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(CASE REPORT)

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Excimer and Tacrolimus in the treatment of acral vitiligo

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Abstract

Vitiligo is an acquired circumscribed hypomelanosis with a worldwide incidence of 1-2%, with no gender predilection. Acral lesions of vitiligo are typically resistant to conventional treatments, leading to a significant reduction in affected individuals' quality of life. The objective of the study is to evaluate the efficacy of combined tacrolimus and 308 nm excimer laser therapy in treating acral vitiligo lesions. Results indicate repigmentation observed in all patients (100%), with a rate exceeding 75% in 8 out of 10 patients, particularly in those with isolated acral involvement evolving for less than 6 months. Adverse events are limited, with good tolerance. The combined treatment demonstrates statistically significant efficacy, achieving a repigmentation rate of at least 75%. Previous studies suggest tacrolimus alone may induce repigmentation, but comparative studies are needed to confirm these findings. Photodynamic therapies may offer improved outcomes by combining treatments, such as using topical tacrolimus with the 308 nm excimer laser, potentially accelerating repigmentation with sustained results.

Keywords: Vitiligo; Vitiligo acral; Excimer; Tacrolimus; Vitiligo treatment

1. Introduction

Vitiligo is an acquired circumscribed hypomelanosis with an incidence of 1-2% worldwide, with no gender predilection.

The acral lesions of vitiligo are usually resistant to conventional lines of treatment.

People affected by vitiligo experience a significant reduction in their quality of life.

Objective

The objective of our study is to evaluate the efficacy of combined tacrolimus and 308 nm excimer laser therapy in the treatment of acral lesions of vitiligo.

2. Materials et methods

Prospective analytical study, each patient received the 308 nm excimer laser twice a week, for a total of 24 sessions. The initial fluences were (50mJ/cm2)) below the minimal erythemal dose in vitiliginous skin. Subsequently, the fluences were increased by (50 mj/cm2) per session. In addition,a 0.1% tacrolimus topical ointment was applied twice daily to the lesions.

3. Results

Twenty patients completed the study, 16 female and 4 male with an average age of 37 years (10-61 years).

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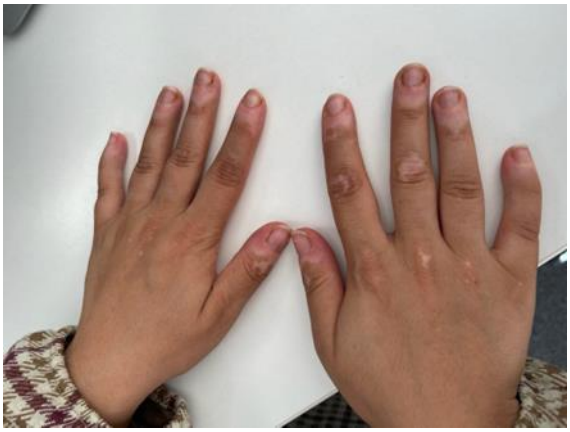
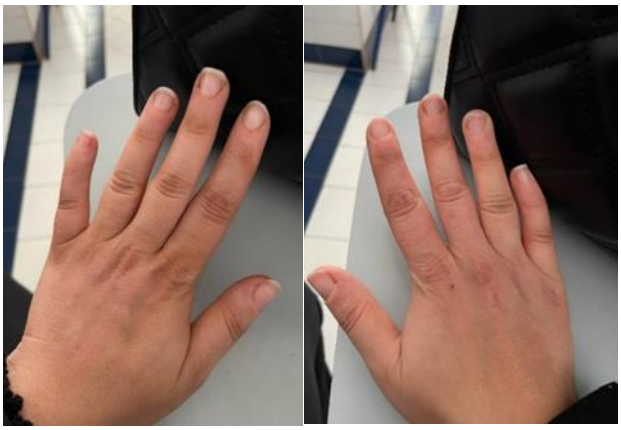
Repigmentation was observed in all patients (100%) and in 8 out of 10 patients the repigmentation rate was over 75%. the patients who responded to treatment were those with isolated acral involvement with an evolution of less than 6 months.

Adverse events were limited, with good tolerance.

Our results show that the combined treatment of topical tacrolimus 0.1% and the 308 nm excimer laser has a statistically significant efficacy in the treatment of acral vitiligo with a repigmentation rate of at least 75% achieved.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	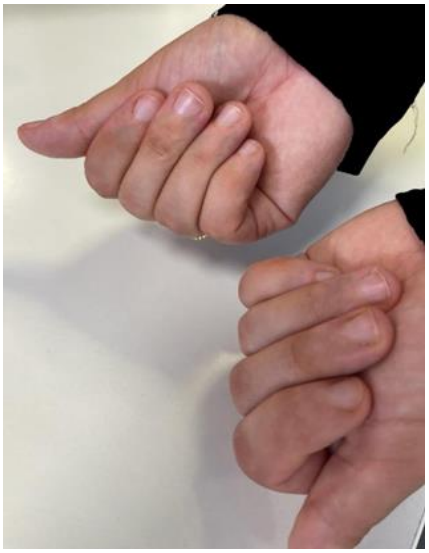
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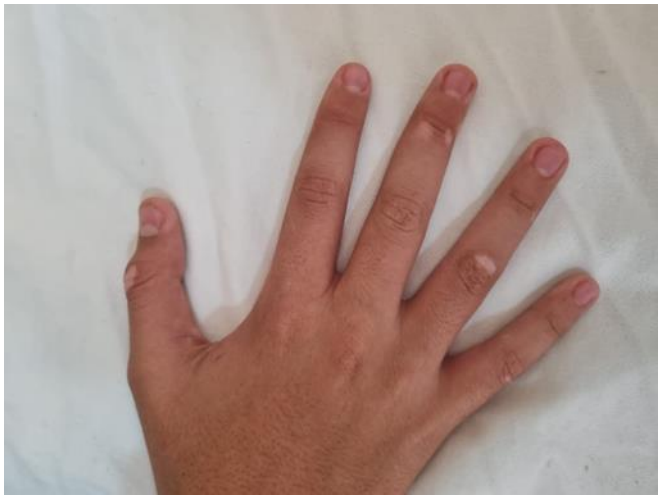

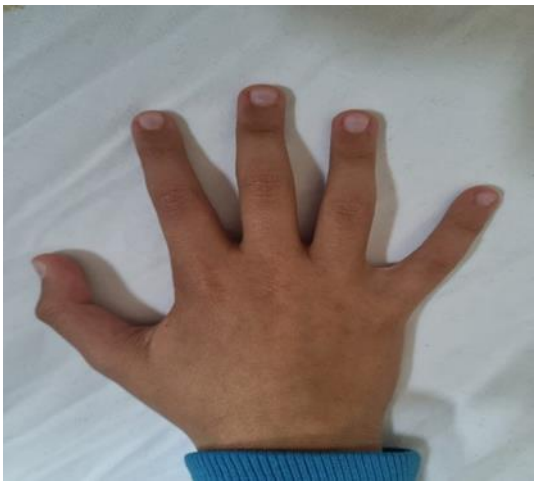

Before treatment	After treatment

Figure 1 Image of hand before and after treatment

4. Discussion

The efficacy of tacrolimus ointment alone could not be evaluated in this study. The results of previous studies suggest that tacrolimus ointment alone can induce repigmentation. This repigmentation is clearly more observed in areas exposed to UV light. However, a comparative study between the combined treatment and tacrolimus ointment alone is needed to confirm these results.

To date, UVB therapy is one of the most effective treatments for extensive vitiligo vulgaris. However, the 308 nm excimer laser has many advantages over UVB therapy for the treatment of localised vitiligo, especially acral vitiligo.

Comparative studies in the literature have indicated that the concurrent application of 308-nm excimer light and 0.1% tacrolimus ointment yielded superior outcomes compared to either MEL + vitamin E or vitamin E alone. Notably, 70% of patients subjected to the combined tacrolimus and MEL treatment exhibited good to excellent repigmentation, while the MEL monotherapy group showed a 55% rate of such favorable outcomes. Phototherapy is widely acknowledged as a safe and effective treatment for vitiligo, with excimer lasers and light sources demonstrating quicker repigmentation onset, reduced application frequency, and the ability to selectively target vitiligo patches without affecting perilesional skin. Consequently, we propose that novel therapeutic approaches involve combining treatments to exploit synergistic effects, potentially yielding improved results while minimizing adverse events. In a previous open pilot study, they demonstrated enhanced efficacy of excimer light when combined with the photosensitizer khellin, leading to increased repigmentation percentages and clinical response rates in resistant anatomical sites. Extending this concept to the treatment of vitiligo, they hypothesize that the use of topical immunomodulators (TIMs) could enhance the effects of phototherapy, resulting in accelerated repigmentation with sustained outcomes. Supporting evidence for this hypothesis comes from a study by Castanedo-Cazares et al., revealing a 25% improvement in repigmentation after an additional 3 months' application of tacrolimus 0.1% following 6 months of traditional NB UVB phototherapy. This integration of phototherapies with TIMs has been documented by other researchers, such as Passeron et al., who found that the combined treatment of 0.1% tacrolimus ointment and 308-nm excimer laser was more effective than either modality alone or controls in achieving a repigmentation rate of at least 75% in a controlled study involving 14 patients. which is in line with our study.

5. Conclusion

The combination of topical tacrolimus 0, 1% and the 308 nm excimer laser is effective in the treatment of acral vitiligo. The good tolerance of this combination has also been confirmed, but this treatment regimen should only be proposed for UV-sensitive areas.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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