

DOI: <https://dx.doi.org/10.18203/2319-2003.ijbcp20222134>

Original Research Article

A study of prescribing pattern of micronutrients in dermatology outpatient department at tertiary care teaching hospital

Anjali Shah*, Ajita Pillai

Department of Pharmacology, PDU Medical College and Hospital, Rajkot, Gujarat, India

Received: 12 May 2021

Revised: 03 July 2021

Accepted: 04 July 2021

***Correspondence:**

Dr. Anjali Shah,

Email: anjalishah1659@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Skin is the first line of defence for protecting our bodies against external perturbations, including ultraviolet (UV) irradiation mechanical/chemical stress, and bacterial infection. Different vitamins and trace elements are vital for skin health. The present study was planned to define the prescription pattern of micronutrients in the different skin diseases.

Methods: An observational and cross-sectional conducted in the out-patient department of dermatology at a tertiary care teaching hospital in Rajkot, Gujarat over a period of two months. Prescriptions of 200 patients were analysed.

Results: In our study, 200 prescriptions were evaluated. The average number of micronutrients per prescription was 1.95. In male average number of micronutrients per prescriptions was 2.01 while in female it was 1.91. Multivitamin B complex was the most commonly prescribed micronutrient.

Conclusions: We observed that multivitamin B complex was the most commonly prescribed micronutrients followed by vitamin C in skin diseases. Though micronutrients play an important role in the body for healthy skin, it is overprescribed.

Keywords: Prescribing pattern, Micronutrients, Dermatology, Multivitamin B complex, Vitamin C

INTRODUCTION

Skin is the largest organ of the human body.¹ Nature has provided skin with a unique collection of lymphoid cells, reticular cells, and organized lymphoid organs.² Skin is the first line of defence for protecting our bodies against external perturbations, including ultraviolet (UV) irradiation mechanical/chemical stress, and bacterial infection.³ Skin plays an important role in regulating body homeostasis by keeping water loss to a minimum and by regulating body temperature.⁴ Skin is exposed to injury by various extrinsic factors such as environmental, chemical and infectious agents, as well as intrinsic factors such as metabolic, genetic and immunological.¹ The skin functions normally when adequate nutrition is provided.⁵

Different vitamins and trace elements are vital for skin health. Micronutrients represent a diverse array of dietary components necessary to sustain health. The physiologic roles of micronutrients are as varied as their composition. Several micronutrients function as cofactors for enzymes, while others act as biochemical substrates or hormones.⁶ Micronutrients are vitamins and minerals that play an important role in the body for healthy skin by preventing oxidative damage. Water containing minerals can help reduce many skin irritations. It also helps to prevent UV irradiation mediated skin damage. The demand for nutrients in skin is altered under stress conditions. Excessive inflammation of the skin is known to increase the requirements of specific nutrients like folic acid and protein.⁵

Most commonly prescribed micronutrients in dermatology are vitamin A, vitamin B group [thiamine (vitamin B1), riboflavin (vitamin B2), niacin (vitamin B3), pantothenic acid (vitamin B5), pyridoxine (vitamin B6), cobalamine (vitamin B12)], vitamin C, vitamin D, vitamin E, zinc and calcium.

METHODS

A cross sectional, observational study was conducted in the department of dermatology, venereology and leprosy, tertiary care teaching hospital, Rajkot, Gujarat.

The study was done after obtaining approval from the institutional ethics committee. The data were collected in between July 2021 to September 2021.

Total 200 patients were enrolled in this study. Patients of either sex and all ages were included in the study. All micronutrients prescribed were recorded from case sheet, including dose, route, dosage form, frequency of administration, diagnosis and duration.

The data was entered into excel sheet. Data analysis was done by using the percentages.

RESULTS

Total 200 prescriptions were analysed. Gender-wise and age-wise distribution is shown in Table 1.

Most common diagnosis seen was acne, diffuse hair loss, pemphigus vulgaris, vitiligo vulgaris while other diagnosis included leprosy, eczema, melasma, tinea, and pityriasis. The average number of micronutrients per prescriptions was 1.95. In male average number of micronutrients per prescriptions was 2.01 while in female it was 1.91. The percentage analysis of different micronutrients prescribed is shown in Figure 1.

Table 1: Gender and age-wise distribution.

| Parameters | Number | Percentage (%) |
|----------------------------|--------|----------------|
| Gender | | |
| Female | 123 | 61.5 |
| Male | 77 | 38.5 |
| Total | 200 | 100 |
| Age group (in year) | | |
| <20 | 47 | 23.5 |
| 21-40 | 72 | 36 |
| 41-60 | 58 | 29 |
| >61 | 23 | 11.5 |

Most commonly prescribed micronutrient was multivitamin B complex followed by vitamin C, folic acid, calcium, zinc, vitamin D₃, iron, vitamin A, vitamin B₃ and methylcobalamine. The average duration of prescribing micronutrients was 23.4 days. In 200 prescriptions, water soluble vitamins were prescribed 273 times, fat soluble vitamins 21 times and minerals 105 times.

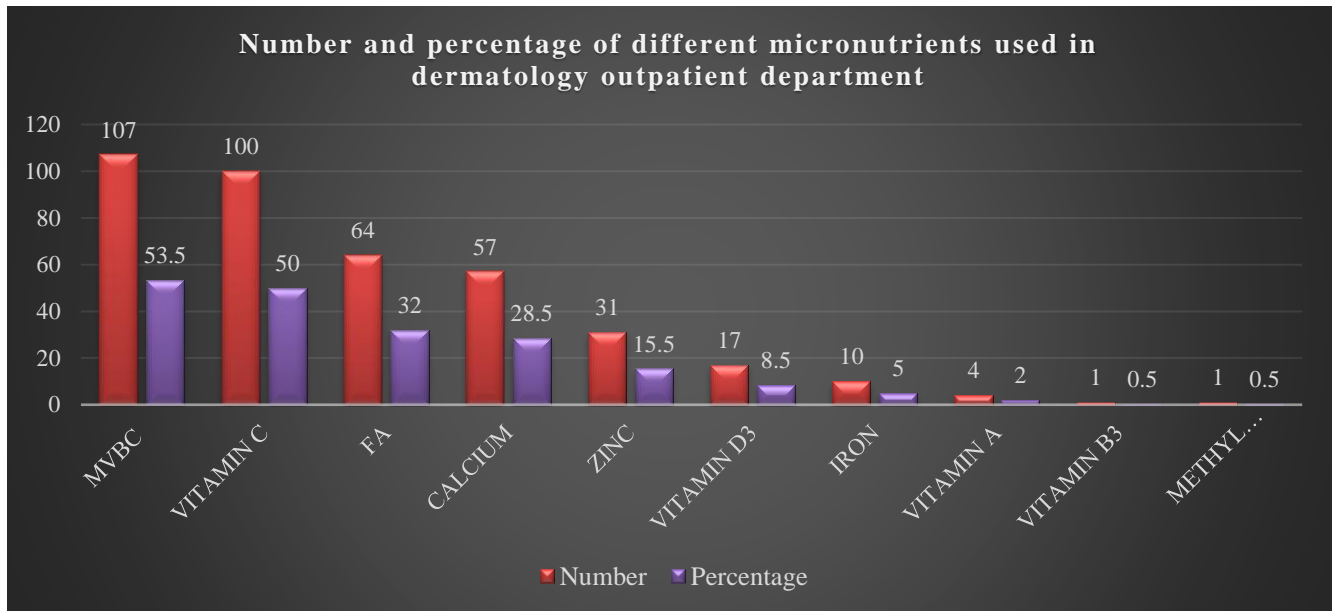


Figure 1: Percentage analysis of different micronutrients prescribed.

DISCUSSION

Prescription is a written instruction given by a qualified medical practitioner with the intent to provide medicine or treatment for the benefit of the patient.¹ Prescription pattern monitoring studies are drug utilization studies with

the main focus on prescribing, dispensing and administering of drugs.⁷ The pattern of skin diseases in India is influenced by the developing economy, level of literacy, social backwardness, varied climate, industrialization, access to primary health care and different religious, ritual and cultural factors.⁸ Studies

assessing the prescribing behaviour of doctors in various parts of India reveal that vitamins constitute about 24-25 per cent of all prescribed drugs, however, the rationale behind this practice is not clear.⁹ For healthy skin micronutrients are necessary which can be obtained from natural sources.

Aim of this study was to analyse the prescribing pattern of micronutrients in dermatology. In the present study analysis of prescribing pattern of micronutrients among 200 patients who came for treatment in dermatology outpatient department was done. Lakshmi et al studied the prescribing pattern of all drugs prescribed in dermatology department while we studied prescribing pattern of only micronutrients in dermatology outpatient department. In our study female patients were more compared to male patients while in the study done by Lakshmi et al both male and female patients were equal in number. Average number of micronutrients per prescription were higher in male patients. In this study patients between 21-40 years of age group were more in number while in the study done by Tegegne, patients between 21-30 years of age group were more. In the study done by Lakshmi et al, *Tinea corporis* and *Tinea cruris* was the most common diagnosis while in our study acne was the most common diagnosis. In another study done by Tegegne, atopic dermatitis was the most common diagnosis.¹⁰ In our study, average 1.95 micronutrients were prescribed per patient, which was higher as compared to 0.45 in a study done in Uttar Pradesh (Bhardwaj et al).¹¹ In our study multivitamin B complex was most commonly prescribed micronutrient followed by vitamin C, folic acid, calcium, zinc, vitamin D₃, iron, vitamin A, vitamin B₃ and methylcobalamine. Though micronutrients are essential for the skin health, it is overprescribed and this will also cause cost burden on patients.

Limitations

Sample size in the present study was small and also the time period of the study was limited.

CONCLUSION

Micronutrients including vitamins and minerals, are essential components of skin structure. Our study highlights prescribing pattern of micronutrients in dermatology. At the end of our study, we conclude that multivitamin B complex was most commonly prescribed micronutrient in different skin diseases. Study of prescribing pattern is important to see the rational use of drugs.

ACKNOWLEDGEMENTS

Authors would like to thank Dr. Neela Bhuptani, professor and head of department, department of dermatology,

venereology and leprosy, PDU Government Medical College, Rajkot.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Sangeetha Lakshmi GNS, Chilkuri P, Vineela M. Drug utilisation pattern in dermatology outpatient department at a tertiary care hospital. Int J Basic Clin Pharmacol. 2018;7(11):1-6.
2. Kogame T, Kabashima K, Egawa G. Putative Immunological Functions of Inducible Skin-Associated Lymphoid Tissue in the Context of Mucosa-Associated Lymphoid Tissue. Front Immunol. 2021; 12:733484.
3. Park K, Role of Micronutrient Skin Health and Function: Biomol Ther. 2015;23(5):207-17.
4. Boelsma E, Hendriks HFJ, Roza L. Nutritional skin care: health effects of micronutrients and fatty acids. Am J Clin Nutrition. 2001;73(5):853-64.
5. Basavaraj K H, Seemanthini C, Rashmi R5. Diet in dermatology: Present Perspectives. Indian J Dermatol. 2010;55(3):205-10.
6. Bolognia JL, Schaffer JV, Cerroni L. Dermatology. 4th edition. China: Elsevier limited. 2018;797.
7. Jain S, Upadhyaya P, Goyal J, Abhijit K, Jain P, Seth V, et al. A systemic review of prescription pattern monitoring studies and their effectiveness in promoting rational use of medicines. Perspect Clin Res. 2015;6:86-90.
8. Gupta S, Khan W, Krishna A. Pattern of skin diseases and common drugs prescribed in dermatology OPD of an Indian tertiary care hospital. Int J Basic Clin Pharmacol. 2017;6:203-7.
9. Rana P, Roy V. Prescribing vitamin B complex: Need for reassessment. Indian J Med Res. 2021;154:781-5.
10. Tegegne A. Prescribing Pattern for Skin Diseases in Dermatology OPD of in Boru Meda Hospital, North East, Ethiopia. J Basic Clin Pharma. 2018;9:31-3.
11. Bhardwaj VK, Budania N, Kumar N, Mondal A, Lata S, Sharma M, et al. Evaluation of vitamins/tonics prescribing pattern in Tertiary care teaching Hospital and private sector. Int J Basic Clin Pharmacol. 2018;7:733-7.

Cite this article as: Shah A, Pillai A. A study of prescribing pattern of micronutrients in dermatology outpatient department at tertiary care teaching hospital. Int J Basic Clin Pharmacol 2022;11:401-3.