes similar to topical corticosteroid side effects or cases where the topical application in use cannot be confirmed as a corticosteroid were excluded.

4. Results

In the study, females 128 (64%) outnumbered males 72 (36%) with male to female ratio of 1:1.8.

The age of patients ranged from 5-56 yrs with a mean age of 25.5 yrs. The maximum number of patients 112 (56%) were found to be in the age group 20-29 yrs, among which majority 66 were females and 44 males, followed by 41 patients (20.5%) in the age group 30-39 yrs among which there were 7 males and 34 females, followed by 40 patients

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(20%) in the age group 10-19yrs among which there were 14 males and 26 females, followed by 7 patients (3.5%) in the age group 40-49yrs among which there were 3 males and 4 females. There were 2 females (1%) in the age group 50-60yrs and 1 female (0.5%) in the age group 0-9yrs.

Majority of the patients used topical steroid applications for the treatment of acne (107 patients), followed by melasma (40), as a fairness/cosmetic cream (38), dermatophytosis (20), hyperpigmentation (10), eczema (4), Polymorphic light eruptions (2), undiagnosed rash (1), urticaria (1), malaria (1), P.alba (1), rosacea (1). Some of the patients had more than indication.

The commonest site of application was the face 158 patients (78%), followed by thigh 16 (8%), lower limbs 9 (4.5%), trunk 8 (4%), upper limbs 4 (2%) and back 7 (3.5%).

Most of the patients had applied the topical corticosteroids only at night 158 (81%), rest 36 patients (18%) twice a day and 2 patients (1%) applied them only in the morning.

The duration of topical corticosteroid use ranged from 9 yrs to 3 weeks with majority patients 61 (30.5%) presenting to us with 2 months of use, followed by 1 month of use in 32 patients (16%), 3 months of use in 28 patients (14%), 6 months of use in 26 patients (13%), 4 months of use in 11 patients (5.5%), 12 months of use in 9 patients (4.5%), 7 months of use in 8 patients (4%), 5 months of use in 7 patients (3.5%), less than one month of use in 6 patients (3%), 9 months of use in 5 patients (2.5%), 2 patients (1%) each for a duration of 9 -10 months of use. Prolonged use for more than a year in 4 patients (2%), more than 2 yrs in 3 patients (1.5%) and 2 patients (1%) for more than 5yrs.

The topical corticosteroid formulation most used was found to be Clobetasol propionate 0.05% in 94 patients (41%), followed by Betamethasone valerate 0.1% in 65 patients (32.5%), Triple combination containing either Mometasone furoate 0.1% or fluocinolone acetonide 0.01% in 16 patients (8%), Mometasone furoate 0.1% in 13 patients (6.5%) and other formulations like hydrocortisone acetate 1% and fluocinolone acetonide 0.01% in 10 patients (5%).

An analysis of the source of prescriptions for topical corticosteroid use showed that majority of the patients 116 (58%) did not have a valid prescription, among which 78 patients (67.2%) purchased the TC over the counter or on the recommendation of the pharmacist, 32 patients (27.6%) used TC as per advise of a friend or relative and 6 patients 5.2% used it as per the beauticians advise.

Among the 84 physician prescriptions 59 patients (70.2%) were from general practitioners, dermatologists prescriptions were validated in 15 patients (17.8%), 7 patients (8.3%) had prescriptions from alternative medicine practitioners like ayurveda and homeopathy and 3 patients (3.7%) were prescribed TC by doctors from other specialities.

Evaluation of the cutaneous adverse effects on application of TC revealed steroid induced acne to be the commonest adverse effect encountered, which was seen in 98 patients (48%), followed by steroid induced rosacea in 41 patients

(20.5%), tinea incognito in 38 patients (19%), contact allergy in 36 patients (18%), hyperpigmentation in 31 patients (15.5%), Hypopigmentation in 9 patients (4.5%), cutaneous atrophy in 12 patients (6%), hypertrichosis in 10 patients (5%), telengectasia in 9 patients (4.5%) and striae in 7 patients (3.5%). Some of the patients had more than one adverse effect at the time of evaluation.

KOH mount was done from skin scrapings of 7 suspected of tinea incognito, out of which 5 were positive for fungal elements.

Wood's lamp examination was done for 2 patients with tinea versicolor which showed yellowish fluorescence and 4 patients with tinea incognito showing greenish fluorescence.

Punch biopsy was done in one case of hypopigmentation which revealed thinned out epidermis with decreased dermal thickness.

5. Discussion

In 1952 two American physicists Sulzberger and Witten revolutionized dermatopharmacology by the introduction of 'compound F' or hydrocortisone successfully used to treat eczematous dermatitis.⁵ Their success marked a cornerstone in dermatology and since then topical corticosteroids have played a pivotal role in dermatological therapy. Their ability to give rapid amelioration of symptoms in a wide range of dermatological disorders which otherwise cause prolonged morbidity were hailed by all physicians alike and they gained quick popularity.^{6,7} This has resulted in increasing instances of misuse and abuse of TCS owing to more adverse effects.⁸

TCS have a wide range of application in various inflammatory dermatoses. It is essential to have a proper understanding of the indications where it can be used for a safe duration and to choose the right candidates to treat. Any lapse in these can result in adverse effects as with any other drug. The therapeutic guidelines for appropriate use of TCS of varying potency has been mentioned in the literature and clearly laid out. Constant monitoring with periodic review of patients on TCS helps in assessing the response and also helps in preventing any such adverse effects^{9,10}

The main problem that has surfaced since the recent past is the unregulated dispensing of TCS, along with the emergence of numerous irrational combinations most of which contain ultrapotent TCS and their aggressive marketing. This has resulted in a multi faceted problem where multi-dimensional interventions, involving educational, legal and managerial approaches with cooperation from different sectors of society.¹¹

Our study clearly points out that adverse effects related with TCS is due to its misuse or abuse.

More than half of the patients 58% (116 patients) did not have a prescription for TCS. Majority of the patients were females and belonged to the younger age group between 20-29 years. The main indication for TCS use was acne (107 patients), followed by melasma (40), as a fairness/cosmetic cream (38), dermatophytosis (20).

The main indication for TCS use was acne in 107 patients, followed by melasma in 40 patients, as a fairness/ cosmetic cream in 38 patients, dermatophytosis in 20 patients. None of which are indications for TCS therapy.

The formulation of TCS used in our study was ultrapotent clobetasol propionate 0.05% in 94 patients (41%) and betamethasone valerate 0.1% in 65 patients (32.5%). A meta-analysis revealed that majority of this was in the form of combinations 81% and among that 85% were found to be irrational combinations containing an antibiotic, antifungal and corticosteroid. Evaluation of the cutaneous adverse effects on application of TC revealed steroid induced acne to be the commonest adverse effect encountered, which was seen in 98 patients (48%), followed by steroid induced rosacea in 41 patients (20.5%), tinea incognito in 38 patients (19%).

6. Conclusion

200 patients presenting with dermatoses resulting from topical corticosteroids were inducted in the study. An analysis of the data collected has enabled us to come to the following conclusions.

- In our study population there was a female preponderance with a male to female ratio of 1:1.8
- The commonest age group was between 20-29yrs, the youngest patient being 5 yrs old and the oldest 56yrs old
- The duration of TCS ranged from 3 weeks to 9 yrs, with majority presenting with adverse effects after 2 months of use.
- The commonest indication for TCS use was for the treatment of acne in 107 patients.
- The commonest site of TCS application was over the face in 156 patients (78%) and majority of the patients 162 (81%) had used it overnight.
- The commonest topical TCS formulation used clobetasol propionate 0.05%, as combination in a cream base.
- An analysis of the source of prescriptions for TCS use showed that majority of the patients 116 (58%) did not have a valid prescription, with majority patients (67.2%) acquiring the TC over the counter.
- Among the 84 physician prescriptions 59 patients (70.2%) were from general practitioners.
- Evaluation of the cutaneous adverse effects on application of TC revealed steroid induced acne to be the commonest adverse effect encountered.

7. Summary

This study highlights the unwarranted use of topical corticosteroids resulting in adverse effects. Majority of the patients had acquired the TCS over the counter for the wrong indication and used it for long duration with well manifested adverse effects. These patients were unaware of the contents of the topical applications nor its side-effects. Another disturbing fact that was deduced from the study is the shift in trend towards more rampant misuse of ultra-potent steroids and irrational combinations containing them.

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Tables

Table 1: Gender distribution of patients

Gender	Number of patients	%
Male	72	36
Female	128	64
Total	200	100

Table 2: Age distribution of patients studied

Age in yrs	No. of patients	%
0-9	1	0.5
10-19	40	20
20-29	112	56
30-39	41	20.5
40-49	7	3.5
50-60	2	1

Table 3: Indications for Topical corticosteroid use

Indications	No. of patients*
Acne	107
Melasma	40
Fairness / Cosmetic	38
Dermatophytosis	20
Hyperpigmentation	10
Eczema	4
PMLE	2

Undiagnosed Rash	1
Urticaria	1
Milaria	1
P.Alba	1
Rosacea	1

*Some of the patients had more than one indication

Table 4: Site of application

Site	No. of patients	%
Face	156	78
Thigh	16	8
Trunk	8	4
Upper limbs	4	2
Lower limbs	9	4.5
Back	7	3.5

Table 5: Duration of application of topical corticosteroids

Duration	No. of patients	%
<1 M	6	3
1 M	32	16
2 M	61	30.5
3 M	28	14
4 M	11	5.5
5 M	7	3.5
6 M	26	13
7 M	8	4
8 M	5	2.5
9 M	2	1
10 M	2	1
11 M	1	0.5
12 M	9	4.5
> 1 YR	4	2
> 2 YRS	3	1.5
> 5 YRS	2	1

Table 6: Topical corticosteroid formulations used

Topical steroid	Class	No. of patients	%
Clobetasol propionate 0.05%	I	94	41
Betamethasone valerate 0.1%	II	65	32.5
Triple combination	III/IV	16	8
Mometasone furuoate 0.1%	II	13	6.5
Others (Hydrocortisone acetate 1%, flucinolone acetonide 0.01%)	III/IV	10	5

Table 7: Source of prescription

Source of prescription	No. of patients	%
Physician	84	42
Non-physician	116	58

Table 8: Physician prescription source

Prescription source	No. of patients	%
General practitioner	59	70.2
Dermatologist	15	17.8
Alternative Medicine	7	8.3
Other specialties	3	3.7

Table 12: Non-physician prescription source

Prescription source	No. of patients	%
Pharmacists	78	67.2
Friends / Relatives	32	27.6
Beautician	6	5.2

Table 9: Cutaneous adverse effects

Cutaneous adverse effect	No. of patients*	%
Steroid induced acne	96	48
Steroid induced rosacea	41	20.5
Contact allergy	36	18
Tinea Incognito	38	19
Hyperpigmentation	31	15.5
Hypopigmentation	9	4.5
Cutaneous atrophy	12	6
Hypertrichosis	10	5
Telengectasia	9	4.5
Striae	7	3.5

*Some of the patients had more than one adverse effect