

## Original Research

### A comparison of different drugs in treatment of Dermatophytic infections

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#### ABSTRACT:

**Background:** Dermatophytic infections are the most common fungal infections affecting 20%–25% population globally. The present study compared different treatment modalities in dermatophytic infections. **Materials & Methods:** 70 patients with dermatophytoses were randomly divided into 2 groups of 35 each. Group I patients were prescribed tab. terbinafine 500 mg daily for 4 weeks and group II received tab. itraconazole 200 mg for 4 weeks daily. Clinical response was noted including pruritus, erythema and scaling. **Results:** Group I had 15 males and 20 females and group II had 18 males and 17 females. Scaling score was 1.86, 1.08 and 0.49 in group I and 1.66, 1.08 and 0.16 in group II at baseline, 2 weeks and 4 weeks respectively. Erythema score found to be 1.54, 1.04 and 0.36 in group I and 1.20, 0.95 and 0.11 in group II, pruritus score was 2.32, 1.42 and 0.74 in group I and 2.14, 1.04 and 0.22 in group II at baseline, 2 weeks and 4 weeks respectively. The difference was significant ( $P < 0.05$ ). **Conclusion:** Authors found that dermatophytes is common infection among both genders. Both itraconazole and terbinafine were effective and safe.

**Key words:** Dermatophytes, Itraconazole, terbinafine.

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#### INTRODUCTION

Dermatophytic infections are the most common fungal infections affecting 20%–25% population globally.<sup>1</sup> The hot and humid climate in India favors dermatophytosis.<sup>2</sup> 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.<sup>3</sup>

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.<sup>4</sup> 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.<sup>5</sup>

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. Because of frequent relapses at short intervals, some physicians have used it in doses of 200 mg once a day for prolonged periods.<sup>6</sup> The present study compared different treatment modalities in dermatophytic infections.

**MATERIALS & METHODS**

The present study was conducted on 70 patients with dermatophytoses of both genders. All patients were informed regarding the study and written consent was obtained.

Demographic profile of patients such as name, age, gender etc. was recorded. A through clinical examination was done. Patients were randomly divided into 2 groups of 35 each. Group I patients were prescribed tab. terbinafine 500 mg daily for 4 weeks

and group II received tab. 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. Global clinical evaluation was performed in both groups. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

**RESULTS**

**Table I Distribution of patients**

Total- 70		
Groups	Group I	Group II
M:F	15:20	18:17

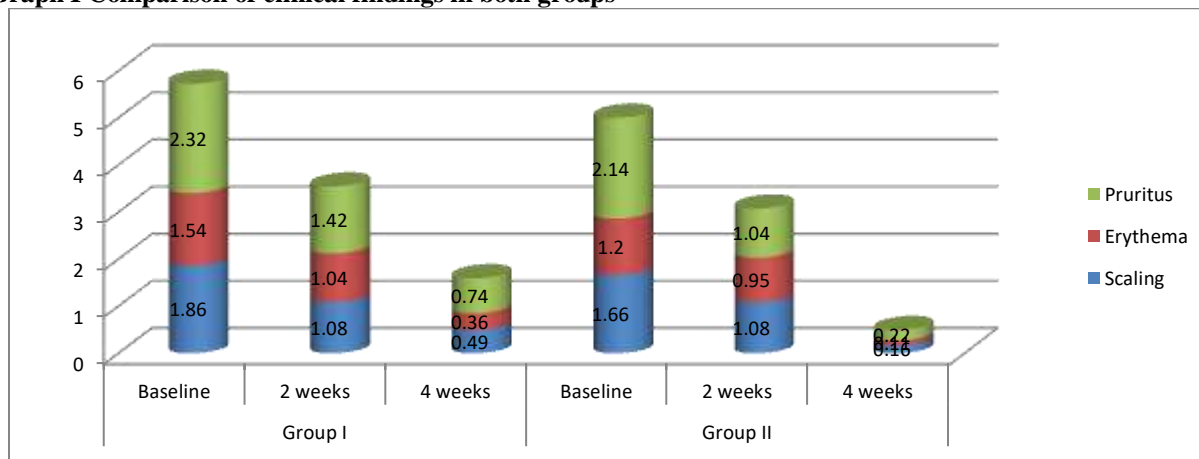
Table I shows that group I had 15 males and 20 females and group II had 18 males and 17 females.

**Table II Comparison of clinical findings in both groups**

Features	Group I			Group II		
	Baseline	2 weeks	4 weeks	Baseline	2 weeks	4 weeks
Scaling	1.86	1.08	0.49	1.66	1.08	0.16
Erythema	1.54	1.04	0.36	1.20	0.95	0.11
Pruritus	2.32	1.42	0.74	2.14	1.04	0.22

Table II, graph I shows that scaling score was 1.86, 1.08 and 0.49 in group I and 1.66, 1.08 and 0.16 in group II at baseline, 2 weeks and 4 weeks respectively. Erythema score found to be 1.54, 1.04 and 0.36 in group I and 1.20, 0.95 and 0.11 in group II, pruritis score was 2.32, 1.42 and 0.74 in group I and 2.14, 1.04 and 0.22 in group II at baseline, 2 weeks and 4 weeks respectively. The difference was significant (P< 0.05).

**Graph I Comparison of clinical findings in both groups**



**Table III Comparison of global clinical evaluation in both groups**

Evaluation	Group I	Group II	P value
Healed	10%	18%	0.05
Marked improvement	54%	70%	
Residual lesion (>50%)	5%	4%	
No change	16%	5%	
Worse	15%	3%	

Table III, graph II shows that complete healing was seen in 10% in group I and 18% in group II, marked improvement in 54% and 70% in group I and II, residual lesion in 5% and 4%, no change in 16% and 5% and worse lesions in 15% and 3% in group I and II respectively. The difference was significant ( $P < 0.05$ ).

## DISCUSSION

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.<sup>7</sup> Dermatophytes are moulds belonging to the three genera of fungi imperfecti (1) *Microsporum*, (2) *Trichophyton*, and (3) *Epidermophyton*.<sup>3</sup> 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.<sup>8</sup>

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.<sup>9</sup> 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 been found to be more effective.<sup>10</sup> The present study compared different treatment modalities in dermatophytic infections.

In present study, group I had 15 males and 20 females and group II had 18 males and 17 females.

Shakya et al<sup>11</sup> 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 scaling score was 1.86, 1.08 and 0.49 in group I and 1.66, 1.08 and 0.16 in group II at baseline, 2 weeks and 4 weeks respectively. Erythema score found to be 1.54, 1.04 and 0.36 in group I and 1.20, 0.95 and 0.11 in group II, pruritus score was 2.32, 1.42 and 0.74 in group I and 2.14, 1.04 and 0.22 in group II at baseline, 2 weeks and 4 weeks respectively. Bhatia et al<sup>12</sup> in their 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.

## CONCLUSION

Authors found that dermatophytes is common infection among both genders. Both itraconazole and terbinafine were effective and safe.

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