

© 2024 THE AUTHORS
 Open access at <https://www.minervamedica.it>
 Italian Journal of Dermatology and Venereology 2024 Jan 30
 DOI: 10.23736/S2784-8671.24.07723-5

Iontophoresis as a potential treatment for alopecia areata incognita

Alopecia areata incognita (AAI) is an autoimmune hair disorder characterized by intense hair loss occurring rapidly. The current standard treatment involves the use of corticosteroids.¹⁻⁴ Skin patting and iontophoresis (SPi) have shown promise in enhancing the delivery of topical medications, increasing their effectiveness. The aim of this study was to evaluate the efficacy and tolerability of a topical drug, triamcinolone acetonide, administered through SPi for the treatment of AAI in female patients over a period of 4 months. Five patients with a clinically and histologically proven diagnosis of AAI were enrolled in the study over a one-month period (February 2023). The age range of the volunteers included was between 20 and 72 years. The study had a total duration of 6 months (February-July 2023). In addition, they stopped any treatment for 3 months before starting the therapy and no other treatments were possible during the study. After evaluated inclusion criteria and clinical and trichoscopic evaluation, the patient received four sessions of SPi, one every three weeks, with the topical application of a triamcinolone acetonide gel. After 6 months, the patients underwent instrumental evaluation to assess the treatment's effectiveness. In addition, the volunteers completed a self-questionnaire regarding the treatment's effects, the cosmetic satisfaction with the product, and its overall effectiveness. None of the patients experienced adverse reactions or side effects throughout the study. Trichoscopy analysis showed a significant reduction in inflammatory signs in all patients, such as yellow dots/empty follicles, short regrowing hair, pigtail hairs, and vellus hairs. These signs completely disappeared in four cases. Additionally, the pull test, initially strongly positive, was negative after 4 months (Figure 1A-D). The investigator's assessment after 4 months confirmed the effectiveness of the treatment in all patients. The patients reported positive outcomes, with all of them experiencing efficacy of the treatment, and defined the treatment pleasant. Skin Patting® (APS, Faenza, Ravenna, Italy) is a patented technique designed to stimulate hair follicle activity through three combined mechanisms: controlled microdermal incisions in the scalp, pressure waves, and iontophoresis. Initially, the device performs controlled microdermabrasion that stimulate the repair process of the dermis. Furthermore, the device generates a radial pressure wave directly on the scalp that improves blood microcirculation, stimulation of cell metabolism facilitating the absorption of active ingredients and activation of fibroblast activity. Additionally, iontophoresis enhances the skin's contractile capacity and induces dilation of the skin pores, promoting the absorption of active ingredients. At the end of the treatment, the scalp

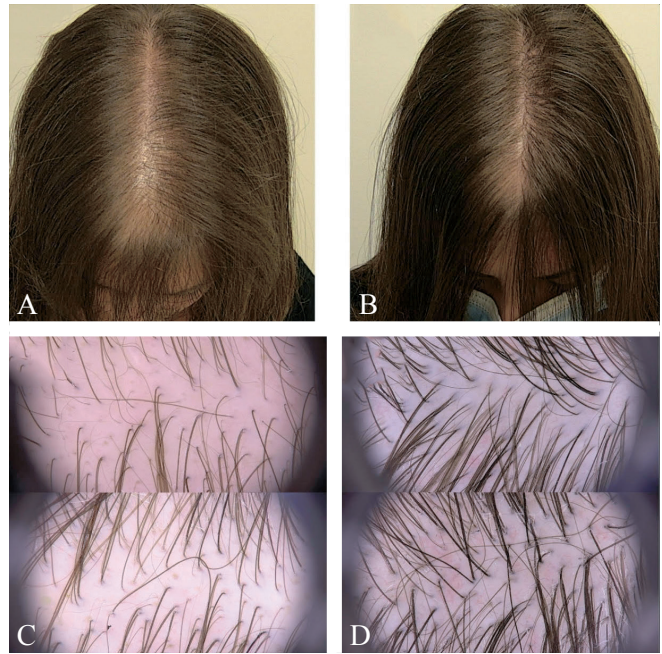


Figure 1.—Global picture of a 38-year-old patient affected by AAI at T0 (A) and at the final examination after 4 therapeutic sessions (B). Trichoscopy image of the patient at T0 (C) and at the final visit (D).

is exposed to red LED light that stimulates fibroblast and elastin production and possesses strong anti-inflammatory properties.⁵ AAI is a hair loss disorder caused by the immune system attacking hair follicles, leading to rapid and intense hair loss. This condition primarily affects young females, and during physical examination, the pull test often shows positive results.¹ Trichoscopy has proven useful in identifying inflammatory signs of AAI, including yellow dots, short regrowing hair, and pigtail hairs, mainly in the upper parietal regions.² These signs tend to disappear as the disease and hair loss improve thanks to the therapy. The standard treatment for AAI consists of systemic, intralesional and topical corticosteroids under occlusion. However, alternative treatments like topical immunotherapy are now integrated into the treatment approach for this condition.^{3, 4} Nevertheless, there is a pressing need for more effective therapeutic strategies such as SPi permitting the absorption of the drugs. In conclusion, this study provides evidence for the effectiveness and tolerability of SPi in combination with topical triamcinolone acetonide for the treatment of AAI in female patients. Further research and larger studies are warranted to validate these findings and explore the long-term effects of this treatment approach.

Michela STARACE^{1,2}, Stephano CEDIRIAN^{1,2}*,
 Federico QUADRELLI^{1,2}, Bianca M. PIRACCINI^{1,2}

¹Unit of Dermatology, S. Orsola-Malpighi Polyclinic, IRCCS University Hospital of Bologna, Bologna, Italy; ²Department of Medical and Surgical Sciences, Alma Mater Studiorum University of Bologna, Bologna, Italy

*Corresponding author: Stephano Cedirian, Unit of Dermatology, S. Orsola-Malpighi Polyclinic, IRCCS University Hospital of Bologna, Via. G. Mas-sarenti 9, 40138 Bologna, Italy. E-mail: stephano.cedirian@studio.unibo.it

This is an open access article distributed under the terms of the Creative Commons CC BY-NC license which allows users to distribute, remix, adapt and build upon the manuscript, as long as this is not done for commercial purposes, the user gives appropriate credits to the original author(s) and the source (with a link to the formal publication through the relevant DOI), provides a link to the license and indicates if changes were made. Full details on the CC BY-NC 4.0 are available at <https://creativecommons.org/licenses/by-nc/4.0/>.

References

1. Collins MS, Ali S, Kelley K, Senna MM. Alopecia areata incognita: clinical characteristics and use of the Sinclair shedding scale. *Int J Womens Dermatol* 2022;8:e067.
2. Tosti A, Whiting D, Iorizzo M, Pazzaglia M, Misciali C, Vincenzi C, *et al.* The role of scalp dermoscopy in the diagnosis of alopecia areata incognita. *J Am Acad Dermatol* 2008;59:64–7.

3. Starace M, Vezzoni R, Alessandrini A, Bruni F, Carpanese MA, Misciali C, *et al.* Therapeutic approach with squaric acid dibutylester for steroid resistant-alpecia areata incognita: A pilot study of a single center. *Dermatol Ther* 2021;34:e15096.

4. Mateos-Haro M, Novoa-Candia M, Sánchez Vanegas G, Correa-Pérez A, Gaetano Gil A, Fernández-García S, *et al.* Treatments for alopecia areata: a network meta-analysis. *Cochrane Database Syst Rev* 2023;10:CD013719.

5. Alessandrini AM, Bruni F, Piraccini BM, Starace M. The Effectiveness and Tolerability of Preformed Growth Factors Vehiculated Through Iontophoresis on Patients with Androgenetic Alopecia and Telogen Effluvium: A Clinical Study. *Dermatol Pract Concept* 2021;11:e2021082.

Conflicts of interest

The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

Authors' contributions

All authors read and approved the final version of the manuscript.

History

Article first published online: January 30, 2024. - Manuscript accepted: January 9, 2024. - Manuscript revised: November 27, 2023. - Manuscript received: July 21, 2023.

(Cite this article as: Starace M, Cedirian S, Quadrelli F, Piraccini BM. Iontophoresis as a potential treatment for alopecia areata incognita. *Ital J Dermatol Venereol* 2024 Jan 30. DOI: 10.23736/S2784-8671.24.07723-5)