

Alarming topical steroid misuse on face: A descriptive study

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Abstract— *Acne vulgaris is a chronic inflammatory disease of the pilosebaceous unit. The clinical lesions are non-inflammatory open and closed comedones and or papules, pustules and nodules of varying degree of inflammation and depth. A lot of steroid, cosmetic and Ayurvedic products containing unlabeled depigmenting agent and steroids are available readily over the counter sale. The side effects of these products are not documented and can lead to adverse effects of continuous usage. This study was aimed to find out various offending depigmenting agents (topical unlabeled steroid containing cosmetics) for treatment of Acne and its side effects with type of offering persons. This study was conducted on 1110 OPD patient of which 1000 (90.10%) patients are using steroid and unlabeled steroid containing cosmetics and only 110 (9.90%) patient not using any topical application. Mostly affected common age group was 11-20 years (58%) with slight female preponderance (M:F 0.96). Urban patients were more affected than rural (74% v/s 26%). Unmarrieds (76%) were more affected than married (24%). Friends appeared as chief culprit or suggestions given to them (39%) followed by family member (13.5%), self-application (12%) influenced by advertisements, chemist (11.5%), general practitioner (9.5%), neighbor (4.5%), compounder (1.5%), parlor (2%) and only 2% by dermatologist. Betamethasone (32.5%) was major offending agent followed by Clobetasol (25%), unlabeled steroid containing cosmetics (12.5%), Aloe Vera gel (7.5%). Monomorphic acne was main side effect diagnosed in 79% of patients followed by pustular acne (8%), nodular acne (4%), rosacea (4%), nodulocystic acne (3%) and perioral dermatitis (2%). Study concluded that misuse of topical steroids and unlabeled steroid containing cosmetics causing various side effects. It is unethical to sale and use without the prescription of an authorised person. So these depigmenting agents should be banned to sell without authorization and without the prescription of an authorised person.*

Keywords: *Acne, steroid, Culprits, Offending agent, cosmetics.*

I. INTRODUCTION

Acne vulgaris is one of the most common skin diseases worldwide, affecting all ethnicities and races. The highest prevalence of acne occurs in adolescence where it may be diagnosed in 80% of all teenagers. The age of onset has changed over time, paralleling the earlier onset of puberty reported in recent years. Acne commonly has a prolonged course, with acute or insidious relapse or recurrence over time.

Clinical presentation includes non-inflammatory and or inflammatory lesions. Topical steroids were introduced in 1951, when Sulzberger and Witten first used topical hydrocortisone.¹ The anti-inflammatory and anti-proliferative actions of topical steroids result not only in their therapeutic effect but also in their side effects. In this way steroids act as a double-edged sword, which makes it important to use it with the utmost caution. Topical steroids increase the proliferation of *Propionibacterium acnes*, and *Demodex folliculorum*, leading to an acne rosacea-like condition. The pathogenesis of topical steroid-induced acne has been proposed to be due to the degradation of the follicular epithelium,

resulting in the extrusion of the follicular content.¹ Topical steroids hold the pride of place in every dermatologist's armory. However, the drug has been misused to varying extents by the pharmaceuticals and pharmacies, by the prescribers (who are not always dermatologists or doctors) and by the users. All this misuse results in severe cutaneous damage characterized by erythema, monomorphic acne, steroid atrophy, steroid rosacea, telangiectasia, perioral dermatitis, striae, and severe addiction to the topical steroids. The face is the most common and most severely affected site of such misuse and steroid dependence.

So this study was conducted with the aim to find out various offending depigmenting agents (topical unlabeled steroid containing cosmetics) for treatment of Acne and its side effects with type of offering persons.

II. METHODOLOGY

This hospital based descriptive type of observational study was carried out in the department of Dermatology, Venereology and Leprology, JLN Medical College, Ajmer (Rajasthan) during 1 June 2016 to 31 May 2017 i.e. in one year.

This study included 1000 consecutive patients of age between 11-40 years, having acne and who had given a written informed consent. Each patient was evaluated for acne in detail, including history regarding duration, qualification, name of steroid cream, culprit and offending de-pigmenting agents in unlabeled steroid containing cosmetics.

Results were presented in percentage and proportions.

III. RESULT

Out of 1110 patients 1000 (90.10%) were using some creams which were having acne. Betamethasone was major offending agent (32.5%) followed by Clobetasol(25%), Fair N Lovely (12.5%), Aloe Vera Gel (7.5%) etc. (Table 1)

Table 1
Type of De-pigmenting Agents used by Study population (N=1000)

S. No.	Type of De-pigmenting Agents	No. of Patient	% of Patient
1	Cosmetic Aloe Vera	75	7.5
2	Cosmetic Oil	5	0.5
3	Betamethasone	325	32.5
4	Boric Acid Containing Cream	5	0.5
5	Clobetasol	250	25
6	Dream Cream	5	0.5
7	Facial Products	5	0.5
8	Fair & Lovely	125	12.5
9	Foundation	5	0.5
10	Garnier Cream	15	1.5
11	Kligman Formula	45	4.5
12	Mometasone Cream	5	0.5
13	Cosmetic Multani	15	1.5
14	Navjeevan Cream	5	0.5
15	No Marks Cream	20	2
16	Olay Cream	10	1
17	Hotel Cream	5	0.5
18	Ponds White Beauty	35	3.5
19	Roop Mantra Cream	20	2
20	Skin Fruit Cream	10	1
21	Turm Plus (Ayurvedic)	5	0.5
22	Vico Turmeric- Diva Ayurvedic	10	1

Most common side effect of these de-pigmenting agent was Monomorphic Acne in 79% of patients followed by pustular acne(8%), nodular acne(4%), rosacea(4%), nodulocystic acne (3%) and perioral dermatitis(2%). Source of advice for initiation of steroid application was mostly from friend (39%) followed by family member (13.5%), self-application (12%) influenced by advertisements, chemist (11.5%), general practitioner (9.5%), neighbor (4.5%), compounder(1.5%), parlor(2%), diploma in dermatology(1.5%), dermatologist(0.5%). (Figure 1 & 2)

Figure 1

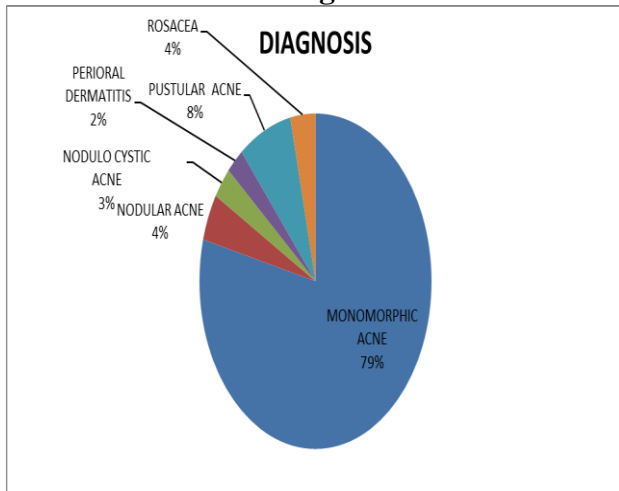
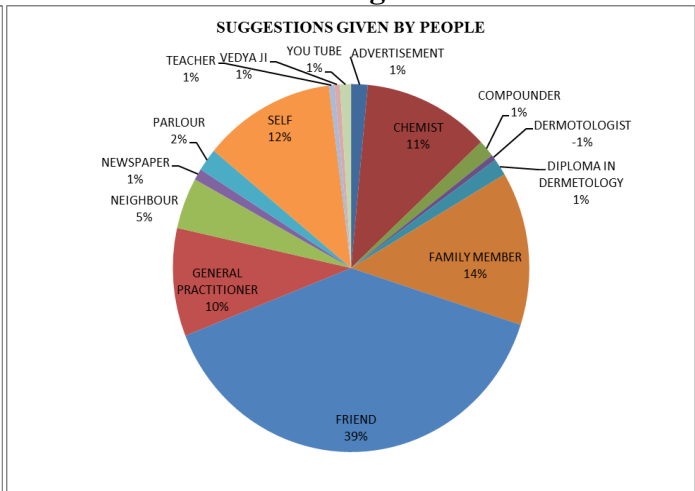


Figure 2



Females (51%) were more commonly affected as compared to males (49%). Urban patients were mostly affected (74%) as compared to rural(26%). unmarried(76%) is mostly affected as compared to married(24%).out of 11 to 40 years of age group 11 to 20 years age group (58%) mainly affected followed by 21 to 30 years age group(36%). only 5 % were illiterate. 95 % were educated and qualification above 10th class. (Figure 3 &4)

Figure 3

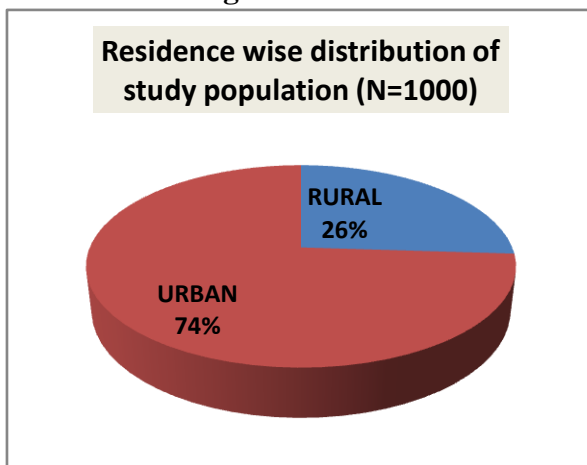
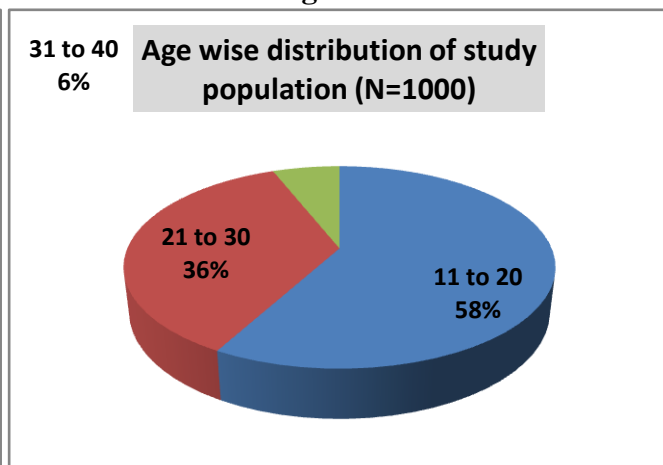


Figure 4



IV. DISCUSSION

Topical steroids were first used in dermatology by Sulzberger and Witten in 1952 when they published an article on the effect of topically applied compound F in selected dermatoses.¹ Subsequently, various other topical steroids were introduced with varying potencies and formulations. The availability of these drugs revolutionized the treatment of various steroid responsive dermatoses. Topical steroids have greatly contributed to the dermatologist's ability to effectively treat several difficult dermatoses.² They

were hailed as a panacea for all ills by physicians and patients and gained rapid popularity.³ Topical steroids are one of the most commonly used drugs by dermatologists worldwide.^{4,5} However, the dramatic symptomatic relief from these medications led to misuse and abuse of these drugs by both non-dermatologists and patients. Topical steroids were used by many patients as fairness or cosmetic creams.^{6,7}

The rampant misuse and abuse of these medicines led to the development of various side effects, both cutaneous and systemic.^{7,8,9} Various studies have tried to highlight the menace caused by the use of topical steroids.^{10,11} A multicentric study by Saraswat et al. has also been done to highlight the topical steroid abuse on the face.¹⁰ This study also highlighted the misuse of topical steroid and unlabeled steroid containing cosmetics, due to day by day alarming increasing use of these formulations resulting in shooting prevalence and incidence of acne over face.

In Jha and Saraswat study females were 83% and males were 17% affected^{12,13} whereas in this study although females were more than males but it was 51% females and 49% males. In Kajal study¹⁴ age group 11 to 20 years was most affected similar observations were made by this study. Predominantly 21 to 30 years age group was found to be affected in Saraswat and Jha study^{12,13} whereas 31 to 40 years age group was predominantly affected in Rohini study¹¹ but in this study predominant age group of 11-20 years (58%) followed by 21 to 30 years age group(36%).

In Rohini study Betamethasone or Clobetasol ointments were used in 37.5% of cases.¹¹ In Jha study Betamethasone Valerate alone were dispensed in 92/410 patients (22.4%) as fairness cream/antiacne cream, Kligman formula in 43/410 patients (10.4%).¹² Observations of this study were well in resonance with others i.e. Betamethasone (32.5%), Clobetasol (25%) and Kligman (45;4.5%) were mainly used by patient.

In study conducted by Rohini the use of corticosteroids was attributed at the advice of pharmacists (34.5%) followed by friends and relatives (30.5%), cosmetologists (11.0%), non-dermatology physicians (15.0%) and by dermatologists in only in 9%.¹¹ Jha et all reported that in 8.5% were recommended TC by a beautician (beauty parlors), in 20% by their friends, family members, or neighbors, in 18.2% by a non-dermatologist practitioner and only in 10.2% by a dermatologist.¹² Almost similar was observed in present study that these agents were used as per advice of pharmacists in 11.5%, compounder in 1.5% friends and relatives in 57%, parlour in 2.0%, non-dermatology physicians in 9.5% and dermatologists only in 2%.

In Kajal study¹⁴ 45% of the patients belonged to urban areas whereas 28% were from suburban and 27% from rural areas. Present study also observed almost similar i.e. 74% were urban and 26% were rural. And unmarried (76%) were mostly affected as compared to married (24%) in this study may be because of more conscious for fairness and beauty so they are deliberately using various cream.

In this study steroid induced acne observed in which Monomorphic acne (79%) was most commonly diagnosed followed by pustular acne(8%), nodular acne(4%), rosacea(4%), nodulocystic acne (3%) and perioral dermatitis(2%) In Jha study Steroid-induced acne was seen in 176 patients (42.9%), perioral dermatitis in 21 patients (5.1%), and steroid induced rosacea in 28 patients (6.8%).¹²

V. CONCLUSION

This present study concludes that 90.10% patients of Acne were using steroid and unlabeled steroid containing cosmetics and mostly were using on advice of their friends. Betamethasone was most commonly used agent followed by Clobetasol, unlabeled steroid containing cosmetics, Aloe Vera gel etc. Monomorphic acne was main side effect diagnosed.

Study concluded that misuse of topical steroids and unlabeled steroid containing cosmetics causing various side effects. It is unethical to sale and use without the prescription of an authorized person. So this depigmenting agent should be banned to sell without authorization and without the prescription of an authorized person.

CONFLICT OF INTEREST

None declared till now.

REFERENCES

- [1]. Hengge UR, Ruzicka T, Schwartz RA, Cork MJ. Adverse effects of topical glucocorticosteroids. *J Am Acad Dermatol.* 2006;54:1–18. [PubMed]
- [2]. Rathi SK, D'souza P. Rational and ethical use of topical corticosteroids based on safety and efficacy. *Indian J Dermatol.* 2012; 57:251–9. [PMC free article] [PubMed]
- [3]. Coondoo A. Topical corticosteroid misuse: The Indian scenario. *Indian J Dermatol.* 2014; 59:451–5. [PMC free article] [PubMed]
- [4]. Stern RS. The pattern of topical corticosteroid prescribing in the United States, 1989-1991. *J Am Acad Dermatol.* 1996;35(2 Pt 1):183–6. [PubMed]
- [5]. Kumar AM, Noushad PP, Shailaja K, Jayasutha J, Ramasamy C. A study on drug prescribing pattern and use of corticosteroids in dermatological conditions at tertiary care teaching hospital. *Int J Pharm Sci Rev Res.* 2011;9:132–5.
- [6]. Nnoruka E, Okoye O. Topical steroid abuse: Its use as a depigmenting agent. *J Natl Med Assoc.* 2006;98:934–9. [PMC free article] [PubMed]
- [7]. Rathi S. Abuse of topical steroid as cosmetic cream: A social background of steroid dermatitis. *Indian J Dermatol.* 2006; 51:154–5.
- [8]. Hengge UR, Ruzicka T, Schwartz RA, Cork MJ. Adverse effects of topical glucocorticosteroids. *J Am Acad Dermatol.* 2006; 54:1–18. [PubMed]
- [9]. Dhar S, Seth J, Parikh D. Systemic side-effects of topical corticosteroids. *Indian J Dermatol.* 2014;59:460–4. [PMC free article] [PubMed]
- [10]. Saraswat A, Lahiri K, Chatterjee M, Barua S, Coondoo A, Mittal A, et al. Topical corticosteroid abuse on the face: A prospective, multicenter study of dermatology outpatients. *Indian J Dermatol Venereol Leprol.* 2011;77:160–6. [PubMed]
- [11]. Sharma, Rohini, Sameer Abrol, and Mashqoor Wani. "Misuse of Topical Corticosteroids on Facial Skin. A Study of 200 Patients." *Journal of Dermatological Case Reports* 11.1 (2017): 5–8. PMC. Web. 22 June 2017.
- [12]. Jha, Abhijeet Kumar, Rajesh Sinha, and Smita Prasad. "Misuse of Topical Corticosteroids on the Face: A Cross-Sectional Study among Dermatology Outpatients." *Indian Dermatology Online Journal* 7.4 (2016): 259–263. PMC. Web. 22 June 2017.
- [13]. Saraswat A, Lahiri K, Chatterjee M, Barua S, Coondoo A, Mittal A, et al. Topical corticosteroid abuse on the face: A prospective, multicenter study of dermatology outpatients. *Indian J Dermatol Venereol Leprol.* 2011;77:160–6
- [14]. Manchanda, Kajal, Sandip Mohanty, and Pallavi C. Rohatgi. "Misuse of Topical Corticosteroids over Face: A Clinical Study." *Indian Dermatology Online Journal* 8.3 (2017): 186–191. PMC. Web. 22 June 2017.