



Research Article

## TO STUDY THE USEFULNESS OF TOPICAL XYLOMETAZOLINE ON TOPICAL CORTICOSTEROID-INDUCED ROSACEA-LIKE DERMATITIS: A DESCRIPTIVE STUDY

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### ABSTRACT

**Background:** TCIRD (topical corticosteroid-induced rosacea-like dermatitis) is a condition that develops after extended and incorrect usage of a topical corticosteroid, as well as the rebound phenomena that occurs after stopping use on the face. Various authors have used a variety of additional words to characterize this illness phenomenon. The aim of this study is to know the benefits of topical xylometazoline in various clinical presentations of TCIRD. **Material and methods:** This study was conducted at Department of Skin and VD, Nalanda Medical College and Hospital, Patna, period of 6 months from Mar 2019 to Aug 2020, on 36 patients with TCIRD. **Results:** Studied 36 patients of TCIRD (topical corticosteroid-induced rosacea-like dermatitis) in skin outpatients in a tertiary care centre and found that mean age of patients were  $29.25 \pm 14.23$  years and maximum patient belonged to age group 20-30 years i.e. 16 (44.44%) and minimum from 40-50 years i.e. 05 (13.89%) respectively. Most of the cases were females i.e. 86.11%, on the basis of region most of the patients belonged to rural background i.e. 61.11% and also mostly belonged to Socio-economic status IV i.e. 14 (38.89%). Most of the patients had to remove/prevent blemishes as a purpose of topical steroid use i.e. 17 (47.22%). **Conclusion:** Excellent improvement and faster recovery to topical xylometazoline in studied patients furnish a new approach to treatment of these patients, acting by directly constricting the cutaneous vasculature thus reducing the blood flow, flushing, erythema and telingectasia and exerting anti-inflammatory effects.

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### INTRODUCTION

TCIRD (topical corticosteroid-induced rosacea-like dermatitis) is a condition that develops after extended and incorrect usage of a topical corticosteroid, as well as the rebound phenomena that occurs after stopping use on the face. Various authors have used a variety of additional words to characterize this illness phenomenon [1]. Apart from other accompanying side effects such as acne, perioral dermatitis, and background erythema, TCIRD, i.e. flushing or rebound erythema, telingectasia, burning, itching, and dryness, is a widely reported consequence on discontinuation of indiscriminate, long-term use of strong topical steroids on the face. This clinical picture looks suspiciously like rosacea [2]. Treatment for steroid-induced rosacea-like dermatitis has included broad spectrum sunscreens, emollients, metronidazole, immunomodulators such as tacrolimus/pimecrolimus, oral tetracyclines and macrolides in addition to discontinuing the offending powerful topical steroid cream [3].

Oxymetazoline is a synthetic, direct-acting, imidazoline-type sympathomimetic agonist that is highly selective for the  $\alpha 1A$ -adrenoceptor and is a partially selective  $\alpha 2A$ -receptor agonist as well. It is a potent vasoconstrictor. Locally applied  $\alpha 1$ -adrenoreceptor agonists such as phenylephrine hydrochloride, naphazoline hydrochloride, tetrahydrozoline hydrochloride, oxymetazoline hydrochloride, and xylometazoline hydrochloride are well known for their ability to clinically “get the red out” and have been used as vasoconstrictive agents in over-the-counter preparations for decades. These drugs have been used as decongestants on nasal and ocular mucous membranes for the treatment of conditions such as allergic rhinitis and conjunctivitis and decrease erythema and edema of the mucous membranes with safety and excellent efficacy [4]. Several papers have studied the effects of topical vasoconstrictors in the treatment of flushing and background erythema in rosacea. Xylometazoline and oxymetazoline have been studied in this category. Xylometazoline is commonly used in decongestant in nasal drops and sprays, for relieving nasal blockade [5].

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The aim of this study is to know the benefits of topical xylometazoline in various clinical presentations of TCIRD.

**MATERIAL AND METHODS**

**Place of study:** Department of Dermatology, Nalanda Medical College & Hospital, Patna. **Type of study:** Non-Randomised Prospective Interventional Study. **Target population:** Patients attending Dermatology outpatient department. **Study population:** Patients with TCIRD attending Dermatology outpatient department. **Duration:** A total 36 patients were included for the study over a period of 6 months from Mar 2019 to Aug 2020.

**Inclusion criterias:** All patients complaining of facial dermatoses reporting to the investigator were asked the following screening question: “Are you currently using any cream/ ointment/lotion on your face that is only available in medical stores?” In case of positive answer, the investigator should ascertain whether the cream in question contained corticosteroid by seeing the prescription/ used tube or by showing samples of used preparations.

**Exclusion criterias:** Based on the history and the clinical examination, all those patients suggestive of having rosacea, atopic dermatitis, Seborrheic dermatitis and contact dermatitis, prior to the use of the topical steroid, and also patients who had used two different molecules of topical steroid were excluded from the present study.

A total of 36 patients with fulfilment of inclusion criterias were taken into study and eligible patients were briefed about the nature of the study and a written informed consent was obtained from the consented patients. Patients of any age and of both sexes were recruited consecutively. A questionnaire eliciting demographic variables, characteristics of TC use, TCIRD (topical corticosteroid-induced rosacea-like dermatitis) occurrence, patient satisfaction score before topical xylometazoline use and same after topical xylometazoline use for 3 months then after 6 months to all eligible patients.

**Assessment:** Clinical response to the treatment was monitored by patient’s satisfaction score. Patient satisfaction score: Patients were asked to grade their satisfaction at 3 months & 6 months of topical xylometazoline therapy. Satisfactions are like: 0 – Poor, 1 – Fair, 2 – Good, 3 – Very good & 4 – Excellent.

**Data analysis:** The collected data were analysed with IBM.SPSS statistics software 23.0 Version. To describe about the data descriptive statistics frequency analysis, percentage analysis was used for categorical variables and the mean & S.D were used for continuous variables. To find the significant difference between the bivariate samples in Independent groups the unpaired sample t-test was used. To assess the relationship between the variables Pearson’s Correlation was used. To find the significance in categorical data Chi-Square test was used. In all the above statistical tools the probability value 0.05 is considered as significant level.

**RESULTS**

This Non-Randomised Prospective Interventional Study conducted on patients of TCIRD (topical corticosteroid-induced rosacea-like dermatitis) taking topical xylometazoline attending dermatology outpatient department of a tertiary care

centre from 6 months from Mar 2019 to Aug 2020 in 36 patients.

**Table 1** Patient demographic and hair loss features at baseline

Variables	No. of patients	Percentage
<b>Age in years</b>		
<20 years	04	11.11%
20-30 years	16	44.44%
30-40 years	11	30.55%
40-50 years	05	13.89%
Total	36	100%
Mean age ± SD	29.25±14.23 years	
<b>Gender</b>		
Male	05	13.89%
Female	31	86.11%
<b>Rural / Urban</b>		
Rural	22	61.11%
Urban	14	38.89%
<b>Socio-economic status (Modified BG Prasad classification)</b>		
I	02	05.55%
II	06	16.67%
III	11	30.55%
IV	14	38.89%
V	03	08.33%
<b>Educational status</b>		
Illiterate	02	05.55%
Primary school	05	13.89%
Secondary school	12	33.33%
Higher secondary	14	38.89%
Graduation and above	03	08.33%

Studied 36 patients of TCIRD (topical corticosteroid-induced rosacea-like dermatitis) in skin outpatients in a tertiary care centre and found that mean age of patients were 29.25 ± 14.23 years and maximum patient belong to age group 20-30 years i.e. 16 (44.44%) and minimum from 40-50 years i.e. 05 (13.89%) respectively. Most of the cases were females i.e. 86.11%, on the basis of region most of the patients belong to rural background i.e. 61.11% and also mostly belong to Socio-economic status IV i.e. 14 (38.89%).

**Table 2** Purpose of topical steroid use in patients with TCIRD

Purpose	No. of patients	Percentage
Fairness cream	12	33.33%
To remove/prevent blemishes	17	47.22%
Daily cosmetic cream	02	05.55%
Melasma	02	05.55%
Nonspecific	03	08.33%

Most of the patients had to remove/prevent blemishes as a purpose of topical steroid use i.e. 17 (47.22%).

**Table 3** Clinical features of patients with TCIRD

Clinical presentations	No. of patients	Percentage
Diffuse redness	16	44.44%
Papulopustular rashes (Erythema, telingectasia, nodules in few)	08	22.22%
Swelling/edema	06	16.67%
Comedones	04	11.11%
Increased hair growth	02	05.55%

Most common clinical feature was diffuse redness i.e. 16, 44.44%, followed by Papulopustular rashes (Erythema, telingectasia, nodules in few) i.e. 08, 22.22% respectively.

**Table 4** Patient Satisfaction Score in studied patients

Patient Satisfaction Score after 3 & 6 months	
After 3 months	After 6 months
1.54± 0.99	03.64± 0.71

Difference	2.100
Standard error	0.203
95% CI	1.6950 to 2.5050
t-statistic	10.342
DF	70
Significance level	P < 0.0001

Majority of the patients (68.00%) felt fair response at the end of 6 months & comparison between 3 months and 6 months satisfaction score mean  $\pm$  S.D (standard deviation) were statistically highly significant with p-value < 0.0001. over all 90% patient showed good results after use of topical xylometazoline.



Fig 1 Before and after 6 months of treatment

## DISCUSSION

In our study, Studied 36 patients of TCIRD (topical corticosteroid-induced rosacea-like dermatitis) in skin outpatients in a tertiary care centre and found that mean age of patients were  $29.25 \pm 14.23$  years and maximum patient belong to age group 20-30 years i.e. 16 (44.44%) and minimum from 40-50 years i.e. 05 (13.89%) respectively. Most of the cases were females i.e. 86.11%, on the basis of region most of the patients belonged to rural background i.e. 61.11% and also mostly belonged to Socio-economic status IV i.e. 14 (38.89%). No such studies were done in recent past in India, so very limited studies were available. Kakkar S *et al* [6] [2017] study showed Response to xylometazoline Topical on TCIRD evaluated the response of a commercially available nasal decongested solution of xylometazoline 0.05% in patients of long-term potent topical steroid abuse on the face. Two patients with a history of long-term, indiscriminate, and unsupervised topical steroid use on the face were asked to use a commercially available nasal decongestant solution, on face. Patients were asked to use the decongestant solution on face, once daily for 2 weeks. Follow-up after 2 weeks demonstrated excellent improvement in flushing and erythema.

Side effects reported were transient tingling and stinging sensation. Xylometazoline, being an alpha-adrenergic agonist, presents an effective new option for treatment in patients of flushing and erythema, resulting from long-term topical steroid use on face. Similarly Rathi SK *et al* [1] [2011] showed results very similar to present study like 12 males and 98 females with their age ranging from 18 to 54 years. The duration of topical steroid use ranged from 4 months to 20 years. The most common clinical presentation was diffuse erythema of the face. Most of the patients had rebound phenomenon on discontinuation of the steroid. The most common topical steroid used was Betamethasone valerate, which could be due to its easy availability and low cost.

## CONCLUSION

Varied clinical presentations are seen with prolonged and continuous use of topical steroids. The treatment of this dermatitis is difficult, requiring complete cessation of the offending steroid, usually done in a tapering fashion. Most of the patients showed very promising results with topical xylometazoline. Excellent improvement and faster recovery to topical xylometazoline in studied patients furnish a new approach to treatment of these patients, acting by directly constricting the cutaneous vasculature thus reducing the blood flow, flushing, erythema and telingectasia and exerting anti-inflammatory effects.

## References

1. Rathi SK, Kumrah L. Topical corticosteroid-induced rosacea-like dermatitis: A clinical study of 110 cases. *Indian Journal of Dermatology, Venereology, and Leprology*. 2011 Jan 1; 77(1):42.
2. Ljubojeviae S, Basta-Juzbašiae A, Lipozeneiae J. Steroid dermatitis resembling rosacea: aetiopathogenesis and treatment. *Journal of the European Academy of Dermatology and Venereology*. 2002 Mar;16(2):121-6.
3. Fisher M. Steroid-induced rosacealike dermatitis: case report and review of the literature. *Cutis*. 2009;83:198-204.
4. Wilkin J, Dahl M, Detmar M, Drake L, Liang MH, Odom R, Powell F. Standard grading system for rosacea: report of the National Rosacea Society Expert Committee on the classification and staging of rosacea. *Journal of the American Academy of Dermatology*. 2004 Jun 1;50(6):907-12.
5. Chu CY. An open-label pilot study to evaluate the safety and efficacy of topically applied pimecrolimus cream for the treatment of steroid-induced rosacea-like eruption. *Journal of the European Academy of Dermatology and Venereology*. 2007 Apr;21(4):484-90.
6. Kakkar S, Sharma PK. Topical steroid-dependent face: Response to xylometazoline topical. *Indian Journal of Drugs in Dermatology*. 2017 Jul 1;3(2):87.

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