

Topical corticosteroid misuse: Observational study to evaluate pattern of misuse in patients attending a Tertiary care center.

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Abstract:-Background: Topical corticosteroids, one of the widely used formulation in field of Dermatology is associated with an emerging problem of its own. Over the counter availability and its unlabelled presence in cosmetics has led to widespread misuse. This study was aimed at studying the pattern of topical steroid misuse and the reason behind it. **Materials and Methods:** This was a cross sectional observational study done in outpatient department of Dermatology, Venereology and Leprosy over a period of 6 months from July 2019-Dec 2019. **Results:** During the study period 109 patients were found to be misusing steroids. Out of these majority (81.7%) were females. The age group most commonly misusing steroid was between 20-30 yr (42.2%). The study revealed that skin lightening / fairness effect (38.4%) was the most common reason for abuse followed by acne (24.7%). In most of the cases friends / family (43.1%) was the promoting factor behind topical corticosteroid misuse while pharmacists (27.8%) also played a significant role for the same. Betamethasone was found as the most commonly abused preparation. **Conclusion:** Topical corticosteroids are becoming a double edged sword in today's world. The issue of misuse associated with it is increasing day by day both in magnitude and severity. It needs urgent attention and necessary measures from the Medical Fraternity as well as the Government and the General Public.

Keywords:- Topical corticosteroid, misuse, skin lightening, fairness, acne, Over the counter.

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I. Introduction

Sulzberger and Witten introduced topical corticosteroid in the year 1952, which brought about a revolution in the field of dermatology.¹ Topical corticosteroids are hydrocortisone derivative compounds having anti-inflammatory, immunosuppressive and anti-pruritic actions. According to Intercontinental Marketing Services (IMS); in 2013 the annual sale of topical corticosteroid in India was 1400 crore rupees, which accounts for around 82% of total dermatological product sale in the country.² The quick amelioration of signs and symptoms of many skin disorders by the application of topical corticosteroids attracts the attention of several people who start using them without the guidance of a dermatologist practitioner.³ This inappropriate and incorrect use has led to serious adverse effects.

The abuse of topical corticosteroids in India is not limited to self medication; advice by friends, family, beauticians, pharmacists etc. to use topical corticosteroids as fairness / beauty creams; antifungal therapy; anti-acne etc. has further added to the problem.⁴ The present craze of beautification has inadvertently made various sections of Indian society victim. Unrestricted availability and sale of these products over the counter without valid prescription is another major concern. Approximately 138 million dollars worth of topical corticosteroid are sold in India annually over the counter without prescription support.⁵

As per the information available on the Central Drugs Standard Control Organization (CDSCO) website regarding approved dermatological indications of topical corticosteroids, its off label use seems to be a common clinical practice in India.⁶ Online academic forum of IADVL revealed the rapidly rising incidence of topical corticosteroid misuse on the face all over India.⁷

The misuse of topical corticosteroid leads to various adverse effects depending on its potency, duration of use, site of application etc. In several cases, self medication or using it on advice of unqualified professionals leads to alteration of morphology of original lesion thus making the diagnosis difficult.

The present study was conducted to assess the pattern of topical steroid misuse, the reason behind it and the adverse effects resulting from it. Through our study we also made an effort to counsel the patient and raise awareness regarding steroid misuse.

II. Materials And Methods

The study was a cross sectional observational study done in the outpatient department of Dermatology , Venereology and Leprosy of a tertiary care center of Northern India . The study was done for a period of 6 months from July , 2019 to December , 2019. The study was approved by the Institutional Ethics Committee .

Patients of any age and of either sex using topical corticosteroid (alone or in fixed dose combination) presently or in the past for incorrect indications / formulations / frequency or duration were included in the study . The age and sex of the patient was documented . Detailed history about steroid misuse in terms of type of drug use (single molecule or fixed dose combination) ; indication for misuse ; source of drug advice was taken . Patient was evaluated for any resultant side effect and detailed clinical examination of the site for erythema , telangiectasia , hyperpigmentation , atrophy , hypertrichosis etc. was performed . Patients were counselled and necessary treatment of topical corticosteroid adverse effects was started . Patients using topical corticosteroids for correct indications and as per advice of dermatologists were excluded .Pie chart and percentage calculation was done by Microsoft Excel Office.

III. Results

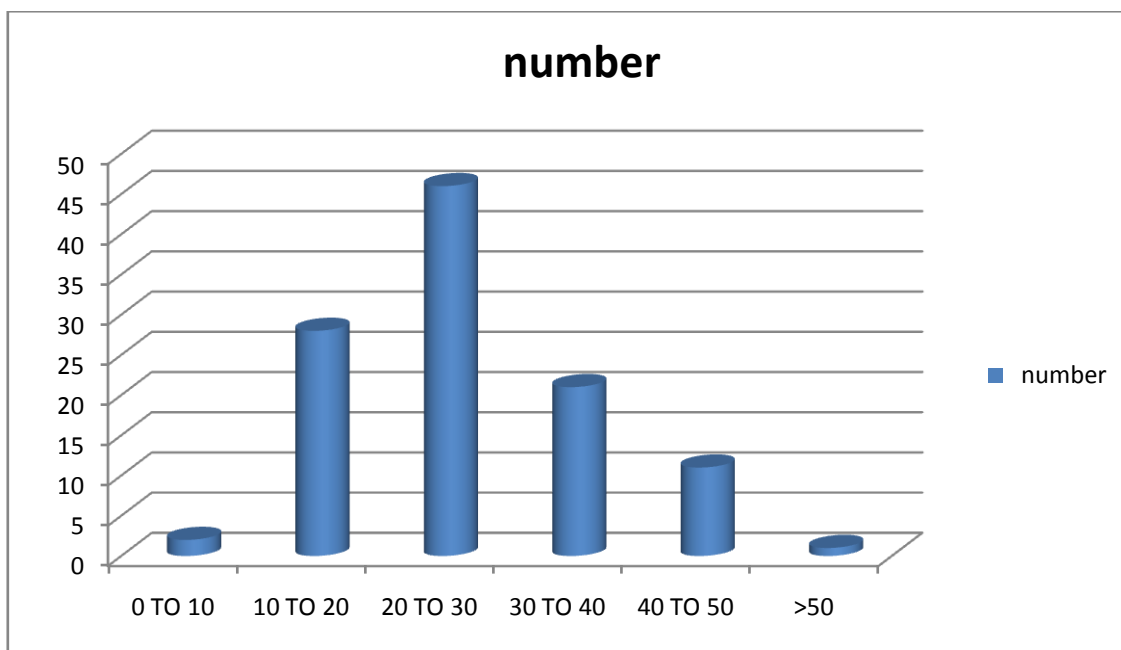
Among patients attending our outpatient department during the study period , those with history of steroid misuse either in terms of incorrect indication or inappropriate duration ; frequency ; formulations were included in the study .

A total of 109 patients were found eligible . Majority of the study population were Female 89 (81.7%) compared to 20 Males (18.3%) .

GENDER	NUMBER(n)	PERCENTAGE(%)
Male	20	18.3%
Female	89	81.7%

Table 1 –Gender distribution among the study population .

Mostly patients belonged to age group of 20-30 yrs. (46) ; followed by 21 in 30-40 yrs. age group ; 28 in 10-20 yrs. age group ; 11 in 40-50 yrs. age group . Only 2 in 0-10 yrs. and 1 in >50 yrs. age group .



Graph 1- Age distribution .

Duration of abuse in most patients ranged from 1 month to 6 months ; while some patients continued its misuse for over 1 year going up to even 3 years in some patients .

Duration of use	Number (n)	Percentage (%)
<1 month	11	10.1%
1month - 6 month	47	43.1%
6 month - 1 year	22	20.2%
>1 year	29	26.6%

Table 2- Duration of misuse among study population .

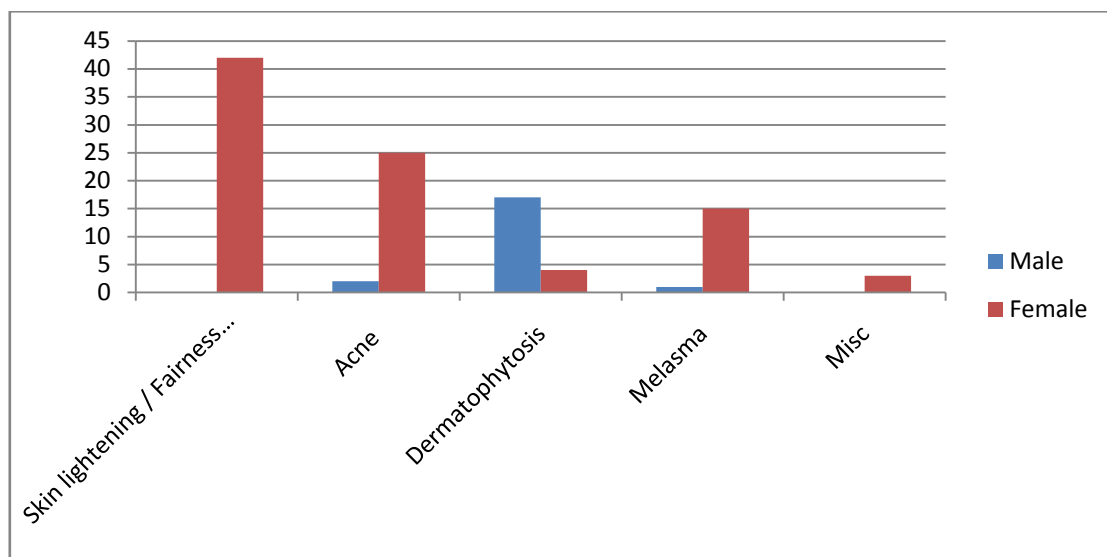
The study also revealed that topical corticosteroids were misused mostly for its skin lightening/fairness effect seen in 38.4% of the total study population . Other purpose of misuse were acne seen in 24.7% ; followed by dermatophytosis 19.2% ; melasma 14.8% and miscellaneous reasons 2.9% .

Purpose of misuse	Number (n)	Percentage (%)
Skin lightening/ Fairness effect	42	38.4%
Acne	27	24.7%
Dermatophytosis	21	19.2%
Melasma	16	14.8%
Misc	3	2.9%

*Miscellaneous reasons include patients using it for ACD ;non specific rashes etc.

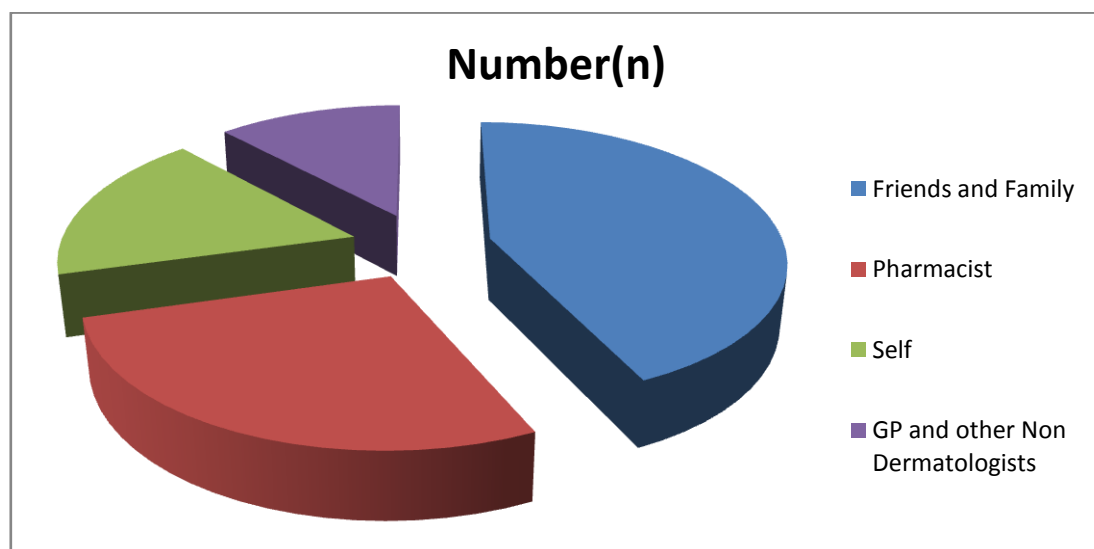
Table 3- Purpose of misuse of topical corticosteroid .

Among females ; skin lightening / fairness effect was the main reason of misuse seen in 47.2% of total females in the study .On the other hand abuse in males were seen mostly for Dermatophytosis infection around 85% .



Graph 2 – Difference in pattern of misuse in both sexes .

Despite all its deleterious effect topical corticosteroid continues to be misused in a significant amount . Our findings showed that its use was advised by friends and family in most cases around 43.1% . In 27.8% of cases source of procurement was from pharmacists and self medication was seen in 17.4% whereas in 11.9% it was advised by general practitioners and other non dermatologists .



Pie chart 1 – Source of advice to use topical steroid .

Topical corticosteroid misuse: Observational study to evaluate pattern of misuse in patients ..

The drug used by the patients was based on verbal history. In some cases patients also brought the tube or drug packaging with them. Most patients misused Betamethasone (55.9%) followed by combinations containing topical steroid (27.5%) .

<i>Drug misused</i>	<i>Number (n)</i>	<i>Percentage (%)</i>
Betamethasone	61	56%
Combinations	30	27.5%
Clobetasol	10	9.2%
Mometasone	8	7.3%

Table 4 –Drug misused in the present study .

Patients abusing topical corticosteroids showed a variety of adverse effects like atrophy ,acneiform eruptions , telangiectasia , hypertrichosis , hyper/hypopigmentation , striae , tinea incognito , plethoric face , burning and itching sensation .



Image 1- Image here demonstrate facial erythema ,hypertrichosis and areas of hyperpigmentation in a female abusing steroid in the form of a common household brand containing Betamethasone .



Image 2-A female patient who developed skin atrophy and telangiectasia locally due to topical steroid misuse for Tinea infection .



Image 3 – A female using topical steroid over face developing classical facial plethora .



Image 4 - A case of TineaFaciei with history of steroid application resulting in modified lesion morphology.



Image 5- A patient of Tinea cruris&corporis using topical corticosteroid leading to striae formation.



Image – 6 Multiple acneiform eruptions developing on the face due to chronic steroid abuse .

IV. Discussion

The introduction of topical corticosteroid, no doubt , brought about a drastic change in the therapeutics of dermatology . The anti-inflammatory and anti-pruritic action leading to rapid relief found it being used in a variety of dermatological conditions . But with time its abuse and misuse began both by the patients and doctors as well .

A total of 109 patients of either sex were enrolled in our study .The study showed that females (81.7%) outnumbered males (18.3%) in terms of topical steroid misuse ; which was consistent with many previous studies done in the field . This also supported the fact that women are more prone to abuse a variety of products in their need for fair and clear skin .

Patient in the age group of 20-30 yrs. (42.2%) formed the majority population in our study abusing steroid which was similar to findings of Bhat et al ;Saraswat et al and Sinha et al.^{8,9,10}

The study revealed that the most common reason for which topical corticosteroids was misused was the desire for skin lightening / fairness . Studies conducted by Sinha et al ; Saraswat et a ; Jha et al and Dey et al showed similar findings.^{8,10,11,12} Nagesh et al and Samina et al found acne to be the main reason which is second most common indication of misuse in our study.^{13,14} These findings makes one wonder the on-going craze of beautification in the present world .

In most cases the use of topical corticosteroid was started on advice from family and friends , around 43.1%. Similar findings were seen in studies conducted by Saraswat et al ; Rathi et al and Sinha et al.^{8,10,15} 27.8% of our study population started using topical corticosteroid on advice of pharmacists . In a study by Dey et al , most patients were using topical corticosteroids on advice of pharmacists.¹¹

According to Drugs and Cosmetics Act 1940 , the topical corticosteroids fall under the category of schedule H drugs and these drugs should be sold in chemist shop only on the prescription of a registered doctor , which is hardly ever practiced in India.¹⁶

The abuse of topical corticosteroid was associated with variety of adverse effects in these patients like atrophy , telangiectasia , hypertrichosis , hyper/hypo pigmentation , striae etc.

The study brings to light the current scenario regarding topical steroid misuse be it for cosmetic purposes or for symptomatic relief . It is a significant problem which is growing day by day and needs urgent attention .

LIMITATIONS

The limitation of the study was that it was an OPD based study . It may or may not be an accurate representation of community data . Moreover the pattern of steroid misuse may vary from other tertiary care centre catering to a population with different education and awareness level .

V. Conclusion

The “topical corticosteroid misuse” is a multifaceted problem . The blame can be put on various levels – the general population for lacking awareness and not adhering to instructions provided by specialists ;the pharmacist for promoting its use in an inaccurate and unsupervised manner ;the physicians and non dermatologists for using it for initial rapid symptomatic relief (even when indication is not clear) to gain confidence of the patient ; the government for not implementing stricter regulations on sale of these products .

Despite all these hurdles , what we can do at our level is to start creating awareness about topical corticosteroid misuse by counselling of not only our patients but also of other members of medical fraternity . Several other platforms like social media , newspaper, audio visual awareness drives etc. may also be used to reach out to population . The prescription containing topical steroid should be complete in terms of dose , duration ,frequency of application and should be accompanied by proper instruction to the patient . The government should also take note of the situation and bring about stricter regulations regarding the indiscriminate sale of these over the counter topical corticosteroid containing products . Hopefully with coordinated effort this problem will be handled eventually .

References

- [1]. Sulzberger MB, Witten VH. The effect of topically applied compound F in selected dermatoses. *J Invest Dermatol* 1952; 19:101-2.
- [2]. Verma SB. Sales, status, prescriptions and regulatory problems with topical steroids in India. *Indian J DermatolVenereolLeprol.* 2014;80:201-03.
- [3]. Rathi SK, D’Souza P. Rational and ethical use of topical corticosteroids based on safety and efficacy. *Indian J Dermatol.* 2012;57(4):251.
- [4]. Rathi S. Abuse of topical steroid as cosmetic cream: A social background of steroid dermatitis. *Indian J Dermatol.* 2006;51:154-55.
- [5]. Wolverton SE. Topical Corticosteroids. *Comprehensive Dermatologic Drug Therapy.* 2nd ed. Philadelphia USA: Sanders Elsevier, 2007. P.595-624
- [6]. Verma SB, Vasani R. Male genital dermatophytosis- clinical features and the effects of the misuse of topical steroids and steroid combinations – an alarming problem in India. *Mycoses.* 2016;59(10):606-14
- [7]. Pande S. Steroid containing fixed drug combinations banned by government of India : A big step towards dermatologic drug safety. *Indian J Drugs Dermatol.* 2016;2:1-2.
- [8]. Sinha A, Kar S, Yadav N, Madke B. Prevalance of topical steroid misuse among rural masses. *Indian J Dermatol.* 2016;61(1):119.
- [9]. Bhat YJ, Manzoor S, Qayoom S. Steroid-induced rosacea: A clinical study of 200 patients. *Indian J Dermatol.* 2011;56:30-2.
- [10]. Saraswat A, Lahiri K, Chatterjee M, Barua S, Condo A, Mittal A, et al. Topical corticosteroid abuse on the face: A prospective, multicentre study of dermatology outpatients. *Indian J DermatolVenereolLeprol.* 2011;77(2):160.
- [11]. Dey VK. Misuse of topical corticosteroids: A clinical study of adverse effects *Indian Dermatol Online J.*2014;5(4):436-40.
- [12]. Jha AK, Sinha R, Prasad S. Misuse of topical corticosteroids on the face: A cross sectional study among dermatology outpatients. *Indian Dermatol Online J.* 2016;7(4):259.
- [13]. Nagesh TS, Akhilesh A. Topical steroid awarenessand abuse: A prospective study among dermatology outpatients. *Indian J Dermatol.* 2016;61(6):618.
- [14]. Chohan SN, Suhail M, Salman S, Bajwa UM, Mohammad, Saeed M, Kausar S, Suhail T. Facial abuse of topical steroids and fairness creams: a clinical study of 200 patients. *J Pak AssocDermatol* 2014;24:204-11.
- [15]. Rathi SK, Kumrah L. Topical corticosteroid-induced rosacea like dermatitis: A clinical study of 110 cases.*Indian J DermatolVenereolLeprol.* 2011;77(1):42.
- [16]. The Drugs and Cosmetics Rules, 1945. Ministry of Health and Family Welfare, Government of India. Available from: <http://cdsco.nic.in/html/copy%20of%201.%20dandact121.pdf>.

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