

Evaluation of Oral Vitamin-A Clinical Response in Keratinized Skin Diseases

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Abstract: Now a days vitamin A deficiency is prevailing more because of poor diet habits and other causes. Oral formulations of vitamin A are showing better results by increasing compliance than other type of formulations whereas in topical formulations application problems are common which intern shows less efficacy. This study was conducted for six months duration in the dermatology department. Patients were followed for 3 months with one month interval. At each follow up patients were assessed for prognosis of the disease through oral interview and physical examination. At baseline patients and their care takers were interviewed for the severity of symptoms, physical examination was done to observe the severity and site of disease in the body, other relevant information regarding their dietary habits, history of disease, occupation, economic status of their care takers. In 3 keratinised skin diseases included in our study, with vitamin A therapy 44.4% showed excellent response, 33.3% showed good response followed by 11.1% showed poor response and 11.1% showed nil response Where as in B complex therapy 50% showed nil response 40% showed poor response followed by 10% showed good response and no patients showed excellent response. With this study we concluded that oral vitamin A therapy had beneficial effect in three keratinized skin diseases, i.e, phrynoderma, lichen spinulosus, and keratosis pilaris.

Keywords: Phrynoderma, Lichen Spinulosus, Keratosis Pilaris, Keratinization, Vitamin A.

Date of Submission: 11-01-2019

Date of acceptance: 24-01-2019

I. Introduction

Keratinization, also termed as cornification, is a process of cytodifferentiation in which the keratinocytes undergo their post germinative state (stratum basale) to finally differentiated, hardened cell filled with protein, constituting a structurally and functionally distinct keratin containing surface layer such as stratum corneum.¹ A wide range of disorders occur as a result of mutation in the gene encoding for the various keratin proteins. These disorders comprise of the lesions affecting the skin and mucous membrane depending on the distribution of keratin and certain disorders may present with both skin and oral manifestations.² Now a days vitamin A deficiency is prevailing more because of poor diet habits and other causes (overlooking or not considering as a serious problem or poor immunization) Oral formulations of vitamin A are showing better results by increasing compliance than other type of formulations whereas in topical formulations application problems are common which intern shows less efficacy. Topical vitamin applications are showing/reporting less compliance because of their applicability problems, this influences the outcomes of the disease, oral formulations are not having administration problems as that of topical, so better compliance and improved outcomes can be seen with oral formulations.³ Hence, we hypothesises to know the benefits of natural oral vitamin A alone in treating the keratinized skin diseases and by proper counselling provided to the patient. In oral formulations appropriate dose is changing aspect as different studies are suggesting different doses.

AIM: To assess the clinical response of oral vitamin A in some keratinized skin diseases.

OBJECTIVES:

- To identify the patients with keratinised skin diseases (Phrynoderma, Lichen spinulosus, Keratosis pilaris).
- To provide vitamin A and B-complex tablets to the patients.
- To follow the patients to observe and note the prognosis.

- To compare the effects of vitamin A.
- To provide patient counselling through oral and distribution of patient information leaflets.

II. Method Of Study

This study was conducted for six months duration in the dermatology department at Rajiv Gandhi Institute of Medical Sciences, kadapa. Based on the inclusion and exclusion criteria, patients were recruited in the study after obtaining the ICF from patients care takers who were willing to participate in study. All the necessary and relevant baseline information was collected on a "Patient data collection form. All the out patients who were visiting to the dermatology ward were screened to identify and recruit the patients, who were having vitamin A deficiency as per study criteria. The necessary data was collected in specially designed data collection form through patient/patient's care taker interview regarding the dietary habits, patients symptoms to find vitamin A deficiency. Patients were randomized into two groups and provided 2 separate regimens, verbal and written information was provided accordingly to manage their symptoms and to prevent further complications. Patients were followed for 3 months with one month interval. At each follow up patients were assessed for prognosis of the disease through oral interview and physical examination. At baseline patients and their care takers were interviewed for the severity of symptoms , physical examination was done to observe the severity and site of disease in the body , other relevant information regarding their dietary habits, history of disease, occupation, economic status of their care takers. Photographs of the site of disease were taken at baseline and at each follow ups for comparing the prognosis between each follow-up and between two drug regimens. Data was interpreted and analyzed. The subjects on division in to test and control group, test group was treated with vitamin A 50,000 IU and control group was treated with placebo (vitamin-B 67.5 mg) and comparing the results between test and control group.

III. Results

In this prospective study 30 patients were included , Table 5.1 describes the gender wise distribution of the total study subjects, among 30 subjects 22(73.3%) were male children and 8(26.6%) were female children. In Phrynoderma (PD) 10(45.45%) were male children and 5(62.5%) were female children followed by 5(22.72%) male children and 1(12.5%) female child in Lichen Spinulosis (LS) and 7(31.81%) & 2(25%) in Keratosis pilaris (KP).

Disease	Male	Female	Total (%)
Phrynoderma n=15	10(45.45%)	5(62.5%)	15(50%)
Lichen Spinulosis n=6	5(22.72%)	1(12.5%)	6(20%)
Keratosis Pilaris n=9	7(31.81%)	2(25%)	9(30%)
Total Percentage (%)	22 (73.3%)	8 (26.6%)	30

Table 5.1: Gender wise distribution of study subjects.

Table 5.2 describes dietary habits of the subjects, Among 30 patients who were diagnosed with the keratinised skin diseases, In that 7 (23.3%) were vegetarians and 23 had mixed dietary habits(Both Veg and Non-Veg)

Diet	Vegetarians	Non – vegetarians
Total Patients n=30	7(23.3%)	23(76.6%)

TABLE 5.2: Distribution of Subjects Based On Diet

Table 5.3 describes the duration of disease in the patients, 15 patients were suffering with the symptoms since 1 month, in that 15 patients 7 patients has PD, 3 patients had LS and 5 patients had KP. 8 patients had 11-20days duration of the disease in that 5 patients had PD, 1 patients had LS and 2 patients had KP. 7 patients had 1-10 days duration of the disease in that 3 patients had PD, 2 patients had LS and 2 patients had KP.

DISEASE	1 - 10 DAYS	11 - 20 DAYS	21 - 30 DAYS
Phrynoderma n=15	3(20%)	5(33.3%)	7(46.6%)
Lichen spinulosis n=6	2(33.3%)	1(16.6%)	3(50%)
Keratosis pilaris n=9	2(22.2%)	2(22.2%)	5(55.5%)

Table 5.3: Duration of Disease

IV. Discussion

In the present study out of 30 keratinised skin diseased patients phrynoderma (40%) was the most commonly occurred disease when compared to lichen spinulosus and (23.3%) and keratosis pilaris (26.6%) . In the present study, males (73.3%) were affected more than the females (26.6%), *Amruth Rao24 et al.* reported male predominance which was opposed to our study, while others had shown female preponderance. Therefore, it does not seem likely that there was any inherent difference between the sexes in development of keratinised diseases.⁴ Severity of disease would increase if patients fail to receive proper treatment in time.⁵ Generally most of the people would not consider dermatological diseases as serious one and consults the doctor when the disease got severe. In the present study all the study subjects consulted the dermatologists within 30 days onset of symptom.⁶ We had also assessed the diet habits of the study subjects in order to find out the impact of diet on the occurrence of disease, in this study 23.3% subjects were found to be vegetarians and 76.6% patients were having mixed diet habits i.e both veg and non veg. Site of involvement In phrynoderma mostly involved parts were elbows, buttocks where *Ragunatha S27 et al* study also reported the same, In lichen spinulosis, thighs, limbs and buttocks followed by face. In keratosis pilaris neck, thighs and buttocks followed by cheeks and arms.⁷

In the present study we had assessed the response by comparing the baseline and follow-up photographs of the site of the disease, Phrynoderma: In vitamin A therapy it was observed that 50% patients showed excellent response, 37.5% patients showed good response, 12.5% patients showed poor response. In Patients under B complex therapy, it was observed that 14.2% patients showed good response , 42.8% patients showed poor response and 14.2% patients showed nil response.⁸ Lichen spinulosis : In vitamin A therapy 50% patients showed excellent response, 25% patient showed good response and 25% patient showed poor response. In Patients under B complex therapy, it was observed that 50% patients showed nil response, remaining patients were not came for follow-ups.⁹ Keratosis pilaris: In vitamin A therapy 40% patients showed excellent response , 40% patients showed good and 20% patient showed poor response. In patients under B-complex therapy 50% patients showed nil response and 25% patient showed poor response, remaining patients were not came for follow-ups. In 3 keratinised skin diseases included in our study, with vitamin A therapy 44.4% showed excellent response, 33.3% showed good response followed by 11.1% showed poor response and 11.1% showed nil response. Where as in B complex therapy 50% showed nil response 40% showed poor response followed by 10% showed good response and no patients showed excellent response.¹⁰ Which indicates the benefit of oral Vit A in treating the keratinised skin diseases, where as B complex has shown little effect in phrynoderma but no response in lichen spinulosis and keratosis pilaris.

V. Conclusion

With this study we concluded that oral vitamin A therapy had beneficial effect in three keratinized skin diseases, i.e, phrynoderma, lichen spinulosus, and keratosis pilaris. Among three keratinized diseases, phrynoderma had shown high incidence rate. This study showed that the use of oral Vitamin A 50,000 IU, given daily for 8 weeks was beneficial. Oral vitamin B complex had shown little effect in phrynoderma, but shown nil effect in other two keratinized diseases.

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Dr. Narotham Reddy. "Evaluation of Oral Vitamin-A Clinical Response in Keratinized Skin Diseases." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 1, 2019, pp 33-36.