

Original Research

Assessment of efficacy of luliconazole cream in management of tinea corporis and tinea cruris infections

Anna Javed¹, Vijay Khajuria², Vishal R. Tandon³, Rajesh Sharma⁴

¹Department of Pharmacology, Govt. Medical College, Jammu, India;

²Professor, Department of Pharmacology, Govt. Medical College, Jammu, India;

³Associate Professor, Department of Pharmacology, Govt. Medical College, Jammu, India;

⁴Assistant Professor, Department of Dermatology, SMGS Hospital, Jammu, India

ABSTRACT:

Background: Tinea is superficial fungal infections typically caused by dermatophytes. The present study was conducted to assess role of Luliconazole in management of tinea corporis and tinea cruris infections. **Materials & Methods:** The present study was conducted on 80 patients with Dermatophytoses involving tinea corporis and tinea cruris infections. A through clinical examination was done. Patients were instructed to apply luliconazole 1% cream once daily for two weeks. At the end of treatment phase, there was a 'Follow-up Phase' at end of two weeks, where the patients were assessed clinically and mycologically for relapse. **Results:** Out of 80 cases, males were 54 and females were 26. At baseline, severity was severe in 56, moderate in 14 and mild in 10. At the end of treatment, 65 patients had none severity and 15 had mild. **Conclusion:** Authors found that 1% luliconazole cream is effective in management of tinea corporis and tinea cruris infections.

Key words: Tinea corporis, Tinea cruris, Luliconazole

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Corresponding Author: Dr. Anna Javed, Department of Pharmacology, Govt. Medical College, Jammu, India

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INTRODUCTION

Tinea are superficial fungal infections typically caused by dermatophytes. Common pathogens include *Trichophyton rubrum*, *Trichophyton mentagrophytes*, and *Epidermophyton floccosum*.¹ Superficial fungal infections are widespread, with an estimated worldwide prevalence of 20%–25%, and include tinea pedis (athlete's foot), tinea cruris (jock itch), and tinea corporis (ringworm), among others. Tinea of the skin presents clinically as well-demarcated, scaling, and inflamed lesions, which are often accompanied by an itching or burning sensation. In the case of tinea pedis, maceration and vesiculation may also be present.² Potassium hydroxide (KOH) microscopy, fungal culture, or examination under a Wood's lamp can confirm the diagnosis of cutaneous

dermatophyte infections. Some cases can be chronic and may lead to more extensive dermatophytosis if left untreated. Most mild-to-moderate tinea infections can be treated with topical antifungals, while oral agents are usually reserved for severe or recalcitrant cases.³

Luliconazole, also known as NND-502, is an imidazole anti-fungal first synthesized by Nihon Nohyaku Co Ltd. It has a unique structure as the imidazole moiety is incorporated into the ketene dithioacetate structure.⁴ It is an optically related compound of Ianoconazole, with a 2,4-dichlorophenyl group on the ketene dithioacetal structure. Luliconazole is an imidazole antifungal agent with a unique structure, as the imidazole moiety is incorporated into the ketene dithioacetate structure. Luliconazole is the R-enantiomer, and has more potent antifungal activity than

lanoconazole, which is a racemic mixture.⁵ The present study was conducted to assess role of Luliconazole in management of tinea corporis and tinea cruris infections.

MATERIALS & METHODS

The present study was conducted on 80 patients with Dermatophytoses involving tinea corporis and tinea cruris infections. 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 instructed to apply luliconazole 1% cream once daily for two weeks. At the end of treatment phase, there was a ‘Follow-up Phase’ at end of two weeks, where the patients were assessed clinically and mycologically for relapse. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 80		
Gender	Males	Females
Number	54	26

Table I shows that out of 80 cases, males were 54 and females were 26.

Graph I Distribution of patients

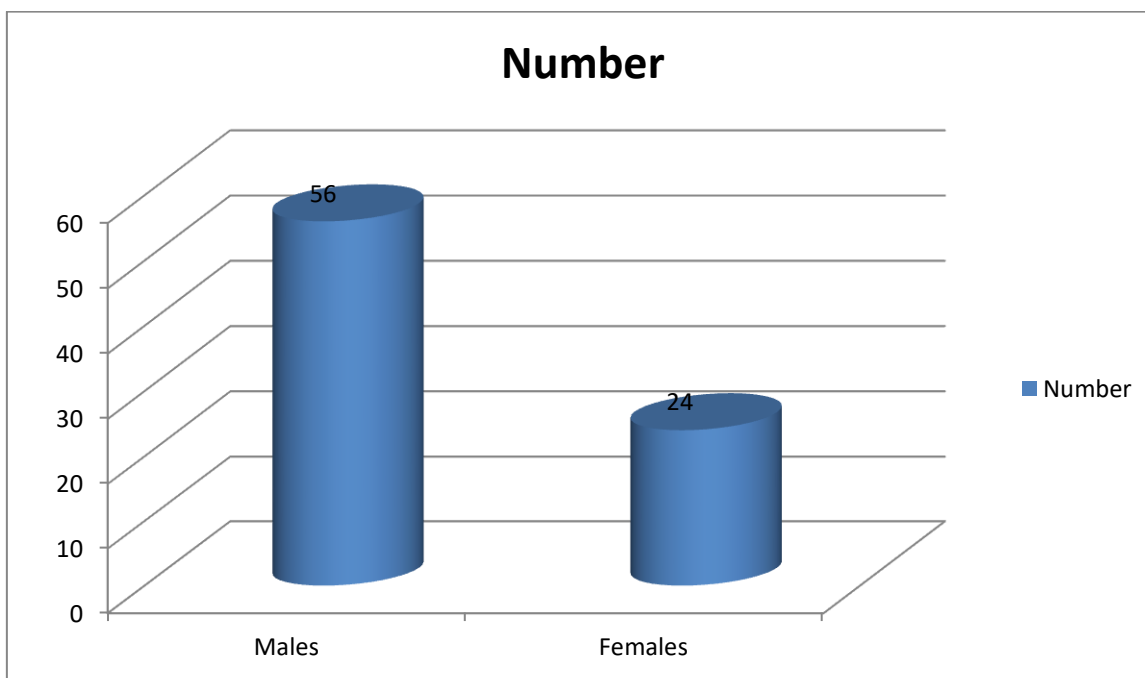
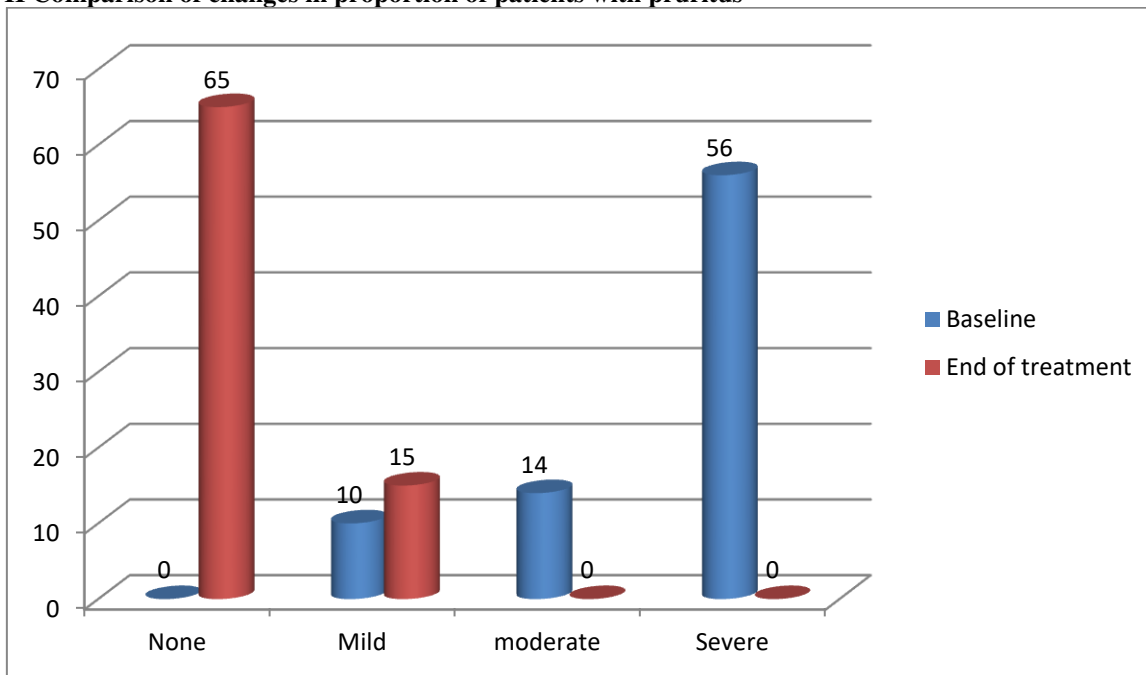


Table II Comparison of changes in proportion of patients with pruritus

Severity	Baseline	End of treatment	P value
None	0	65	0.01
Mild	10	15	
moderate	14	0	
Severe	56	0	

Table II, graph II shows that at baseline, severity was severe in 56, moderate in 14 and mild in 10. At the end of treatment, 65 patients had none severity and 15 had mild.

Graph II Comparison of changes in proportion of patients with pruritus



DISCUSSION

Dermatophytes are the most common agents of superficial fungal infections worldwide and widespread in the developing countries, especially in the tropical and subtropical countries like India, where the environmental temperature and relative humidity are high.⁶ Other factors such as increased urbanization including the use of occlusive footwear and tight fashioned clothes, has been linked to higher prevalence. Over the last few years, studies on epidemiology of dermatophytic infection from different part of India have shown a rising trend in the prevalence of cutaneous dermatophytosis with change in spectrum of infection and isolation of some uncommon species.⁷

Tinea corporis is a superficial dermatophyte infection characterized by either inflammatory or non-inflammatory lesions on the glabrous skin (ie, skin regions other than the scalp, groin, palms, and soles).⁸ Three anamorphic (asexual or imperfect) genera cause dermatophytoses: Trichophyton, Microsporum, and Epidermophyton. Dermatophytes may infect humans (anthropophilic) or nonhuman mammals (zoophilic), or they may reside primarily in the soil (geophilic). Typically, the lesion begins as an erythematous, scaly plaque that may rapidly worsen.⁸ The present study was conducted to assess role of Luliconazole in management of tinea corporis.

In present study, out of 80 cases, males were 54 and females were 26. Watanabe et al⁹ conducted a study on 83 patients with tinea corporis and tinea cruris infections. The initial ‘Treatment Phase’ involved three groups receiving either sertaconazole 2% cream applied topically twice daily for four weeks, terbinafine 1% cream once daily for two weeks, luliconazole 1% cream once daily for two weeks. At

the end of treatment phase, there was a ‘Follow-up Phase’ at end of 2 weeks, where the patients were assessed clinically and mycologically for relapse. Of the 83 patients, 62 completed the study, sertaconazole (n = 20), terbinafine (n = 22) and luliconazole (n = 20). The primary efficacy variables including change in pruritus, erythema, vesicle, desquamation and mycological cure were significantly improved in all the three groups, as compared to baseline, in the Treatment and Follow-up phase. Greater proportion of patients in sertaconazole group (85%) showed resolution of pruritus as compared to terbinafine (54.6%); and luliconazole (70%), (P < 0.05 sertaconazole vs terbinafine). There was a greater reduction in mean total composite score (pruritus, erythema, vesicle and desquamation) in sertaconazole group (97.1%) as compared to terbinafine (91.2%) and luliconazole (92.9%). All groups showed equal negative mycological assessment without any relapses. All three study drugs were well tolerated. Only one patient in sertaconazole group withdrew from the study due to suspected allergic contact dermatitis.

We found that at baseline, severity was severe in 56, moderate in 14 and mild in 10. At the end of treatment, 65 patients had none severity and 15 had mild. Dermatophytoses is one of the most earliest known fungal infections and affects the quality of life of patients due to the concomitant inflammatory symptoms involving pruritus. Recurrence of tinea infections is common due to inadequate treatment or reinfections especially of the intertriginous areas.

Khanna et al¹⁰ were investigated the pharmacokinetics of luliconazole 1% cream in 12 participants with moderate to severe tinea pedis and eight participants with moderate to

severe tinea cruris. The participants applied luliconazole 1% cream once daily for 15 days. Luliconazole plasma concentrations were measurable in all participants on day 15 and varied little within the 24-hour interval. The mean \pm standard deviation of the maximum concentration was 0.40 ± 0.76 ng/mL and 4.91 ± 2.51 ng/mL after the first dose, and 0.93 ± 1.23 ng/mL and 7.36 ± 2.66 ng/mL after the final dose in the participants with tinea pedis and tinea cruris, respectively.

CONCLUSION

Authors found that 1% luliconazole cream is effective in management of tinea corporis and tinea cruris infections.

REFERENCES

1. Moriarty B, Hay R, Morris-Jones R. The diagnosis and management of tinea. *BMJ*. 2012;345:e4380.
2. Havlickova B, Czaika VA, Friedrich M. Epidemiological trends in skin mycoses worldwide. *Mycoses*. 2008;51 Suppl 4:2–15.
3. Hainer BL. Dermatophyte infections. *Am Fam Physician*. 2003;67: 101–108.
4. Ilkit M, Durdu M. Tinea pedis: The etiology and global epidemiology of a common fungal infection. *Crit Rev Microbiol*. 2015;41(3):374–388.
5. Niwano Y, Kuzuhara N, Kodama H, Yoshida M, Miyazaki T, Yamaguchi H. In vitro and in vivo antidermatophyte activities of NND-502, a novel optically active imidazole antimycotic agent. *Antimicrob Agents Chemother*. 1998;42:967–970.
6. Gupta AK, Sauder DN, Shear NH. Antifungal agents: an overview. Part I. *J Am Acad Dermatol*. 1994;30(5 Pt 1):677–698; quiz 698–700.
7. Borgers M. Mechanism of action of antifungal drugs, with special reference to the imidazole derivatives. *Rev Infect Dis*. 1980;2:520–534.
8. McClellan KJ, Wiseman LR, Markham A. Terbinafine. An update of its use in superficial mycoses. *Drugs*. 1999;58(1):179–202.
9. Watanabe S, Takahashi H, Nishikawa T, et al. A comparative clinical study between 2 weeks of luliconazole 1% cream treatment and 4 weeks of bifonazole 1% cream treatment for tinea pedis. *Mycoses*. 2006;49(3):236–241.
10. Khanna D, Bharti S. Luliconazole for the treatment of fungal infections: an evidence-based review. *Core Evid*. 2014;9:113–124.