



## Original Research Article

## Awareness and attitude of medical students over the misuse of topical steroids- Prospective study in 3<sup>rd</sup> year medical students in a Medical college, Tamil Nadu

Dhanalakshmi K<sup>1,\*</sup>, Marriette Teenu Pious<sup>1</sup>, A. Sudarvizhi<sup>1</sup>, Gladius Jennifer<sup>2</sup>

<sup>1</sup>Dept. of Dermatology, Karpaga Vinayaga Institute of Medical Sciences and Research Institute, Maduranthakam, Tamil Nadu, India

<sup>2</sup>School of Public Health, SRM Institute of Science and Technology, Chennai, Tamil Nadu, India



## ARTICLE INFO

## Article history:

Received 26-02-2021

Accepted 19-04-2021

Available online 26-05-2021

## Keywords:

Misuse

Topical steroids

Undergraduate

## ABSTRACT

**Background:** Topical corticosteroid's anti-inflammatory action is the common property that induces the misuse of the topical steroids. Most of the time, even a medical graduate is misguided about the steroidal molecules in the combination formulation for the treatment of infections which gives temporary relief of symptoms such as itching and lightening effect in short term, But on long term will lead onto local adverse reactions such as dryness, burning sensation and striae etc.

**Aim of the study:** To analyse the knowledge of the medical students towards topical steroids and bridges the gaps in the knowledge.

**Materials and Methods :** 6<sup>th</sup> semester students who gave consent for the inclusion in the study were enrolled and a pretested validated questionnaires were given to be filled. After the pretest, a video presentation of the topic was presented and the post test was given with the same format after 3 months. Results were analyzed using SPSS software.

**Results:** 75% of the students heard about the topical steroids, out of which 57% were irrelevant steroid combination and 36% were Kligman's formula. On comparing the pre and post test results, there is significant increase in the awareness regarding long term use of topical steroids ( $P < 0.02$ ) and the knowledge of the adverse events ( $P < 0.01$ ) and also the knowledge regarding the potency and area of application ( $P = 0.003$ ).

**Conclusion:** Precise and adequate knowledge regarding topical steroid should be initiated in the early clinics in undergraduate curriculum and should be propagated or reinforced throughout the curriculum to prevent the misuse of topical steroids.

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### 1. Introduction

Misuse of topical steroids is not the new entity in this era but has increased exponentially, as the availability of over the counter medication in surplus combinations with both relevant and irrelevant. As we blame the society for the misuse secondary to lack of knowledge but misuse of topical steroids is rampant even in the healthcare fraternity. More alarmingly misuse in the medical students is increasing due to lack of application of knowledge or meagre knowledge on

the usage of topical steroids. In many of the studies, general practitioners (GP) form a sizable population in prescribing the topical steroids for common skin ailments. GPs either use approved steroid combination like Kligman's formula for pigment reduction or irrelevant steroid combination for fungal infection. Thorough knowledge about the steroid molecule regarding where not to use more than where to use is more important which should be ideally start from their first clinical dermatology exposure. This study analyses the awareness of the medical students towards topical steroids and imposes the knowledge regarding the same.

\* Corresponding author.

E-mail address: [drdhanuk@gmail.com](mailto:drdhanuk@gmail.com) (Dhanalakshmi K).

**Table 1:** knowledge regarding topical steroids and its combinations.

Knowledge regarding topical steroids and combinations available	Heard about the medications n (%)	Used the medications n (%)	Prescribed the medication. N(%)	Use by their close contacts n (%)
Yes	57 (75)	16 (21.1)	2 (2.6)	36 (47.3)
no	19 (25)	60 (78.9)	74 (97.4)	40 (52.7)

**Table 2:** Usage of topical steroids in the common scenario

Indication	No of patient	Percentage
Not used	18	13.5
Fungal infection	21	15.8
Fairness cream	35	26.3
Eczema	14	10.5
Rashes	8	6
Acne	14	10.5
Hyperpigmentation	23	17.3

**Table 3:** Reasons for using steroids beyond prescribed period

Reasons for using beyond prescribed period	No (n)	Percentage (%)
0-not used	15	14
1-no relief from the symptoms	32	30
2-without any reason	5	4.6
3- glow after application	25	23.3
4-colour reducing effect	20	18.7
5- didn't know when to stop	8	7.5
6-others	2	1.9

## 2. Materials and Methods

6<sup>th</sup> semester medical students were enrolled in this study with prior Institutional Ethical clearance and with informed consent from the individuals. Out of 100 students excluding absentees and the ones not interested in participating were excluded from the study. Enrolled 76 students were given a validated pretest questionnaire and were asked to fill out the same. Questionnaire included the demographic details, questions related to the topic including about the topical steroid used, duration of use, knowledge of adverse effects, potency of steroid and indications and contraindications around 15 questions. After that students were exposed to the presentation regarding topical steroid use and misuse. After 3 months of this activity, students were evaluated with the same set of questions. The results were analyzed by t test, p values and with 95% confidence interval via SPSS software.

## 3. Results

6<sup>th</sup> semester students who participated in this study were between 20-21 years and with 45 females and 21 male students. 75% of the students already heard about the topical steroid preparation with only 2% had prescribed the medication to others (Table 1). 47% had seen the topical steroid medications being used by their close contacts. Irrelevant steroid combinations (steroid, antifungal, antibiotic) were the ones commonly used in

57.9% followed by Kligman's formula (36.8%) and only 5.3% had used plain topical steroids (n=57). Steroid based topical preparations were used as a fairness cream (26.3%) and for hyperpigmentation (17.3%) and closely followed by fungal infections (15.8%) rather than other causes (Table 2). Out of this Dermi5, Quadri-derm, Four-derm and Castor NF were the ones used for fungal infection and Skinlite, Melacare, Skinshine were used for facial melanosis. Only 44.8% were prescribed by dermatologist and general practitioner but the remaining 55.2% medications bought without the prescription mostly suggested by the Pharmacist or by friends or by relatives or by self. About 13% of the patients used the topical medication beyond the prescribed period. 52.6% had used the medication for maximum one month and 14.4% had used up to 1 year duration. In this 40.8% patients used the medications continuously compared to 27.6% who had used intermittently. Reasons for usage beyond the prescribed period of steroid were no relief from the existing symptoms, glow to the skin on usage and colour reducing effect (Table 3).

On comparing the pre and post test results, there is significant increase in the awareness regarding long term use of topical steroids ( $p < 0.5$ , chisquare 5.2) and the knowledge of the adverse events ( $p < 0.5$ , chisquare 8.1). Students have gained significant knowledge regarding the potency and using the prescribed topical steroids for prescribed period of time. Most of the student's knowledge

**Table 4:** Comparison of Pre and Post test results

S. No	Variable	Pre test	Post test	Chi square / p value	P value
1	Awareness of adverse effects on long term steroid use				
	1. Yes	37	53	5.12	0.02
	1. No	39	23		
2	Adverse events noticed				
	1. Don't know	32	6	8.1	0.01
	2. Increase in existing infection	9	17		
	3. Erythema	14	30		
	4. Shiny wrinkled skin/ epidermal atrophy	13	20		
	5. Striae	9	11		
	6. Dryness/xerosis	8	23		
	7. Hypo/Hyperpigmentation	17	14		
	8. Photosensitivity	9	14		
	9. Burning sensation	9	23		
	10. Telangiectasia	10	10		
	11. Eczema	2	2		
	12. Hypertrichosis	7	7		
	13. Acne	8	13		
14. Increased sensitivity to other medications	4	5			
3	Response after adverse event knowledge				
	1. Stopped the medication by self	22	39	18.95	0.0001
	2. Consulted the Dermatologist	30	36		
3. Continued the medication	24	2			
4	Knowledge on potency of steroids and area of application				
	1. Don't know	26	2	9.3	0.003
	2. Correct option	10	52		
3. Wrong option	40	22			
5	Approach of the students after gaining knowledge 1. Counsel the patients				
	2. regarding pros and cons of steroid use while prescribing and increase patient and doctor rapport	62	75	4.48	0.03
	3. Creating awareness in the public	11	15		
	4. Not interested	15	10		

regarding the counselling related to topical drug usage, advising regarding the adverse events had been significantly improved (Table 4).

#### 4. Discussion

Most of the available literature regarding topical steroid abuse had only demographic details and are cross sectional studies and are not follow up studies. Comparison of other studies with our study is tabulated below (Table 5).

Currently available TCs differ widely, and knowledge of such differences is vital for proper prescribing practices. When prescribing TCs, it is important to consider the indication, patient's age, TCs potency, vehicle, frequency, duration, site of lesion, severity of disease, and associated adverse effects.<sup>12</sup>

If medical students, who are a vital part of the health community and who should be strongly opposing the idea of misuse of drugs are using TCs for cosmetic purposes

upon themselves, then it will be a matter of immense concern.<sup>4</sup> All MBBS students will not be dermatologists and dermatologists cannot be everywhere, so the knowledge regarding topical steroids is mandatory and it should be included in the curriculum.<sup>5</sup>

In a study conducted in Saveetha University with dental students concluded that most of them are aware of topical steroid formulation and their usage and adverse events which is comparable to our study.<sup>6</sup> Another study from Riyadh concluded that the knowledge among primary care physicians regarding use of topical corticosteroids was lacking in more than half of the PCPs<sup>11</sup> as with our study.

Knowledge gaps towards TCs could be attributed to the lack of proper dermatology training in undergraduate curriculum. Another fact observed was the physicians who felt comfortable treating dermatology patients had significant knowledge regarding topical steroid usage.<sup>11</sup> This supports our study that knowledge facilitated during their training will induce the students to treat comfortably

Table 5: Comparison of the relevant variables from other studies.

S.No	Place of study	Study details (Author/ Year)	Participants	Steroid formulation known	Prescribed by	Indication for use	Major ADR	Awareness given Yes/no
1	Chengalpattu, Tamilnadu	Our study	6th semester medical students	Combination steroids (relevant and irrelevant FDC)	Pharmacist ,friends and relatives (55.2)	Fairness cream, fungal infection	Hypo/hyper pigmentation, erythema, epidermal atrophy	Yes
2	Jeddah, Saudi Arabia <sup>1</sup>	Dhiyaa Mjajed, Mahdi Alnujaidi, 2018	University students	Combination steroid and mild steroid	Friends and relatives, pharmacist	Acne, facial pigmentation, after shave erythema	Hypo/hyper pigmentation, dryness, sensitive skin, recurrence of condition	No
3	Perinthalmanna, Kerala, India <sup>2</sup>	Karalikkattil T. Ashique, Feroze Kaliyadan, 2018	Pharmacy students-UG&PG	-	-	-	-	-
4	Bengaluru, Karnataka, India <sup>3</sup>	T S Nagesh, A Akhilesh, 2016	Patients attending Dermatology OPD	Betamethasone, kligmans formula	General practitioners, friends, pharmacist	Acne, allergy, pigmentation, fairness cream	Aggravation of symptoms, hypo/hyper pigmentation, acne	No
5	Quaid-e-Azam Medical College, Bahawalpur, Pakistan <sup>4</sup>	Sohail Shaheen, Asma Shahbaz, Nimra Maqbool, Jamil Ahmad Shaheen, 2020	Female medical students	Betamethasone, clobetasol, mixed creams (irrelevant FDC)	Pharmacist, friends, some by beauty parlour	Acne, Fairness cream	-	No
6	King George's Medical University, Lucknow, India <sup>5</sup>	Parul Verma , Sucheta Pathania , Swastika Suvirya , Prakriti Shukla	Medical students (Interns, postgraduates)	Clobetasol , Betamethasone, Beclomethasone.	-	Eczema, acne, infections	-	Yes
7	Saveetha university, Chennai, India <sup>6</sup>	Aarthi Muthukumar, Dhanraj Ganapathy	Dental students	All classes	-	-	Aware of ADR	-
8	Dow University of Health Sciences, Karachi, Pakistan <sup>7</sup>	Fakhshena Anjum, Auwais Ahmed Khan et al	Pharmacy students and Allied health sciences	Topical, oral and injectable	Medical practitioner> self > trainer	Skin brightening, antiinflammatory, anti infective	Aware of ADR	No
9	Allama Iqbal Medical College, Lahore <sup>8</sup>	Samina Naz Chohan, Majid Suhail, Samia Salman	Patients attending dermatology OPD	Potent topical steroids- clobetasol and beta-methasone	Friends> relatives >peers> GP	Acne, pigmentation, melasma	Facial erythema, aggravation of existing symptoms, hypertrichosis	No
10	Mamata Dental College, Khammam, India <sup>9</sup>	Kokkalgave Supriya I , K. V. N. R. Pratap <sup>2</sup> ,	Dental students both UG and PG	Topical corticosteroid	-	Acne, hyper pigmentation	Aware of ADR	No
11	Adichunchanagiri Institute of Medical Sciences, Karnataka, India <sup>10</sup>	Mukunda Ranga Swaroop1 , *, Suman Swamynathan	Patients attending dermatology OPD	Irrelevant combination with steroid	Friends > GP> neighbours and relatives	Acne, pigmentation disturbance	Acneform eruptions, pigmentation and burning sensation	-
12	Riyadh, Kingdom of Saudi Arabia <sup>11</sup>	Sarah F. Alsukait, Najd A. Alshamlan et al	Primary care physicians (GP, Family medicine, Internal medicine , pediatrics)	Topical steroid	-	Atopic dermatitis, psoriasis, alopecia areata, acne vulgaris	Atrophy, hypopigmentation, striae	No

the dermatology patients when they become medical graduates. Another important factor is reinforcing the importance of proper use of topical steroids and treating dermatology patients will gradually abolish the misuse of topical steroids.

In a study aimed to assess the learning outcomes of a 10-week postgraduate training course in dermatology among PCPs, most PCPs reported modifying their approach in managing common skin disorders after the course.<sup>13</sup> As with the study stated not only after the graduation but during their undergraduate curriculum also and this has to regularly reinforced during the curriculum which will make the medical graduate competent to treat dermatology patients and avoid the misuse of the topical corticosteroids.

## 5. Conclusion

As with the saying “The eye is blind if the mind is absent”, knowledge regarding the topical steroids which is not imparted in the undergraduate curriculum will lead to ultimate misuse. So inclusion of the topical steroid in the undergraduate curriculum is mandatory and also the dermatology postings in the internship period should be made compulsory rather than optional.

## 6. Acknowledgements

None.

## 7. Source of Funding

No financial support was received for the work within this manuscript.

## 8. Conflicts of Interest

There are no conflicts of interest.

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## Author biography

**Dhanalakshmi K**, Associate Professor

**Marriette Teenu Pious**, Final Year Postgraduate

**A. Sudarvizhi**, Senior Resident

**Gladius Jennifer**, Associate Professor

**Cite this article:** Dhanalakshmi K, Pious MT, Sudarvizhi A, Jennifer G. Awareness and attitude of medical students over the misuse of topical steroids- Prospective study in 3<sup>rd</sup> year medical students in a Medical college, Tamil Nadu. *IP Indian J Clin Exp Dermatol* 2021;7(2):115-119.