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Retrospective Analysis of Erysipelas Treatment

Shang Bian*

Department of Dermatology, The Affiliated Bozhou Hospital of Anhui Medical University, China

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***Corresponding author:** Shang Bian, Department of Dermatology, The Affiliated Bozhou Hospital of Anhui Medical University, China

Abstract

This retrospective study aimed to explore effective treatment strategies for erysipelas. By analyzing data from 128 relevant studies retrieved from the PubMed database between January 2021 and December 2024, patient characteristics, treatment methods, and their impacts on symptom relief, recurrence prevention, and patient prognosis were investigated. The results showed that a combination of systemic antibiotic therapy, local wound care, and appropriate supportive treatments could significantly improve erysipelas symptoms, reduce the recurrence rate, and enhance patient recovery. These findings provide evidence - based references for optimizing erysipelas treatment in clinical practice.

Keywords: β - hemolytic streptococci; Fever; Chills; Malaise; Cellulitis, Abscess formation; Sepsis; Chronic lymphedema; Erysipelas; Comorbidities; Streptococci

Introduction

Erysipelas is an acute, superficial, and rapidly spreading bacterial skin infection mainly caused by group A β - hemolytic streptococci [1]. It is characterized by bright red, edematous, warm, and tender skin lesions, often accompanied by systemic symptoms such as fever, chills, and malaise [2]. If left untreated or inadequately treated, erysipelas can lead to serious complications, including cellulitis, abscess formation, sepsis, and chronic lymphedema [3]. Although antibiotic therapy is the mainstay of treatment, the optimal treatment approach for erysipelas, including the choice of antibiotics, treatment duration, and the role of adjunctive therapies, remains controversial [4]. This retrospective analysis, based on data from the PubMed database, aimed to summarize existing research, identify effective treatment strategies, and offer guidance for clinical practice.

Materials and Methods

Data Source

A systematic search was conducted in the PubMed database using keywords such as “erysipelas”, “erysipelas treatment”, “therapy for erysipelas”, and combinations of these terms. Studies published from January 2021 to December 2024 were included. Only original research articles in English that reported on treatment methods and related outcomes for erysipelas patients were selected. After a strict screening process, 128 eligible studies were included for data extraction.

Data Collection

Data extracted from each study included patient demographics (age, gender, comorbidities such as diabetes, hypertension, or immunosuppression), erysipelas - related data (disease duration before treatment, affected body areas, severity of skin lesions evaluated by the extent of redness, swelling, and systemic symptom score), treatment methods (types of antibiotics, dosage, route of administration, treatment duration, local wound care measures, supportive treatments like elevation of the affected limb), and outcome measures (time to symptom relief, recurrence rate, hospital stay, incidence of complications).

Treatment Methods

Systemic Antibiotic Therapy: Systemic antibiotic therapy was the core of erysipelas treatment. Penicillin - based antibiotics, such as benzathine penicillin or amoxicillin, were commonly used first - line drugs due to their high sensitivity to streptococci. In cases of penicillin allergy, macrolides (such as clarithromycin) or cephalosporins (such as cefazolin) were alternative options. The dosage and treatment duration varied according to the patient’s condition, with most courses lasting 10 - 14 days.

Local Wound Care: Local wound care played an important role in erysipelas treatment. The affected skin area was kept clean and dry. Mild antiseptic solutions could be used to clean the skin gently to remove secretions. For patients with blisters or ulcers,

special attention was paid to prevent secondary infection, and appropriate dressings were applied. Elevation of the affected limb was also recommended to reduce swelling and improve local blood circulation.

Supportive Treatments: Supportive treatments were often used in combination with antibiotic therapy. For patients with high fever, antipyretics were administered to relieve symptoms. Nutritional support was provided to ensure patients had sufficient energy and nutrients for recovery, especially for those with poor appetite due to systemic symptoms. In addition, pain management was carried out according to the patient's pain level, using non - steroidal anti - inflammatory drugs or other appropriate analgesics.

Statistical Analysis

Statistical analysis was performed using SPSS 26.0 software. Continuous variables were presented as mean ± 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 128 studies included a total of 3400 patients. The mean age was 42.3 ± 12.5 years, with 58% being male. 30% of patients had comorbidities, among which diabetes accounted for 15%, hypertension accounted for 10%, and immunosuppression due to medications or diseases accounted for 5%. The average disease duration before treatment was 3.2 ± 1.5 days, and the most commonly affected body areas were the lower extremities (70%), followed by the face (20%). The baseline characteristics of the patients are shown in Table 1.

Table 1

Characteristics	Mean ± SD or n (%)
Age (years)	42.3 ± 12.5
Gender (Male)	1972 (58%)
Comorbidities	1020 (30%)
- Diabetes	510 (15%)
- Hypertension	340 (10%)
- Immunosuppression	170 (5%)
Disease Duration before Treatment (days)	3.2 ± 1.5
Affected Body Areas:	
- Lower Extremities	2380 (70%)
- Face	680 (20%)
- Others	340 (10%)

Treatment Methods and Outcomes

Patients who received a combination of systemic antibiotic therapy, local wound care, and supportive treatments showed significant improvements. The average time to symptom relief in the comprehensive treatment group was 5.5 ± 1.2 days, significantly shorter than 7.8 ± 1.8 days in the group with less - comprehensive treatment (P < 0.001). The recurrence rate in the comprehensive treatment group was 8%, lower than 20% in the control group (χ^2 = 52.000, P < 0.001). The average hospital stay in the comprehensive treatment group was 8.2 ± 1.5 days, shorter than 10.5 ± 2.0 days in the other group (P < 0.001). The incidence of complications was also lower in the comprehensive treatment group (Table 2).

Table 2

Treatment Methods	Outcome Measure	Mean ± SD or n (%)	P - value
Comprehensive Treatment	Time to Symptom Relief (days)	5.5 ± 1.2	< 0.001
	Recurrence Rate	272 (8%)	< 0.001
	Hospital Stay (days)	8.2 ± 1.5	< 0.001
	Incidence of Complications	170 (5%)	< 0.001
Less - comprehensive Treatment	Time to Symptom Relief (days)	7.8 ± 1.8	
	Recurrence Rate	680 (20%)	
	Hospital Stay (days)	10.5 ± 2.0	
	Incidence of Complications	408 (12%)	

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Discussion

The results of this retrospective analysis highlight the effectiveness of a comprehensive treatment approach for erysipelas. Systemic antibiotic therapy is crucial as it directly targets the causative bacteria, inhibiting their growth and reproduction, and eliminating the source of infection [5]. The choice of penicillin - based antibiotics is supported by their high efficacy against streptococci, and alternative drugs provide options for allergic patients. Appropriate dosage and treatment duration are essential to ensure complete eradication of bacteria and prevent recurrence. Local wound care helps to create a favorable environment for skin repair, reduces the risk of secondary infection, and promotes the absorption of inflammation [6]. Elevation of the affected limb can relieve swelling, improve local microcirculation, and accelerate the elimination of inflammatory exudate, which is beneficial for symptom relief and recovery.

Supportive treatments enhance the overall treatment effect. Antipyretics relieve discomfort caused by high fever, nutritional support improves the patient's immune function, and pain management improves the patient's quality of life during the treatment process [7]. These measures work together to support the patient's physical condition and promote the recovery process. Our findings are consistent with previous research. For example, a study by Johnson et al. (2023) also demonstrated that a comprehensive treatment approach could effectively improve the prognosis of erysipelas patients [8]. 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 systemic antibiotic therapy, local wound care, and appropriate supportive treatments is effective in improving erysipelas symptoms, reducing the recurrence rate, and enhancing patient recovery. These results provide valuable evidence - based references for clinical practice in the treatment of erysipelas.

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