Knowledge and Attitude of Undergraduate Students on Use of Topical Corticosteroids in a Medical School in Nepal: A cross-sectional study

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ABSTRACT

Background

Topical corticosteroids are widely used for their anti-inflammatory and immunosuppressive properties. However, proper knowledge of health professionals is key to appropriate and rational use of such topical corticosteroids to minimize multitude of their adverse effects.

Objective

To study knowledge and attitude of medical students regarding use of topical corticosteroid use.

Method

A cross-sectional study was conducted from September 2024 - November 2024, among the undergraduate students of Kathmandu University, School of Medical Sciences. A total of 387 students were included in the study. The students were surveyed using a structured questionnaire. Statistical analysis was performed using Statistical Package for Social Science version 21.

Result

Among 387 participants 217 (44.2%) were male and 171 (55.8%) were female. The mean (± SD) age of the patients was 21.73 years (± 2.06). The highest number of participants - 258 (66.7%) - were aware about atopic dermatitis as the most common indication of topical corticosteroids. Majority of the participants - 350 (90.4%) agreed that topical corticosteroids can cause cutaneous adverse effects. Similarly most of the participants 324 (83.7%) agreed that topical corticosteroids can produce systemic adverse effects as well. Likewise, most of the participants, 287 (74.2%), were aware of the fact that treatment with topical corticosteroids should not be stopped abruptly or without medical guidance.

Conclusion

Majority of the students had reasonable knowledge and attitude towards the use of Topical corticosteroids. However more than half were unaware of some topical adverse effects of Topical corticosteroids. Adequate educational training should be provided to future doctors regarding proper prescribing and usage of topical corticosteroids.

KEY WORDS

Adverse effects, Attitude, Knowledge, Medical students, Topical corticosteroids

INTRODUCTION

Topical corticosteroids (TCs) are considered as solution for majority of skin diseases characterized by inflammation, hyperproliferation and immunologic involvement.[1] They are effective for many inflammatory and pruritic presentation of dermatologic conditions.[1,2] Since they provide immediate relief from the associated symptoms and are also easily available without prescription, they are easily liable to misuse as well.[2,3] However, improper and long term use are associated with number of serious adverse effects.[4]

Cutaneous adverse effects such as acne, cutaneous atrophy, rosacea, telangiectasia, rebound erythema, hypopigmentation, irritant contact dermatitis, striae, hypertrichosis, etc may be particularly associated along with systemic adverse effects.[5] Various studies have shown that TCs are being used even for wrong indications like fungal infections, fairness enhancement for dark skin, acne etc. leading to various adverse effects.[2,6,7] In addition prolonged and indiscriminate use of TCs can lead to development of a condition known as topical steroid-dependent/damaged face.[8] Such inappropriate indications as well as inappropriate duration of treatment with TCs can therefore be detrimental to the patient.[9] Proper patient selection, careful and correct prescription, appropriate use of the drug and adequate counseling remain the mainstay of preventing adverse effects of topical steroids and avoid poor responses.[4,8,10] TCs misuse or abuse as a major concern has been claimed.[7,11] They, for example, are commonly used for fungal infections (66%), pigmentatory disorders (15%) such as fairness cream, acne with significantly high (62%) over-the-counter sale.[12] Similarly a study reveals the use of TCs for dermatophytoses (69.2%) and melasma (18.7%).[13] Such misuse is common even among the healthcare fraternity especially among the students of medical school, who are the future prescriber. Lack of application of knowledge or meagre knowledge on the usage of topical steroids could be the reason.[2,7]

Significant gap in knowledge related to specific side effects and awareness of different classes of TCs was noted in previous study carried out in medical students and interns.[3] This study thus focused on undergraduate students, who are the future prescribers, and aims at understanding their knowledge and attitude regarding use of topical steroids.

METHODS

A cross-sectional study was conducted from September 2024 to November 2024, at Kathmandu University School of Medical Sciences, Dhulikhel Hospital, Dhulikhel. Prior to the study, an ethical approval was taken from Institutional Review Committee of Kathmandu University-School of Medical Sciences (KUSMS-IRC 281/24). All the undergraduate MBBS and BDS students were included in the study. A total of 387 students participated in the study.

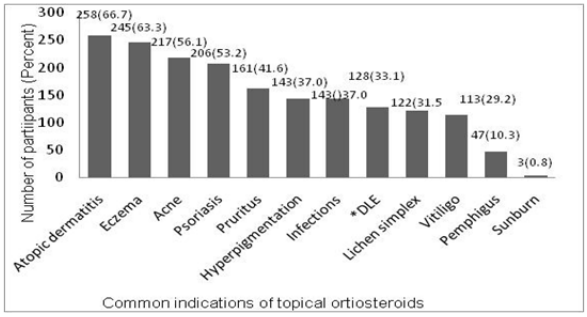
Sample size was calculated by using z^2 p =(1-p) / d^2 at 5% confidential interval where absolute precision or error (d) was taken at 5% type I error and prevalence of 50%.[14]

Data were collected using structured questionnaire form exploring the knowledge and attitude of participants on use of topical corticosteroids and their adverse reactions. The questionnaire was adapted from previous studies.[3,15] A convenience sampling method was used for collecting data. All the participants who gave consent were included for the study. The data collected were stored using Microsoft excel 2016 and analyzed using Statistical Package for the Social Sciences (SPSS) version 21.0 software. The quantitative data was expressed in mean (± SD), frequencies and percentages and presented with the help of relevant tables and figures.

RESULTS

A total of 387participants got enrolled in this study, out of which 217 (44.2%) were male and 171 (55.8%) were female. The mean (± SD) age of the patients was 21.73 years (± 2.06).

The highest number of participants 258 (66.7%) chose atopic dermatitis as the most common indication of TCs. This was followed by eczema 245 (63.3%), acne 217 (56.1%), psoriasis 206 (53.2%) (Fig. 1).



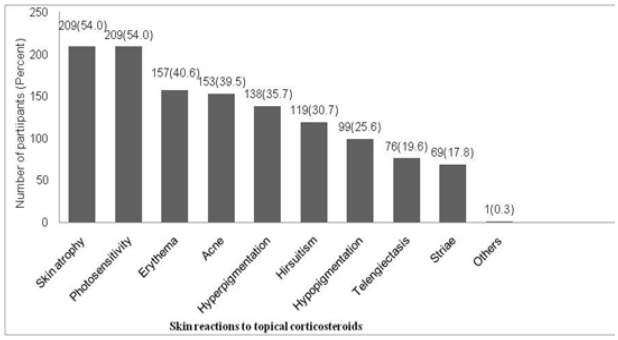
*DLE: Discoid lupus erythematosus

*Due to multiple responses, sum of percentage is more than 100.

Figure 1. Showing knowledge of students about indications of topical corticosteroids.

Only 37 participants were unaware about cutaneous adverse effects of TCS. Among 350 participants who agreed to the fact that TCs can cause cutaneous adverse effects, 209 (54.0 %) conformed that TCS can cause skin atrophy and photosensitivity. The other cutaneous effects are presented in figure 2.

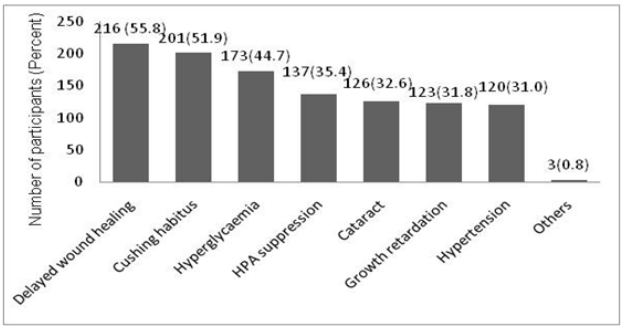
Similarly most of the participants 324 (83.7%) agreed that TCs can produce systemic adverse effects as well. The most common systemic adverse effects they believed was delayed wound healing 216 (55.8%). The details of other systemic adverse effects are shown in figure 3.



*Others: Dry skin, infection

*Due to multiple responses, sum of percentage is more than 100.

Figure 2. Showing knowledge of students about adverse cutaneous reactions of topical corticosteroids.



*Others-Burning sensation, stinging, immune suppression

*Due to multiple responses, sum of percentage is more than 100.

Figure 3. Showing knowledge of students about systemic adverse effects of topical corticosteroids.

Of all the participants, 287 (74.2%) were aware of the fact that treatment with topical corticosteroids should not be stopped abruptly or without medical guidance. But only 116 (40.0 %) of them believe that the dose and application of TCs should be tapered after 2 weeks of continuous therapy.

Regarding the use of TCs, 211 (54.5%) agreed and 85 (22.0%) strongly agreed that TCs are overprescribed drugs. Likewise, 163 (42.1%) participants agreed that TCs should not be used as over the counter medicine as shown in table 1.

A large number of participants 277 (71.6%), think it is very important to educate patients about the adverse effects of topical corticosteroids. Similarly, 259 (66.9%) of participants believe that it is very important to educate patients about the dose and regimen of topical corticosteroids.

DISCUSSIONS

Topical corticosteroids became one of the highly effective drug which made possible, treat some then resistant skin diseases but with immense deleterious effects if used inappropriately.[16] The major underlying cause of such inappropriate use could be lack of awareness and over the counter availability but another possible reason could be

Table 1. Attitude of medical students on use of topical corticosteroids

	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
TCs are overprescribed medicines	85 (22.0)	211 (54.5)	78 (20.2)	13 (3.4)	0
Topical corticosteroids should be a prescribed only medications.	123 (31.8)	163 (42.1)	76 (19.6)	25 (6.5)	0
	Very important (%)	**Important (%)**	**Neutral (%)**	**Not important (%)**	**Very not important (%)**
It is important to educate patients about the adverse effects of topical corticosteroids.	277 (71.6)	87 (22.5)	19 (4.9)	2 (0.5)	2 (0.5)
It is important to educate patients about the dose and regimen of topical corticosteroids.	259 (66.9)	96 (24.8)	28 (7.2)	3 (0.8)	1 (0.3)

wrong indications.[3,9] Being a future prescribers, students should rather have important role in rationalizing the TCs use. They should therefore be well educated in this regard.[8]

In the present study, more than half of participants were aware of one of the common indication of TCs as atopic dermatitis. The finding is in consistence with previous study which was carried out on primary care physicians.[17] Similarly, the other common condition that participants knew about was eczema followed by psoriasis. However, also more than half were not aware that acne is not an indication for TCs. Rather, previous study have shown that even potent TCs do not provide any improvement and indeed acne was one of the most common adverse effect recorded.[5,18] Corticosteroids, both systemic and topical, are considered to be acnegenic and are essentially contraindicated in acneprone patients.[19,20] A review article on the other hand concludes that both oral and topical corticosteroids are effective in treating acne considering the patient characteristics and clinical circumstances.[21]

Corticosteroids are generally avoided for active infections because of their known immunosuppressive effects and concern about long-term complications.[22] It has been shown to increases susceptibility to infections leading to altered presentations such as scabies incognito, candidiasis, tinea incognito, herpes incognito etc.[10] Present study in contrast shows more that than a quarter of participants believe infection as its indication. Thus the result indicates lack of complete knowledge regarding TCs indication among the participants.

It has been well established about the dermatological consequences of prolonged use of TCs like atrophy of skin, photosensitivity, hyperpigmentation, hypertrichosis etc. In our study also majority of the participants, were aware about such dermatological consequences. The finding is in consistence with previous study.[3] In contrast another study have shown that more than 50% did not know the side effect profile of TCs at all.[2] The most common skin reaction that the participants have knowledge about was skin atrophy. Previous study done among physicians also revealed that more than half of the participants agreed that TCs can lead to skin atrophy.[5,17] Similar report have been shown in another study.[4]

TCs can cause systemic side effect as well. Large number of participants in this study seemed to be well informed about such systemic adverse effects of TCS. In concordance with this finding, 87.30% participants agreed to it in previous study.[3,4] Potent TCs, particularly can be absorbed through the skin and can produce systemic adverse effects.[16] Percutaneous absorption is further increased during skin diseases impairing the barrier function.[16] Besides various other factors including site of application, amount, frequency and duration of therapy can also affect absorption.[16] The common systemic side effect that participants in this study were aware about was delayed wound healing followed by Cushing's syndrome, hyperglycaemia, hypothalamic pituitary adrenal axis suppression and cataract. Similar systemic adverse effects have been shown in previous study, while in another study, less than half were aware of such possible adverse effects.[16,17,23] Despite large number of participants was aware of cutaneous as well as systemic adverse reactions of TCs, many are clueless and the responses were varying. The varying responses may be attributed to insufficient correlation between pre-clinical and clinical learning methods, lack of interdisciplinary approach and absence of practical implementation during their undergraduate training.

TCs should ideally be prescribed for specific conditions for certain period of time but rarely is this regimen followed.[2] It is recommended that highly potent TCs should not be used for duration greater than 2 weeks while for other TCs, it is recommended to switch over to low potency TCS or non-steroidal preparation after 2 weeks.[10] A significant portion of participants in present study had the knowledge that TCs therapy should not be stopped abruptly. Among those who agreed, majority had idea about tapering the dose after 2 weeks of therapy when therapy needs continuation for more than 2 weeks.

More than 50% participants agreed that TCs are overprescribed medicines and believe that TCs should be a prescription only medication. In consistence with the finding of our study, previous study has also reported that higher number of participants believe TCs should be a strictly prescribed medication.[3] Similarly majority of participants believe that even patients should be well informed about the adverse effects and dose tapering regimen about topical corticosteroids. It is very crucial to know about the potential adverse effects and negative consequences of abrupt withdrawl.[10,24]

The major limitation of this study is that the result cannot be generalized since it was a monocentric study. Besides, the responses are highly liable to recall biasness.

CONCLUSION

Present study shows that majority of the students had remarkable knowledge and attitude towards the use of TCs. However more than half were unaware of some topical effects of TCs. Being the future prescribers, students should have clear knowledge about TCs – both where to use and where not to use to be a good doctor. Effective undergraduate curriculum should be developed to enhance future doctor's knowledge and attitude for usage of topical corticosteroids that can help develop a community of students who can rationally prescribe topical steroids in future.

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