Ketoconazole or clotrimazole solution wash as a prophylaxis in management and prevention of fungal infection: a comparative study

S Shrestha,[1] AK Jha,[1] D Thapa Pathak,[1] C Bhattarai Kharel[1] and SM Basukala[2]

Department of Dermatology, [1]Nepal Medical College and Teaching Hospital, [2]KIST Medical College, Lalitpur, Nepal

Corresponding author: Dr. Shristi Shrestha, Assistant Professor, Department of Dermatology, Nepal Medical College and Teaching Hospital, Attarkhel, Jorpati, Kathmandu, Nepal; e-mail: sonyjony@gmail.com

ABSTRACT

The incidence of fungal infections has increased at an alarming rate in the past two decades. Topical Ketoconazole and Clotrimazole solutions are used to stop growth of fungus like Dermatophytes, Candidiasis and Pityrosporum. The objective of this study is to assess the effectiveness of prophylactic Ketoconazole or Clotrimazole solution wash in patients with fungal infections. Hundred patients (aged 10-60 yrs) with different fungal infections (Candida, Tinea, Pityriasis) were included. The study groups were divided into intervention group and control group. The Intervention group was given 5 weeks prophylactic Ketoconazole/Clotrimazole shampoo wash along with antifungal treatment whereas the control group was given only antifungal treatment without prophylaxis. All the patients were assessed at 1, 3 and 6 months interval to find out the response and recurrence. After one month of treatment 96% of patients in the intervention group and 60% of patients in the control group were completely cured. The recurrence rate after 3mths of treatment was 4% in the intervention group and 40% in the control group. After 6 months the recurrence rate was 4% in the intervention group and 60% in the control group. The most common problem with fungal infections is the recurrence. Use of prophylactic antifungal (Ketoconazole/Clotrimazole) wash for some period of time along with antifungal treatment minimizes the chances of recurrence.

Keywords: Fungal infections, ketoconazole, clotrimazole, prophylaxis.

INTRODUCTION

Dermatomycoses, the most common of mycotic infections, occur worldwide.[1] Fungal infections of the skin are prevalent globally, with 20-25% of the world's population being affected.[2] Life-time risk of acquiring a dermatophytic infection is estimated to be 10-20%.[3] In a study conducted in Nepal, superficial infections of the skin, nails and hair accounted for 13.5% of all skin outpatient attendance.[4] The attendance increases during the summer and spring.[5] Climatic conditions, cultural and socioeconomic factors not only contribute to the increased prevalence in tropics but also influence the type of fungal infection in a particular geographic area.[6] They are par-ticularly widespread in tropical countries because of warm and humid climate, crowded living conditions, and other socio-economic factors. Dermatomycoses is not a life threatening condition but they may produce significant symptoms which interfere with the quality of life. The main problem with these infections is the recurrence.

A huge armamentarium of drugs is available for treatment of fungal infections which include a wide range of topical as well as systemic therapies. Still newer drugs are being developed with good local bioavailability, fewer side effects, minimal recurrences and ease of application. Antifungal washes/shampoos has been used for many years and its role in seborrheic dermatitis has been well established.[7-15] This study aims at assessing the effectiveness of antifungal therapy when used along with prophylactic antifungal wash in patients with tinea infections and pityriasis versicolor.

MATERIALS AND METHODS

100 new patients with superficial fungal infection of skin (Tinea infections mostly Tinea corporis and cruris and Pityriasis versicolor) were included in the study.

Inclusion criteria were as follows: The patients in the age group of 10 to 60 years with Tinea corporis, cruris or Tinea versicolor who had provided informed consent.

Excluding criteria were: patients less than 10 years or more than 60 years old, pregnant or lactating women, patients with other fungal infections and those who refused to give consent.

The patients were randomly divided into intervention group and control group. Both the groups received oral antifungal therapy with topical antifungal cream. But the intervention group received five weeks of prophylactic antifungal (Ketoconazole or Clotrimazole) wash in addition. The duration of oral and topical antifungal treatment was 2 weeks and 4-6 weeks respectively.

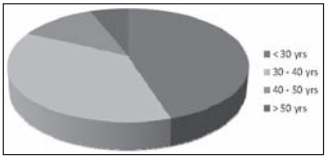

Fig. 1. Distribution of patients according to age

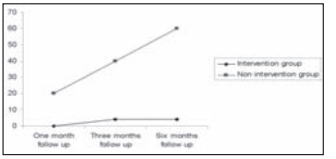

Fig. 2. Trend of reoccurrence among intervention and non intervention groups

Patients of both groups were asked to come for follow up after 1, 3 and 6 months to assess the improvement and recurrence.

RESULTS

Out of the total patients 40% were males and remaining 60% were females. Fig. 1 shows the age distribution of the patients.

After 1mth of treatment 48 patients (96%) in the intervention group and 30 patients (60%) in the non intervention group was free of tinea infections (p value < 0.001) Table-1.

Examination after 3mths of treatment showed that recurrence was seen in 2 patients (i.e. 4%) in the intervention group and 20 patients (i.e. 22%) in the non intervention group. (p value <0.001) Table-2.

After 6mths of starting of treatment recurrence of tinea infections was seen in 2 patients (4%) in the intervention group whereas the recurrence was very high (60%) in the non intervention group (p value <0.001) Table-3.

The trend of recurrence among intervention and non intervention group is seen in the Fig. 2. Out of the total 100 patients 12 patients were lost to follow up.

CONCLUSION AND RECOMMENDATION

The study revealed that antifungal treatment along with prophylaxis with antifungal wash decreased the recurrence rate of fungal infections significantly. So it is recommended that in treating fungal infections along with the oral and topical therapy prophylactic antifungal wash should be given to increase the efficacy of treatment and to reduce the chances of recurrence.

But the limitation of the study is that the number is very small and the duration of follow up is short. So for better assessment of results longer follow up is required and further studies in larger groups need to be conducted.

DISCUSSION

Mycoses have significant negative social, psychological, occupational and health effects. Persistent infections can compromise the quality of life to a remarkable extent.[16] The imidazole group of antimycotics have a broad spectrum of activity against different groups of fungi and has been widely used as topical creams for the treatment of superficial dermatophytosis for years together. They act by inhibiting lanosterol 14αdemethylase which catalyses conversion of lanosterol to ergosterol (the primary sterol derivative of the fungal cell membrane) and this inturn results in membrane permeability changes incompatible with fungal growth and survival.[17]

In earlier studies, use of ketoconazole shampoo has shown to be highly effective and well tolerated for the treatment of Pityriasis Versicolor[18-20] and other fungal infections with significant reduction in scaling and elimination of the causative agent. In Tinea capitis use of ketaconazole shampoo along with oral antifungal therapy has shown to decrease the carriage of viable spores responsible for the disease contagion and re-infection and may shorten the cure rate with oral antifungal.[21]

In our study use of antifungal shampoo along with oral antifungal has shown to significantly improve the fungal infection in one month. Ninety six percent of the patients in the intervention group and 60% in the non intervention group showed improvement and the difference between the 2 groups was statistically significant (P<0.001). The main challenge is the recurrence after completion of the therapy. After 3mths and 6mths of treatment the rate of recurrence in the patients who received antifungal shampoo was 4%. But in the non intervention group who

Table-1: Distribution of outcome of treatment in the intervention and non intervention group at the end of 1 month.

Outcome of treatement	Intervention group		Non intervention group		Total	
	No.	%	No.	%	No.	%
Improving	48	96.00%	30	60.00%	78	78.00%
Not improving	0	0.00%	10	20.00%	10	10.00%
Loss to follow up	2	4.00%	10	20.00%	12	12.00%

Table-2: Recurrence rate in the intervention and non intervention groups at the end of 3 months

Outcome of treatment	Intervention group		Non intervention group		Total	
	No.	%	No.	%	No.	%
Recurrence	2	4 %	20	40 %	22	22 %
No recurrence	46	92 %	20	40 %	66	66 %

Table-3: Recurrence rate in the intervention and non intervention groups at the end of 6 months

Outcome of treatment	Intervention group		Non intervention group		Total	
	No.	%	No.	%	No.	%
Recurrence	2	4 %	30	60 %	32	32 %
No recurrence	46	92 %	10	20 %	56	56%

did not receive the antifungal wash the recurrence rate was 22% and 60% after 3mths and 6mths of treatment respectively

From the study done, it reveals that in patients with fungal infections, if antifungal treatment is given along with prophylactic course of antifungal wash/shampoo, the cure is faster and the recurrences are minimal. But further studies need where not only clinical but mycological cure also needs to be considered and also follow up has to be done for longer periods.

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