Annals of
Reviews and Research

Juniper Publishers
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Research Article
Volume 13 Issue 4 - August 2025
DOI: 10.19080/ARR.2025.13.555869

Ann Rev Resear
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Retrospective Analysis of Treatment for Macules

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Submission: March 10, 2025; **Published:** August 06, 2025

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Abstract

This retrospective study aimed to explore effective treatment strategies for macules by analyzing data from 118 relevant studies retrieved from the PubMed database between January 2021 and December 2024. Patient characteristics, treatment modalities, and their impacts on symptom relief, recurrence prevention, and patient prognosis were investigated. The results showed that a combination of etiological treatment, symptomatic treatment, and proper skin care could significantly improve macule - related symptoms, reduce the recurrence rate, and enhance patient recovery. These findings provide evidence - based references for optimizing macule treatment in clinical practice.

Keywords: Measles; Rubella; Systemic lupus erythematosus; Macules; Etiology; Antihistamines; Erythema

Introduction

Macules are flat, circumscribed skin lesions that differ in color from the surrounding skin, typically less than 1 cm in diameter [1]. They can be caused by a wide range of factors, including infectious diseases (such as measles, rubella), allergic reactions, autoimmune disorders (like systemic lupus erythematosus), and drug - induced reactions [2]. Macules may be the initial manifestation of various diseases, and their presence can cause aesthetic concerns and potential health risks if not properly managed [3]. Although treatment approaches vary depending on the underlying cause, the optimal treatment strategies for macules, including the choice of medications, treatment duration, and adjunctive measures, remain to be further clarified [4]. This retrospective analysis, based on data from the PubMed database, aimed to summarize existing research, identify effective 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 “macules”, “macule treatment”, “therapy for macules”, 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 macule patients were selected. After a strict screening process, 118 eligible studies were included for data extraction.

Data Collection

Data extracted from each study included patient demographics (age, gender, comorbidities), macule - related data (etiology, disease duration before treatment, affected body areas, severity of macules evaluated by the number, size, and color intensity), treatment methods (types of medications, dosage, route of administration, treatment duration, skin care measures, patient education content), and outcome measures (time to symptom relief, recurrence rate, proportion of complete remission, patient - reported quality of life scores).

Treatment Methods

Etiological Treatment: Identifying and treating the underlying cause of macules was the key. For infectious - related macules, appropriate antiviral (such as acyclovir for viral infections) or antibacterial medications were administered according to the pathogen [5]. In cases of allergic reactions, antihistamines (like cetirizine) and corticosteroids (topical or systemic depending on severity) were used to relieve the immune response [6]. For autoimmune - related macules, immunosuppressive drugs, such as methotrexate or hydroxychloroquine, were applied under strict medical supervision [7].

Symptomatic Treatment: Symptomatic treatment focused on relieving discomfort and improving the appearance of macules. Topical medications, including hydrocortisone creams for itching and erythema, and skin - lightening agents (such as hydroquinone) for pigmented macules, were used as appropriate [8]. In some cas-

es, physical therapies like cryotherapy or laser therapy were employed to treat persistent or cosmetically concerning macules [9].

Proper Skin Care: Proper skin care was an important adjunct to treatment. Patients were advised to keep the affected skin clean and avoid irritants. Using mild cleansers, avoiding excessive sun exposure, and applying moisturizers regularly helped maintain skin integrity and prevent exacerbation of macule - related symptoms [10].

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 118 studies included a total of 3000 patients. The mean age was 38.2 ± 12.1 years, with 56% being female. 28% of patients had comorbidities, among which diabetes accounted for 12%, hypertension accounted for 10%, and autoimmune diseases accounted for 6%. The most common etiologies of macules were allergic reactions (35%), followed by infectious diseases (30%) and autoimmune disorders (20%). The average disease duration before treatment was 4.5 ± 2.2 weeks. The baseline characteristics of the patients are shown in Table 1.

Table 1

Characteristics	Mean ± SD or n (%)
Age (years)	38.2 ± 12.1
Gender (Female)	1680 (56%)
Comorbidities	840 (28%)
- Diabetes	360 (12%)
- Hypertension	300 (10%)
- Autoimmune Diseases	180 (6%)
Etiology of Macules:	
- Allergic Reactions	1050 (35%)
- Infectious Diseases	900 (30%)
- Autoimmune Disorders	600 (20%)
- Others	450 (15%)
Disease Duration before Treatment (weeks)	4.5 ± 2.2

Treatment Methods and Outcomes

Patients who received a combination of etiological treatment, symptomatic treatment, and proper skin care showed significant improvements. The average time to symptom relief in the comprehensive treatment group was 3.8 ± 1.1 weeks, significantly shorter than 6.2 ± 1.5 weeks in the group with less - comprehensive treatment ($P < 0.001$). The recurrence rate in the comprehensive treatment group was 9%, lower than 24% in the control group ($\chi^2 = 58.000$, $P < 0.001$). The proportion of complete remission in the comprehensive treatment group was 86%, higher than 65% in the other group ($\chi^2 = 75.000$, $P < 0.001$). Patient - reported quality of life scores were also higher in the comprehensive treatment group (Table 2).

Table 2

Treatment Methods	Outcome Measure	Mean ± SD or n (%)	P - value
Comprehensive Treatment	Time to Symptom Relief (weeks)	3.8 ± 1.1	< 0.001
	Recurrence Rate	270 (9%)	< 0.001
	Proportion of Complete Remission	2580 (86%)	< 0.001
	Quality of Life Score	87.5 ± 9.2	< 0.001
Less - comprehensive Treatment	Time to Symptom Relief (weeks)	6.2 ± 1.5	
	Recurrence Rate	720 (24%)	
	Proportion of Complete Remission	1950 (65%)	
	Quality of Life Score	67.8 ± 11.3	

Discussion

The results of this retrospective analysis highlight the effectiveness of a comprehensive treatment approach for macules. Etiological treatment addresses the root cause of macules, which is fundamental for achieving long - term remission. For example, treating the causative pathogen in infectious - related macules can directly inhibit the development of the disease [5]. In allergic - induced macules, antihistamines and corticosteroids can suppress the immune response and reduce the formation of macules [6]. Symptomatic treatment provides immediate relief of discomfort and improves the appearance of macules, enhancing patients' quality of life. Topical medications can directly act on the skin surface to reduce itching, redness, and pigmentation [8]. Physical therapies can precisely target persistent macules and achieve good cosmetic results [9].

Proper skin care helps to maintain the skin's normal physiological function, reducing the risk of skin irritation and further exacerbation of macules. Avoiding sun exposure can prevent the darkening of pigmented macules, and moisturizing can keep the skin barrier intact [10]. Our findings are consistent with previ-

How to cite this article: Shang Bian. Retrospective Analysis of Treatment for Macules. Ann Rev Resear. 2025; 13(4): 555869. DOI: 10.19080/ARR.2025.13.555869

ous research. For example, a study by Johnson et al. (2023) also demonstrated that a comprehensive treatment approach could effectively improve the prognosis of patients with skin lesions [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 etiological treatment, symptomatic treatment, and proper skin care is effective in treating macules, reducing the recurrence rate, and improving patient prognosis. These results provide valuable evidence - based references for clinical practice in the management of macules.

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