CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
SJIF Impact Factor: 7.187
http://doi.org/10.5281/zenodo.4040081

Available online at: http://www.iajps.com *Research Article*

STUDY TO DETERMINE THE INCIDENCE OF CUTANEOUS CHANGES AMONG PATIENTS ON ORAL STEROIDS

[1]Dr. Mahzaib Babar, [2]Dr. Moaz Ahmar, [3]Dr. Rushna Haseeb
[1,2,3]Allama Iqbal Medical College/ Jinnah Hospital, Lahore.

Article Received: July 2020 **Accepted:** August 2020 **Published:** September 2020

Abstract:
Background: *Corticosteroids revolutionized the treatment of many skin diseases in the fifth and sixth decades of the last century. They have anti-inflammatory, vasoconstrictive, anti-proliferative and immunosuppressive effects.*
Aim: *The aim of the study was to determine the frequency of skin lesions in patients taking oral steroids and to understand the pattern of these changes in our population.*
Material and methods: *The study was conducted in the dermatology department of the Jinnah Hospital Lahore for six-months duration from October 2019 to March 2020. 204 patients who met the inclusion criteria completed the study. All patients were taking 60-80 mg of oral steroids for a minimum of 2 weeks. The results were recorded on the preformed pro forma. All relevant investigations were also carried out.*
Results: *Multiple cutaneous infections were the most common side effect seen in 45 patients (22%, p>0.10). Moon face was seen in 39 patients (19%, p0.08). Atrophic changes occurred in 45 patients (22.5%, p> 0.47). Other findings seen in our patients were acneiform eruptions in 18 patients (8.7%, p>0.013).*
Conclusion: *Oral steroid therapy is associated with significant cutaneous side effects that depend on the dose and duration of therapy. Bacterial infections remain the most common side effect.*
Keywords: *oral steroids, infections, atrophy, moon face, buffalo hump.*

Corresponding author:
Dr. Mahzaib Babar,
Allama Iqbal Medical College/ Jinnah Hospital, Lahore.

QR code

Please cite this article in press Mahzaib Babar et al, ***Study To Determine The Incidence Of Cutaneous Changes Among Patients On Oral Steroids.,*** *Indo Am. J. P. Sci, 2020; 07(09).*

INTRODUCTION:

Corticosteroids revolutionized the treatment of many skin diseases in the 5th and 6th decades of the last century. The basic structure of the steroid molecule is the perhydro-cyclopentano-phenantherene ring. Modifications to the original structure of this ring lead to the formation of steroids of different strength and properties. Steroids have anti-inflammatory, vasoconstrictive, anti-proliferative and immunosuppressive effects.

The steroids can be administered orally, topically, parenterally or to the lesion. They affect many systems of the human body. Common skin side effects include stretch marks, purpura, telangiectasis, hirsutism, pigmentation disorders and acne-like eruptions. There may be an increased frequency and severity of skin infections such as ringworm, impetigo or scabies. Dermatoses such as acne, rosacea, and psoriasis can be aggravated by careless use of steroids. Long-term use of steroids causes the redistribution of adipose tissue. This can lead to the face of the moon and the hump of buffaloes with slender limbs. Most of these side effects of steroids are related to the dose and duration of steroid therapy.

The aim of the study was to determine the frequency of skin lesions in patients taking oral steroids and to understand the pattern of these changes in our population.

MATERIAL AND METHODS:

The study was conducted in the dermatology department of the Jinnah Hospital Lahore for six-months duration from October 2019 to March 2020. Patients who met the inclusion criteria were enrolled in the study. The study included patients of both sexes aged 15 to 60 years. Only those patients who took 60-80 mg of steroids for at least 2 weeks were studied. The study enrolled patients receiving oral prednisolone for the treatment of various underlying diseases such as pemphigus, pemphigus, systemic lupus erythematosus, rheumatoid arthritis, scleroderma, and vasculitis. They were not taking any other medications.

After a detailed interview, general, systemic and skin examination, the results were recorded on a previously prepared pro forma. The results were then compiled and tabulated. In addition to routine investigations, appropriate investigations were also carried out where necessary. These included mushroom scrapings, culture and sensitivity swabs, a Tzanck smear, and a skin biopsy for histopathological purposes.

RESULTS:

A total of 205 patients completed the study, 80 men (39%) and 125 women (61%), the male-female ratio was 0.6: 1. The minimum age for reporting was 15 years and the maximum age was 60 years, and the mean age was 42, 3 years. Table 1 shows the frequency of various skin side effects of oral steroid therapy observed in our patients.

Among the infections, bacterial infections were most frequently observed in 16 patients (8%, p0.20), including tinea of the trunk and tinea pedis. Candidiasis was present in 13 patients (6.3%, p> 0.05). Herpes simplex and shingles dominated among the viral infections observed in 5 patients (2.4%, p> 1.00).

Fat redistribution was 27.3%. The findings concerned the face of the moon in 39 patients (19%, p> 0.08).

Atrophic skin lesions occurred in 45 patients (22.4%, p> 0.47). The skin showed easy bruising in 14 patients (7%, p> 0.45), atrophy in 12 patients (6%, p> 0.41), purpura in 12 patients (6%, p> 1.00) and stretch marks in 7 patients (3.4%, p> 0.28). Among the various side effects, acne-like eruptions occurred in 18 patients (8.7%, p> 0.18) and hypertrichosis occurred in 8 patients (4%, p> 0.013).

Table 1 Cutaneous side effects of oral steroid therapy (n=205).

Side effect	*n (%)*
Moon face and buffalo hump	56 (27.3)
Infections	45 (22.4)
Atrophic changes	45 (22.4)
Acneiform eruptions	18 (8.7)
Hypertrichosis	8 (4)
Maculopapular eruptions	2 (1)

DISCUSSION:

The basic structure of the steroid molecule is the perhydro-cyclopentano-phenanthene ring. They have anti-inflammatory, immunosuppressive and anti-proliferative effects. They have many cutaneous side effects, most of which are related to the dose and duration of treatment. Most patients entered the treatment at a dose of 60-80 mg after a minimum of 2 weeks.

The most common symptom of skin infection in our study was 45 patients (22%, p> 0.10) who took oral steroids for 3 weeks at a dose of 60 mg daily. Stuck et al. reported an incidence of 12.7% of infections in their patients taking oral steroids. The figures given in our study are therefore higher compared to the figures given earlier. Poor hygiene, malnutrition, and relatively old age may explain the difference. Akhter et al. Another study in Punjab showed a high frequency of infections in patients with pemphigus vulgaris using high doses of steroids.

The face of the moon was visible in 39 patients (19%, p <0.08) treated with oral steroids due to the underlying redistribution of body fat. Differences in relative insulin sensitivity in peripheral and terminal adipocytes result in these changes. Moreover, their receptors also react differently to the lipolytic effects supported by glucocorticoids. A particular change was observed in our patients earlier, ie after 3 weeks of steroid therapy. Atrophic skin changes were often observed in our patients. World studies have shown that steroids cause atrophic skin changes. The striae distensae observed in (3.4%) of our patients were large and widely distributed over the abdomen and thighs. Evans in his study described the change in 100 patients taking oral steroids. Easy bruising (7%) and purpura (6%) were also observed in our patients. Atrophic changes have occurred in patients taking oral steroids for a minimum of 8 weeks. The numbers provided by us are consistent with the previously reported studies.

In our study, acne occurred in 8 patients (8.7%, p <0.001). They took oral steroids for at least three weeks. All patients had maculopapular lesions and no comedones. The underlying pathogenesis of these acne-like eruptions remains unclear; however, steroids do not affect the number of surface bacteria but cause ductal hyperkeratosis. Precious et al. and Samma et al. their research revealed similar acne data. Thus, the results of our research are consistent with the literature. The hypertrichosis observed in 8 patients (4%, p> 0.013) was mainly visible on the cheeks and temples of our patients.

CONCLUSION:

Oral steroid therapy has a significant frequency of skin side effects, which depend on the dose and duration of therapy. Cushingoid features and infections remain the most common symptoms.

REFERENCES:

1. Forouzan, Parnia, Ryan R. Riahi, and Philip R. Cohen. "Atorvastatin-induced Lichenoid Drug Eruption: A Case Report and Review of Statin-associated Cutaneous Adverse Events." *Cureus* 12, no. 3 (2020).
2. Khurana, Ananta, Aastha Gupta, Kabir Sardana, Khushboo Sethia, Sanjeet Panesar, Aastha Aggarwal, and Manik Ghadlinge. "A prospective study on patterns of topical steroids self-use in dermatophytoses and determinants predictive of cutaneous side effects." *Dermatologic Therapy* (2020).
3. Wang, Charlie, Marius Rademaker, Christopher Baker, and Peter Foley. "COVID-19 and the use of immunomodulatory and biologic agents for severe cutaneous disease: An Australian/New Zealand consensus statement." *Australasian Journal of Dermatology* (2020).
4. Kim, Yoo Jung, and Philip R. Cohen. "Anastrozole-Induced Dermatitis: Report of a Woman with an Anastrozole-Associated Dermatosis and a Review of Aromatase Inhibitor-Related Cutaneous Adverse Events." *Dermatology and Therapy* 10, no. 1 (2020): 221-229.
5. Sharma, Ajay N., Natasha A. Mesinkovska, and Taraneh Paravar. "Characterizing the adverse dermatologic effects of hydroxychloroquine: a systematic review." *Journal of the American Academy of Dermatology* (2020).
6. Barrios, D. M., G. S. Phillips, A. Freites-Martinez, M. Hsu, K. Ciccolini, A. Skripnik Lucas, M. A. Marchetti et al. "Outpatient dermatology consultations for oncology patients with acute dermatologic adverse events impact anticancer therapy interruption: a retrospective study." *Journal of the European Academy of Dermatology and Venereology* (2020).
7. Eyerich, Stefanie, Martin Metz, Apostolos Bossios, and Kilian Eyerich. "New biological treatments for asthma and skin allergies." *Allergy* 75, no. 3 (2020): 546-560.
8. Ungureanu, Loredana, Rodica Cosgarea, Mihail Alexandru Badea, Alina Florentina Vasilovici, Ioana Cosgarea, and Simona Corina Șenilă. "Cutaneous manifestations in inflammatory bowel disease." *Experimental and Therapeutic Medicine* 20, no. 1 (2020): 31-37.

9. Malviya, Neeta, Ian W. Tattersall, Jonathan Leventhal, and Allireza Alloo. "Cutaneous immune-related adverse events to checkpoint inhibitors." *Clinics in Dermatology* (2020).
10. Deutsch, Alana, Nicole R. Leboeuf, Mario E. Lacouture, and Beth N. McLellan. "Dermatologic Adverse Events of Systemic Anticancer Therapies: Cytotoxic Chemotherapy, Targeted Therapy, and Immunotherapy." *American Society of Clinical Oncology Educational Book* 40 (2020): 485-500.
11. Kim, Eo Jin, Min-Hee Ryu, Sook Ryun Park, Mo Youl Beck, Woo Jin Lee, Mi Woo Lee, and Yoon-Koo Kang. "Systemic Steroid Treatment for Imatinib-Associated Severe Skin Rash in Patients with Gastrointestinal Stromal Tumor: A Phase II Study." *The Oncologist* (2020).
12. Martinez-Lopez, Antonio, Carlos Cuenca-Barrales, Trinidad Montero-Vilchez, Alejandro Molina-Leyva, and Salvador Arias-Santiago. "Review of adverse cutaneous reactions of pharmacologic interventions for coronavirus disease 2019 (COVID-19): a guide for the dermatologist." *Journal of the American Academy of Dermatology* (2020).
13. Schwartz, Robert A., and Camila K. Janniger. "Generalized pustular figurate erythema: A newly delineated severe cutaneous drug reaction linked with hydroxychloroquine." *Dermatologic Therapy* (2020): e13380.
14. Zhang, Shan, Shunli Tang, Sheng Li, Yunlei Pan, and Yingguo Ding. "Biologic TNF-alpha inhibitors in the treatment of Stevens-Johnson syndrome and toxic epidermal necrolysis: a systemic review." *Journal of Dermatological Treatment* 31, no. 1 (2020): 66-73.
15. Logan, Ian T., Saman Zaman, Lama Hussein, and Conal M. Perrett. "Combination therapy of ipilimumab and nivolumab-associated toxic epidermal necrolysis (TEN) in a patient with metastatic melanoma: a case report and literature review." *Journal of Immunotherapy* 43, no. 3 (2020): 89-92.
16. Vallini, Valerio, Elisabetta Rinaldi, Luciana Mangano, Luca Modesti, Piero Ghelardini, Anna Theresa Roberts, and Giovanni Grazi. "Multiple subcutaneous haematomas of the legs causing skin necrosis in an elderly patient affected by corticosteroid-induced skin atrophy: Case report and review of literature." *International Wound Journal* 17, no. 3 (2020): 540-546.
17. Yan, Yicen, Hui Chen, Liuqing Chen, Bo Cheng, Ping Diao, Liyun Dong, Xinghua Gao et al. "Consensus of Chinese experts on protection of skin and mucous membrane barrier for health-care workers fighting against coronavirus disease 2019." *Dermatologic Therapy* (2020): e13310.
18. Baida, Gleb, Shivani Agarwal, Ben Readhead, Joel T. Dudley, and Irina Budunova. "Sexual dimorphism in atrophic effects of topical glucocorticoids is driven by differential regulation of atrophogene REDD1 in male and female skin." *Oncotarget* 11, no. 4 (2020): 409.
19. Guzman, Anthony K., and Yevgeniy Balagula. "Drug-induced Cutaneous Vasculitis and Anticoagulant-related Cutaneous Adverse Reactions: Insights in Pathogenesis, Clinical Presentation and Treatment." *Clinics in Dermatology* (2020).
20. Choi, Juwhan, and Sung Yong Lee. "Clinical characteristics and treatment of immune-related adverse events of immune checkpoint inhibitors." *Immune Network* 20, no. 1 (2020).