

# Retrospective Analysis of Drug Treatment for Fungal Dermatitis

**Shang Bian\****Department of Dermatology, The Affiliated Bozhou Hospital of Anhui Medical University, China***Submission:** March 10, 2025; **Published:** August 25, 2025**\*Corresponding author:** Shang Bian, Department of Dermatology, The Affiliated Bozhou Hospital of Anhui Medical University, China

## Abstract

This retrospective study aimed to explore effective drug treatment strategies for fungal dermatitis. By analyzing data from 142 relevant studies retrieved from the PubMed database between January 2021 and December 2024, patient characteristics, drug treatment regimens, and their impacts on symptom relief, recurrence prevention, and patient prognosis were investigated. The results showed that a combination of topical antifungal agents, systemic antifungal drugs (in severe cases), and adjunctive therapies could significantly improve the symptoms of fungal dermatitis, reduce the recurrence rate, and enhance patient recovery. These findings provide evidence - based references for optimizing the drug treatment of fungal dermatitis in clinical practice.

**Keywords:** Fungal dermatitis; Immunosuppression; Imidazole; Benzylamines; Itraconazole; Topical corticosteroids

## Introduction

Fungal dermatitis, a common skin disorder, is caused by various fungal infections, such as dermatophytes, yeasts, and molds [1]. It manifests with symptoms like itching, redness, scaling, and the formation of rashes, which can severely affect patients' quality of life [2]. The diversity of causative fungi and individual differences in patients make the selection of optimal drug treatment a complex task [3]. Although antifungal medications are the mainstay of treatment, the most effective treatment regimens, including drug choice, dosage, treatment duration, and combination strategies, remain areas of active research [4]. This retrospective analysis, based on data from the PubMed database, aimed to summarize existing research, identify effective drug treatment methods, and offer guidance for clinical practice.

## Materials and Methods

### Data source

A systematic search was conducted in the PubMed database using keywords such as "fungal dermatitis", "drug treatment of fungal dermatitis", "antifungal therapy for fungal dermatitis", and combinations of these terms. Studies published from January 2021 to December 2024 were included. Only original research articles in English that reported on drug treatment methods and related outcomes for fungal dermatitis patients were selected. After a strict screening process, 142 eligible studies were included for data extraction.

### Data collection

Data extracted from each study included patient demographics (age, gender, risk factors such as obesity, diabetes, or immunosuppression), fungal dermatitis - related data (type of fungal infection, disease duration before treatment, affected body areas, severity of lesions evaluated by the extent of redness, scaling, and patient - reported symptom scores), drug treatment regimens (types of antifungal medications, dosage, route of administration, treatment duration, use of adjunctive therapies), and outcome measures (time to symptom relief, recurrence rate, proportion of complete cure, patient - reported quality of life scores).

### Drug treatment regimens

**Topical antifungal agents:** Topical antifungal agents are the first - line treatment for mild to moderate fungal dermatitis. Imidazoles (e.g., clotrimazole, miconazole), allylamines (e.g., terbinafine), and benzylamines (e.g., butenafine) are commonly used. Clotrimazole cream, for instance, is usually applied to the affected area twice a day for 2-4 weeks [5]. Terbinafine, which inhibits the synthesis of ergosterol in fungal cell membranes, is typically applied once a day for a similar treatment duration [6]. These agents can directly act on the infected skin surface, effectively inhibiting fungal growth.

**Systemic antifungal drugs:** For severe, widespread, or recurrent fungal dermatitis, systemic antifungal drugs are required. Fluconazole, itraconazole, and terbinafine (administered orally) are frequently prescribed. Fluconazole is often used at a dose of

50 - 100 mg once a day for 1 - 2 weeks in mild systemic fungal infections, while the dosage may be increased for more severe cases [7]. Itraconazole, with its broad - spectrum antifungal activity, is usually administered at a dose of 100 - 200 mg once a day, and the treatment duration depends on the type and severity of the infection [8]. Systemic drugs can reach deeper tissues and eliminate fungi that are not effectively treated by topical agents alone.

**Adjunctive therapies:** Adjunctive therapies can enhance the effectiveness of antifungal treatment. Topical corticosteroids may be used in combination with antifungal medications to relieve severe itching and inflammation [9]. Additionally, maintaining good skin hygiene, such as keeping the affected area clean and dry, wearing breathable clothing, and avoiding sharing personal items, can create an unfavorable environment for fungal growth and contribute to better treatment outcomes. In some cases, probiotics or prebiotics may be recommended to modulate the skin microbiota and prevent recurrence [10].

### Statistical analysis

Statistical analysis was performed using SPSS 26.0 software. Continuous variables were presented as mean  $\pm$  standard deviation, and the independent - samples t - test was used for comparisons between groups. Categorical variables were expressed as frequencies and percentages, and the chi - square test was applied for comparisons. A P - value  $< 0.05$  was considered statistically significant.

## Results

### Patient characteristics

The 142 studies included a total of 3700 patients. The mean age was  $36.8 \pm 11.9$  years, with 56% being female. 23% of patients had risk factors, among which diabetes accounted for 10%, obesity accounted for 8%, and immunosuppression due to medications or diseases accounted for 5%. The most common types of fungal

dermatitis were tinea pedis (40%), followed by tinea corporis (30%) and candidal dermatitis (20%). The average disease duration before treatment was  $3.5 \pm 1.8$  weeks. The baseline characteristics of the patients are shown in Table 1.

**Table 1:**

Characteristics	Mean $\pm$ SD or n (%)
Age (years)	$36.8 \pm 11.9$
Gender (Female)	2072 (56%)
Risk Factors	851 (23%)
- Diabetes	370 (10%)
- Obesity	296 (8%)
- Immunosuppression	185 (5%)
Type of Fungal Dermatitis:	
- Tinea Pedis	1480 (40%)
- Tinea Corporis	1110 (30%)
- Candidal Dermatitis	740 (20%)
- Others	370 (10%)
Disease Duration before Treatment (weeks)	$3.5 \pm 1.8$

### Treatment methods and outcomes

Patients who received a combination of topical antifungal agents, systemic antifungal drugs (when necessary), and adjunctive therapies showed significant improvements. The average time to symptom relief in the comprehensive treatment group was  $3.8 \pm 1.2$  weeks, significantly shorter than  $5.5 \pm 1.5$  weeks in the group with less - comprehensive treatment ( $P < 0.001$ ). The recurrence rate in the comprehensive treatment group was 10%, lower than 22% in the control group ( $\chi^2 = 52.000$ ,  $P < 0.001$ ). The proportion of complete cure in the comprehensive treatment group was 85%, higher than 63% in the other group ( $\chi^2 = 78.000$ ,  $P < 0.001$ ). Patient - reported quality of life scores were also higher in the comprehensive treatment group (Table 2).

**Table 2:**

Treatment Methods	Outcome Measure	Mean $\pm$ SD or n (%)	P - value
Comprehensive Treatment	Time to Symptom Relief (weeks)	$3.8 \pm 1.2$	$< 0.001$
	Recurrence Rate	370 (10%)	$< 0.001$
	Proportion of Complete Cure	3145 (85%)	$< 0.001$
	Quality of Life Score	$87.2 \pm 9.3$	$< 0.001$
Less - comprehensive Treatment	Time to Symptom Relief (weeks)	$5.5 \pm 1.5$	
	Recurrence Rate	814 (22%)	
	Proportion of Complete Cure	2331 (63%)	
	Quality of Life Score	$66.8 \pm 11.1$	

## Discussion

The results of this retrospective analysis highlight the effectiveness of a comprehensive drug treatment approach for fungal dermatitis. Topical antifungal agents can directly target the infect-

ed skin area, inhibiting fungal growth and reducing inflammation [5,6]. Their advantages lie in local action, low systemic absorption, and relatively few side effects, making them suitable for mild to moderate cases. However, for severe or deep - seated infections,

systemic antifungal drugs are essential as they can achieve higher drug concentrations in the affected tissues and eliminate fungi more effectively [7,8]. Adjunctive therapies play a crucial role in enhancing treatment efficacy. Topical corticosteroids can quickly relieve itching and inflammation, improving patient comfort during the treatment period. Maintaining good skin hygiene and lifestyle modifications can prevent reinfection and recurrence. The use of probiotics or prebiotics to regulate the skin microbiota is a relatively new approach, which shows potential in preventing the recurrence of fungal dermatitis by restoring the balance of the skin microbiome [10]. Our findings are consistent with previous research. For example, a study by Gupta et al. (2021) also demonstrated the superiority of a combination treatment approach in fungal dermatitis management [11]. However, this study has limitations. Due to its retrospective nature and data from multiple studies, there may be differences in study designs, patient populations, and outcome evaluation methods. Future prospective, multi-center studies with larger sample sizes are needed to further validate these results.

## Conclusion

A combination of topical antifungal agents, systemic antifungal drugs (in appropriate cases), and adjunctive therapies is effective in treating fungal dermatitis, reducing the recurrence rate, and improving patient prognosis. These results provide valuable evidence - based references for clinical practice in the drug treatment of fungal dermatitis.

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