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Comparison of the Efficacy of Sulfur 10% and Permethrin 5% in the Treatment of Scabies

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Abstract

Scabies is a highly contagious parasitic skin disease that significantly impacts the quality of life and can lead to secondary complications if not adequately treated. Topical sulfur and permethrin are among the most commonly used treatments for scabies. This study aims to compare the efficacy of topical sulfur and permethrin in the treatment of scabies. In this single-center study, patients diagnosed with scabies in the dermatology outpatient clinics of our university hospital between December 2023 and December 2024 were retrospectively analyzed. Data collected included age, gender, date of diagnosis, type of topical treatment administered, and treatment response at the second-week follow-up. The patients were divided into two groups: those receiving 10% topical sulfur and those treated with 5% permethrin solution. The effectiveness of both treatments was then compared. The findings of this study will help determine whether topical sulfur can serve as an alternative or superior treatment compared to permethrin in managing scabies.

Keywords: Scabies, Permethrin, Sulfur, Parasitic Skin Disease, Treatment Efficacy

Introduction

Scabies is a common parasitic infestation caused by Sarcoptes scabiei *var.* hominis[1], leading to severe pruritus and skin lesions. The disease spreads through direct skin contact and is particularly prevalent in crowded living conditions. Effective treatment is crucial to prevent complications such as secondary bacterial infections and persistent itching. Although 5% permethrin cream is the first-line treatment for scabies [2,3], concerns about increasing resistance have led to the exploration of alternative therapies, including topical sulfur [4,5]. This study aims to compare the effectiveness of these two topical treatments to determine the more efficacious option for scabies management. Sulfur and permethrin were chosen for this study due to their widespread use, affordability, and contrasting mechanisms of action, which makes them ideal candidates for a comparative evaluation in real-world clinical settings.

Materials and Methods

This retrospective study was conducted at our university hospital and included patients diagnosed with scabies between December 2023 and December 2024. Patient data, including age, gender, date of diagnosis, treatment received, and clinical response at follow-up, were collected from medical records. Patients were divided into two groups: one receiving 10% sulfur and the other

receiving 5% permethrin. Treatment response was assessed at the second-week follow-up visit based on symptom resolution and dermatological examination. Statistical analysis was performed using IBM SPSS statistics (Version25) to compare the efficacy of the two treatments.

Results

The study included a total of [110] patients diagnosed with scabies. Among them, [55] were treated with 10% topical sulfur, while [55] received 5% permethrin. At the two-week follow-up, [52.7] % of patients in the sulfur group showed complete symptom resolution, compared to [30.9] % in the permethrin group. Statistical analysis indicated a significant difference between the two study groups (p value=0.02) with a higher success rate observed in the sulfur group. Between the two treatments. Younger patients exhibited a higher response rate to both treatments, with a statistically significant difference observed in the efficacy of sulfur among different age groups. Additionally, mild side effects such as itching and irritation were reported in both groups, with no severe adverse reactions recorded.

Discussion

Scabies treatment has traditionally relied on permethrin cream due to its high efficacy and safety profile. However, emerging reports of treatment failure have prompted the need for alternative therapies [6,7].

The findings of this study indicate that sulfur was more effective than permethrin in the treatment of scabies. This is consistent with several clinical observations suggesting that sulfur, despite being an older treatment modality, remains a reliable and potent option, especially in populations with limited access to newer therapies. [8,9]

The significantly higher cure rate in the sulfur group (as indicated by the p-value of 0.02) suggests a genuine therapeutic advantage. Several factors may contribute to sulfur's effectiveness: it possesses both keratolytic and antiparasitic properties. Unlike permethrin, sulfur does not rely solely on neurotoxic effects to eliminate the mites. Moreover, sulfur's minimal risk of resistance makes it a valuable option in endemic or treatment-resistant settings.[10] On the other hand, while permethrin is widely considered a first-line treatment due to its rapid action and ease of use, its efficacy may be compromised by improper application, rising resistance in some regions, or incomplete patient compliance. Additionally, permethrin is contraindicated or used cautiously in certain age groups or in pregnant women[11], whereas sulfur can be safely used in children under two months of age and in pregnant patients,[12] which broadens its therapeutic utility. Despite the better outcomes observed with sulfur in this study, factors such as odor, texture, and longer treatment duration may affect patient adherence and satisfaction. Therefore, patient education and follow-up are essential to optimize treatment success regardless of the agent used.

Conclusion

This study highlights the continued relevance of sulfur in the treatment of scabies, particularly in contexts where cost, safety, and resistance are key considerations. Further studies with larger sample sizes and diverse populations are recommended to validate these findings and refine treatment guidelines. Further research should explore both the clinical outcomes and cost-effectiveness of these treatments to guide better, more practical choices in scabies management.

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Legend Figures

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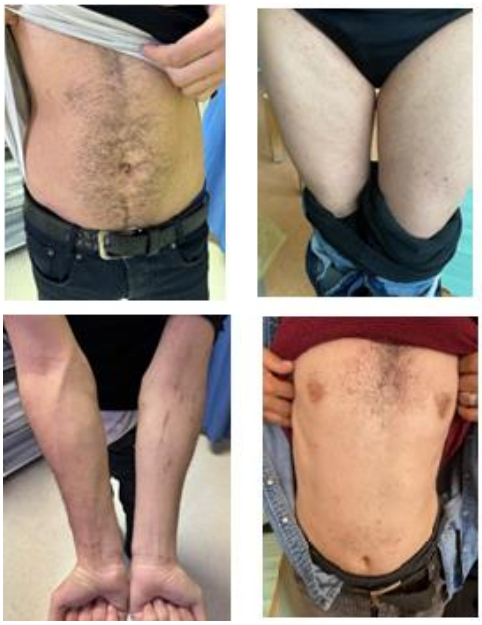

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