



ORIGINAL RESEARCH PAPER

Dermatology

COMPARISON OF FLUCONAZOLE AND GRISEOFULVIN IN TREATMENT OF TINEA.

KEY WORDS:

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INTRODUCTION

Approximately a billion people are assessed to have skin, nail and hair fungal diseases; millions have mucosal candidiasis and higher than 150 million people have serious fungal diseases, which have a major effect on their lives or are deadly. Moreover, mortality associated with fungal disease at >1.6 million is like that of tuberculosis and >3-fold more than malaria. Socioeconomic, geo-ecological attributes and the rising number of at-risk people are the main factors for variation in occurrence and pervasiveness of fungal disease across the world. Fungal infections are influenced majorly by the HIV/AIDS pandemic, tuberculosis, chronic obstructive pulmonary disease, asthma and the rising occurrence of cancers in both developed and developing countries worldwide.^[1-4] Fungal skin diseases were the most widespread skin disease globally in 2017 (10.09%) and in 2016, fungal skin diseases were ranked the fourth highest in the occurrence of disease (2.1 billion cases) when compared to 328 different illnesses and injuries worldwide.^[6,9]

Dermatophytosis is a widespread superficial mycosis affecting hair, skin and nails of human beings and domestic animals. It is caused by a group of keratinophilic fungi namely dermatophytes which are capable of attacking keratinized tissues and can use keratin as a nitrogen source. It tends to grow towards the outside on skin producing a ring-like pattern. Therefore, they are universally called tinea or ring worm.^[7] The currently stated occurrence of dermatophytes in India falls in a very wide range (6.09%– 61.5%). An occurrence of 6.09% to 27.6% has been stated in studies from south India, while a high occurrence of 61.5% has been reported from north India.^[8]

These have been classified as anthropophilic, zoophilic and geophilic based. The effectiveness of the use of systemic antifungals in the treatment of dermatophytosis is evident from many studies.^[9-13] There are very few studies regarding the treatment of chronic dermatophytosis in South India. In this study, we intend to find which drug is more effective in the treatment of chronic dermatophytosis. The results of the study would help fellow dermatologists in the treatment of chronic dermatophytosis. The study is aimed to compare the efficacy of fluconazole and griseofulvin in the management of chronic dermatophytosis.

MATERIALS & METHODOLOGY

The study design was Randomized control trial and was conducted from January 2020 to September 2021 (21 months). The subjects were selected were consenting patients above 20yrs of age, both male and female patients and Chronic cases(6 months-1 year)with clinical features suggestive of Tinea corporis and Tinea cruris with a positive Potassium hydroxide (KOH) wet mount and Patients of age group below 20 years who were Newly diagnosed, Pregnant and lactating women and Patients with pre-existing renal, hepatic diseases, cardiac failure or history of hypersensitivity to the study medications were excluded. The included patients were divided into 2 groups by lottery method

- Group A patients was given--Tablet. Fluconazole-150mg; 3tablets / week for 6 weeks.
- Group B patients was given--Tablet. Griseofulvin-500mg

BD for 6 weeks.

- Both the groups were followed up at 3 and 6 weeks respectively and a negative KOH mount with no symptoms were considered the end point of the treatment.

According to Singh et al study, considering the prevalence of rate of healing by fluconazole as 42% and prevalence of rate of healing by griseofulvin as 14% at 95% confidence interval with 80% power, the sample size is calculated as $N = (Z_{1-\alpha/2} + Z_{1-\beta})^2 * 2 * p * (1 - p) / (p1 - p2)^2$

Thus, the sample size required for each group is 30 and the total sample size is 60.

For test of significance, chi-square test was used. P-values less than 0.05 were considered statistically significant.

RESULTS

80 patients were included in the study Patients were divided into 2 groups.

- Each group contained 40 patients.
- Group A patients was given--Tablet. Fluconazole-150mg; 3tablets / week for 6 weeks.
- Group B patients was given--Tablet. Griseofulvin-500mg BD for 6 weeks.

Table 1: Frequency distribution of previous treatment and steroid use among study groups

Group	Steroid use	Frequency	Percentage
Fluconazole group	Steroid negative	10	25.0
	Steroid positive	30	75.0
	Total	40	100.0
Griseofulvin group	Steroid negative	8	20.0
	Steroid positive	32	80.0
	Total	40	100.0

Among Fluconazole group, 30(75%) were steroid positive and 10(25%) were steroid negative. Among Griseofulvin group, 32(80%) were steroid positive and 8(20%) were steroid negative.

Table 2: Frequency distribution of KOH positivity before treatment, 3rd week, 6th week

		Fluconazole group	Griseofulvin group
KOH Positivity before treatment	Present	29(72.5%)	32(80%)
	Absent	11(27.5%)	8(20%)
KOH Positivity at 3rd week	Present	11(27.5%)	28(70%)
	Absent	29(72.5%)	12(30%)
KOH Positivity at 6th week	Present	3(7.5%)	11(27.5%)
	Absent	37(92.5%)	29(72.5%)

Among Fluconazole group, KOH was negative among 11(27.5%) before the treatment, 29(72.5%) at 3rd week, 37(92.5%) at 6th week. Among Griseofulvin group, KOH was negative among 8(20%) before the treatment, 12(30%) at 3rd week, 29(72.5%) at 6th week.

Table 3: Frequency distribution of Itching before

treatment, 3rd week, 6th week

		Fluconazole group	Griseofulvin group
Itching before treatment	Present	40(100%)	40(100%)
	Absent	-	-
Itching at 3rd week	Present	40(100%)	40(100%)
	Absent	-	-
Itching at 6th week	Present	16(40%)	32(80%)
	Absent	24(60%)	8(20%)

In both Fluconazole and Griseofulvin group, itching was present among 40(100%) patients before treatment and at 3rd week. Among Fluconazole group, 16(40%) had itching and 24(60%) didn't have itching at 6th week. Among Griseofulvin group, 32(80%) had itching and 8(20%) didn't have itching at 6th week.

Table 4: Distribution of recurrence among study groups

		Fluconazole	Griseofulvin
Recurrence of Symptoms	NO	37	30
		92.5%	75.0%
	YES	3	10
		7.5%	25.0%

Among Fluconazole group, 3(7.5%) had recurrence of symptoms and 37(92.5%) doesn't had recurrence of symptoms. Among Griseofulvin group, 10(25%) had recurrence of symptoms and 30(75%) doesn't had recurrence of symptoms.

Among Fluconazole group, 3(7.5%) had recurrence of symptoms and among Griseofulvin group, 10(25%) had recurrence of symptoms. This was statistically significant (p value<0.03) There was no statistical significance between study groups in view of use of steroid

DISCUSSION

The previous history of self-treatment with topical application of steroid creams for the dermatophytic infection was present in about 77.5% of our study population (Table 1). This is in concordance with Rajeshwari Dabas et al., study in which 68% of the patients have self prescribed various available over-the-counter (OTC) medications available commercially for the management of dermatophytosis, of which topical corticosteroids tops the list and clobetasol based preparations being the common among them.^[14]

A study by Lakhani et al., has established the mean duration of the dermatophytic infection among patients having used steroids previously to be 24 ± 3 weeks at presentation. With the topical steroids use the disease duration becomes longer as the immune response against the fungus is masked. Self-use steroid abuse, OTC steroid availability, recommendations by pharmacists, family members and friends are the factors responsible for unauthorized use of steroids.^[15] This may be one of the major reasons for the recurrence and the chronicity of the infection that have occurred in our study population.

The initial slow response or lack of response noticed is because the immune response needs about 3 weeks for reversal following cessation of steroids usage. The requirement of a longer duration of treatment is due to the persistence of infection owing to local immunosuppression. This may explain the chronicity and/or the recurrence of the disease in the same individual.^[16]

Scoring of itch: All patients of both groups had complaints of itching before treatment. On follow-up, all the patients had complaints of itching at week 3. At week 6, only 40% of group A patients had the complaints whereas it was 80% in group B individuals (Table 3). This was statistically significant (p<0.001).

Frequency of KOH Positivity: Microscopy by Potassium hydroxide was found to be positive in about 76.25% of the study population at the start of the study. KOH was negative in 72.5 % and 30% in Group A and B respectively at the end of 3rd week. KOH was found to be negative in 92.5% of group A and 72.5% in group B at the end of therapy (6th week). (Table 2).

This was statistically significant. Our study shows that Fluconazole is more effective than Griseofulvin which is consistent with a similar study conducted by S.Singh et al., in the year 2020.

There was no statistical significance between study groups regarding the use of steroids.

Distribution of recurrence: At the end of 1 year, 13 patients (16.25%) of the study population had recurrence of which 3 patients (7.5 %) were in Group A and 10 patients (25%) in Group B (Table 4). This was statistically significant (p value<0.03). A study done by Wingfield et al., in 2004 – demonstrated that the group which received Fluconazole did not have substantial remission. Our study also shows a similar result that the Fluconazole group had only minimal remission.

In our study score at the end of the 6th week was highly significant and the mean score among the Fluconazole group was lower compared to the Griseofulvin group. The study showed that the Fluconazole group had lesser recurrence of symptoms, more KOH negative subjects, reduced itching, lesser erythema and reduced scaling at the end of the treatment period of 6 weeks.

The disparities between the study results can be due to the variation in the study setting and the variation in the inclusion of different types of causative organisms and the time duration of the study.

CONCLUSION

- This study also highlights the self-medication seeking behaviour of the infected patients, which may prolong the existence of the infectious organism in the body and leading to chronicity of the disease as well as resistance. Many active steps are being taken by the IADVL (Indian association of Dermatologists, Venereologists and Leprologists) to tackle this issue including creating a new task force named IADVL Task Force Against Steroid Abuse (ITASTA).^[17]
- Itching which is the morbid symptom in dermatophytosis was relieved in 60% of the patients under Fluconazole therapy whereas only 20% of the patient under Griseofulvin therapy got relieved of itching at 6 weeks of treatment. Also the signs like erythema and scaling which is found to be equally important with the activity of the disease is reduced more with systemic Fluconazole therapy than with systemic Griseofulvin.
- Although both clinical and mycological cure was attained following systemic therapy with Fluconazole as well as Griseofulvin, the cure rate was higher with Fluconazole therapy.
- The study showed that Fluconazole group had less recurrence of symptoms, more KOH negative subjects, reduced itching at 6th week, lesser erythema and reduced scaling in comparison to Griseofulvin group.
- This study also quotes that systemic Fluconazole therapy is highly efficacious than systemic Griseofulvin and it can be considered as a good option in the management of chronic dermatophytosis.

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