

Original Research

A comparison of Terbinafine and Itraconazole in Dermatophytic infections in Children

Yogendra Bhati¹, Archana Singh²

¹Asst Prof, Dept of Pharmacology, K M Medical Mathura, U.P., India;

²Asst Prof, Dept of Pediatrics, K M Medical Mathura, U.P., India;

ABSTRACT:

Background: Tinea literally refers to insect larva (cloth moth) that was felt by Romans to be the cause of infection. The present study compared Terbinafine and Itraconazole in Dermatophytic infections. **Materials & Methods:** The present study was conducted on 60 patients with Dermatophytoses. Patients were divided into 2 groups. Group I received terbinafine 500 mg daily for 4 weeks and group II received itraconazole 200 mg for 4 weeks daily. Patients were followed up after 2 weeks and 4 weeks. At each visit, clinical response was noted including pruritus, erythema and scaling. These were rated as clinical score 0–3, 0 – absent, 1 – mild, 2 – moderate, and 3 – severe. **Results:** There was significant improvement in scaling, pruritus and erythema score in both groups ($P < 0.05$) recorded at baseline, 2 weeks and 4 weeks. In group I, 8% and in group II 15% showed complete heal of lesions while 52% in group I and 64% in group II showed marked improvement, 7% in group I and 6% in group II had >50% of residual lesion, 20% in group I and 10% in group II had no change and 13% in group I and 5% in group II had worse lesion. The difference was significant ($P < 0.05$). **Conclusion:** Authors found that Itraconazole and terbinafine are equally effective and safe in the treatment of dermatophyses.

Key words: Dermatophytes, Itraconazole, terbinafine

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Corresponding author: Dr. Archana Singh, Asst Prof, Dept of Pediatrics, K M Medical Mathura, U.P., India

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INTRODUCTION

Dermatophytes are aerobic fungi that produce proteases that digest keratin and allows colonization, invasion and infection of the stratum corneum of the skin, the hair shaft, and the nail.¹ Infection is generally cutaneous and restricted to the nonliving cornified layers because the fungi is not able to penetrate the deeper tissue or organ of healthy immunocompetent host.² The infection is commonly designated as ring worm or “tinea”. Tinea literally refers to insect larva (cloth moth) that was felt by Romans to be the cause of infection. Dermatophytes are moulds belonging to the three genera of fungi imperfecti (1) Microsporum, (2) Trichophyton, and (3) Epidermophyton.³ Dermatophytic infections are the most common fungal infections affecting 20%–25% population globally.

The prevalence rate of pediatric dermatophyte infection was found to be 19% and was mostly seen in the age group of 10–14 years, with a male-to-female ratio of 1.27:1.

The hot and humid climate in India favors dermatophytosis. Terbinafine is considered to be a first-line drug for the treatment of tinea corporis and tinea cruris due to its favorable mycological and pharmacokinetic profile. It acts by inhibiting the enzyme squalene epoxidase, thereby inhibiting ergosterol synthesis. In the past, the drug was consistently effective against dermatophytosis with cure rates of >90% achieved at doses of 250 mg once a day for 2 weeks.⁴

Itraconazole is another antifungal drug which acts by inhibiting cytochrome P450-dependent enzyme, hence interfering with demethylation of lanosterol to ergosterol. It has shown good results in the treatment of dermatophytosis at doses of 100 mg once a day for 2 weeks and with 200 mg

once a day for 7 days.⁵ The present study compared Terbinafine and Itraconazole in Dermatophytic infections in children.

MATERIALS & METHODS

The present study was conducted on 60 patients with Dermatophytoses of both genders. All patients were informed regarding the study and written consent was obtained. Ethical clearance was taken prior to the study. General data such as name, age, gender etc. was recorded. A through clinical examination was done. Patients were

divided into 2 groups. Group I received terbinafine 500 mg daily for 4 weeks and group II received itraconazole 200 mg for 4 weeks daily.

Patients were followed up after 2 weeks and 4 weeks. At each visit, clinical response was noted including pruritus, erythema and scaling. These were rated as clinical score 0–3, 0 – absent, 1 – mild, 2 – moderate, and 3 – severe. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 60		
Groups	Group I	Group II
Number	30	30

Table I shows that both groups had 30 patients each.

Table II Comparison of features

Features	Group I			Group II		
	Baseline	2 weeks	4 weeks	Baseline	2 weeks	4 weeks
Scaling	1.82	1.04	0.45	1.68	1.05	0.18
Pruritus	2.35	1.45	0.72	2.18	1.01	0.23
Erythema	1.52	1.02	0.34	1.19	0.97	0.12

Table II, graph I shows that there was significant improvement in scaling, pruritus and erythema score in both groups (P< 0.05) recorded at baseline, 2 weeks and 4 weeks.

Graph I Comparison of features

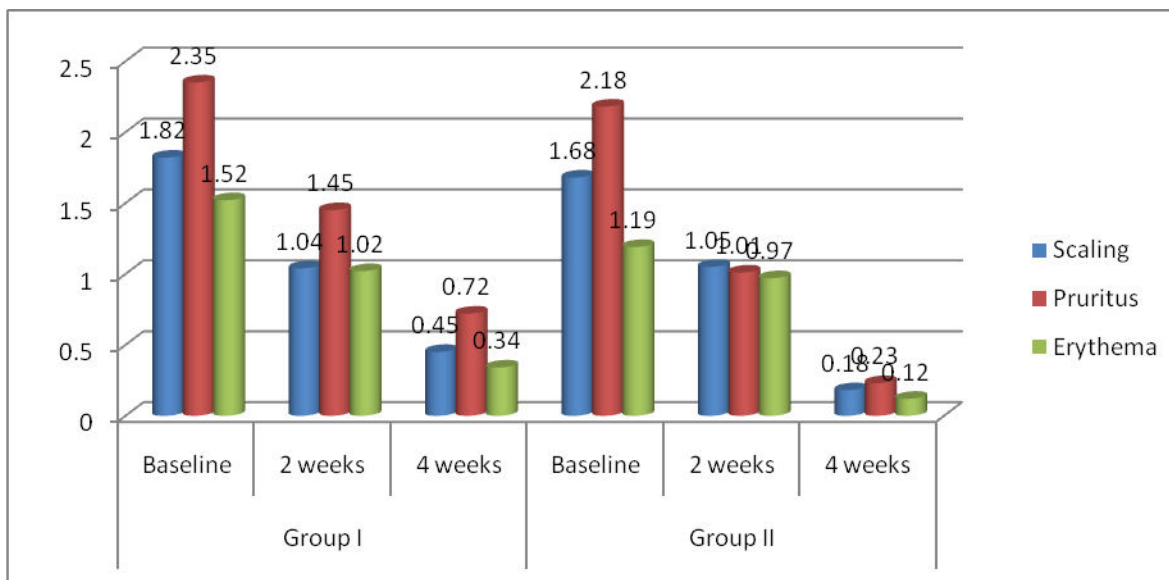
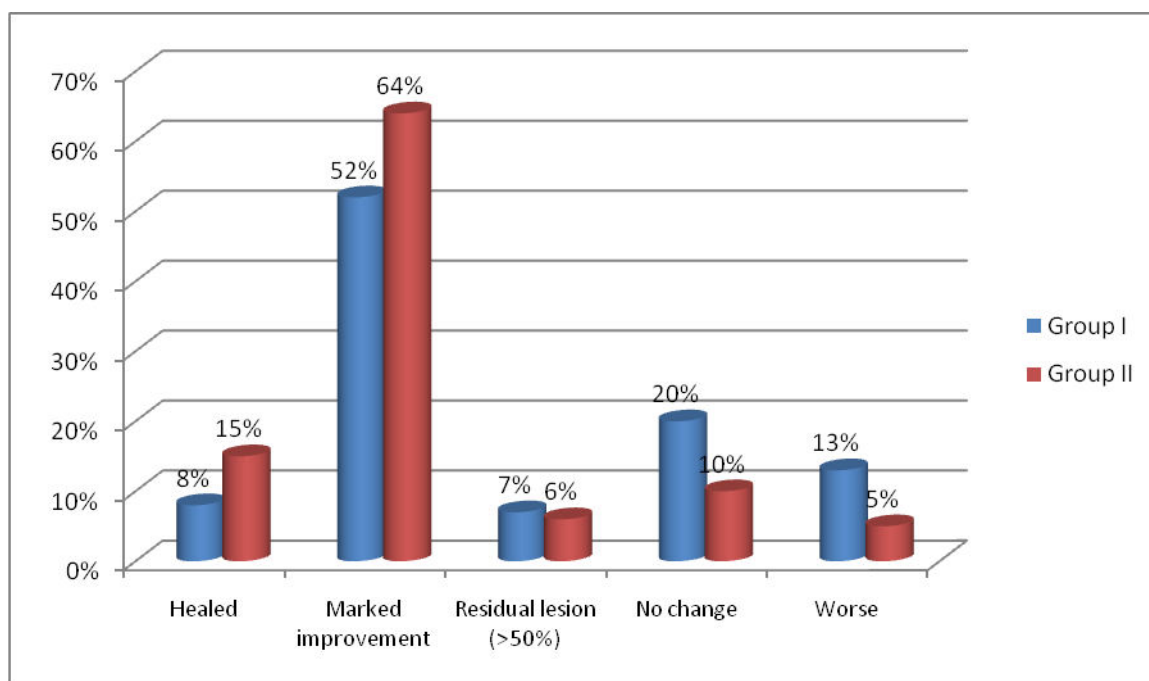


Table III Global clinical evaluation in both groups

Evaluation	Group I	Group II	P value
Healed	8%	15%	0.05
Marked improvement	52%	64%	
Residual lesion (>50%)	7%	6%	
No change	20%	10%	
Worse	13%	5%	

Table III, graph II shows that in group I, 8% and in group II 15% showed complete heal of lesions while 52% in group I and 64% in group II showed marked improvement, 7% in group I and 6% in group II had >50% of residual lesion, 20% in group I and 10% in group II had no change and 13% in group I and 5% in group II had worse lesion. The difference was significant (P< 0.05).

Graph II Global clinical evaluation in both groups



DISCUSSION

Although dermatophytosis is considered to be a trivial disease, the psychological effects of the disease are highly considerable and because of its high morbidity, it is a costly disease in terms of loss of working days and treatment.⁶ Dermatophytes have been recorded all over the world but with variation in distribution, incidence, epidemiology, and target hosts from one location to another.⁷ The prevalence rate of pediatric dermatophyte infection was found to be 19% and was mostly seen in the age group of 10–14 years, with a male-to-female ratio of 1.27:1. Geographic location, climate (temperature, humidity, wind, etc.), overcrowding, health care, immigration, environmental hygiene culture, and socioeconomic conditions have been incriminated as major factors for these variations. The prevalence of dermatophytosis has significantly reduced in many developed nations of the

world compared to the developing ones due to improved social, economic, health care, and hygiene practice factors, evident in the former.⁸ The present study compared Terbinafine and Itraconazole in Dermatophytic infections. In present study, there were 60 patients. Group I received terbinafine 500 mg daily for 4 weeks and group II received itraconazole 200 mg for 4 weeks daily. We found that there was significant improvement in scaling, pruritus and erythema score in both groups recorded at baseline, 2 weeks and 4 weeks (P< 0.05). Shakya et al⁹ in randomized comparative study, patients of tinea cruris and tinea corporis were randomly divided into two groups of 160 each and were given oral terbinafine (Group I) and oral itraconazole (Group II) for 4 weeks. The scores and percentage change in scores of pruritus, scaling, and erythema were evaluated at 2 and 4 weeks. At the end of week 4, mycological cure was seen in 91.8% after 4

weeks in the itraconazole group as compared to 74.3% of patients in the terbinafine group. There was a significant improvement in percentage change in pruritus, scaling, and erythema in both the groups from 0 to 4 weeks. On comparing groups, the percentage change was significantly different in scaling from 0 to 2 weeks (5.4 vs. -4.8) and 2-4 weeks (16.7 vs. 29.6) between Group I and Group II, respectively. Clinical global improvement was better with itraconazole. Mild adverse effects such as gastrointestinal upset, headache, and taste disturbances were observed which were comparable in both the groups.

We found that in group I, 8% and in group II 15% showed complete heal of lesions while 52% in group I and 64% in group II showed marked improvement, 7% in group I and 6% in group II had >50% of residual lesion, 20% in group I and 10% in group II had no change and 13% in group I and 5% in group II had worse lesion.

Widespread resistance to conventional doses of antifungals with increasing clinical failure rates warrants the search for an effective first-line antifungal drug that brings about rapid clinical and mycological cure in tinea corporis and tinea cruris. Terbinafine resistance when given in the standard doses (250 mg once a day for 2 weeks) is being increasingly seen with partial or no response to treatment. Antifungal resistance is due to a decrease in effective drug concentration because of extensive accumulation of terbinafine in the skin and adipose tissue. Hence, higher concentration of terbinafine 500 mg/day has seen found to be more effective.¹⁰

CONCLUSION

Authors found that Itraconazole and terbinafine are equally effective and safe in the treatment of dermatophytes.

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