

Update on Frontal Fibrosing Alopecia



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As we continue to see case after case of frontal fibrosing alopecia (FFA), the search for the cause has been rapidly narrowing. Since the first cases presented in the early 1990s,¹ we have long suspected an external etiology, particularly a cosmeceutical product, especially since FFA involves mostly the face and frontal hairline. Just two years ago, controlled studies implicated daily, year-round use of facial moisturizers in both women and men.^{2,3} Now, a large study from Spain that included both men and women has identified the use of sunscreen on the face as the cause.⁴

The question remains, however, what exact ingredient in the sunscreen products is inducing the disease. The suspects include avobenzone and oxybenzone, which were both introduced in the late 1980s, just prior to the presentation of the first cases. These chemical sunscreens are less likely to be the culprits, since the disease is occurring in women of African descent who typically do not use products which contain them.

Also suspected is titanium dioxide and zinc dioxide, especially since these two chemicals are prepared in a nanoparticle formulation. Titanium dioxide is used not only as a sunscreen in cosmeceutical products, but also to give a shiny appearance in makeup. The nanoparticles are of particular concern because they likely have the ability to enter cells. Titanium dioxide is known to be highly photoreactive, creating oxygen radicals upon UV exposure, which may cause inflammation.⁵ Such chronic inflammation could lead to a breakdown of the “immune privilege” of the follicle, allowing an autoimmune inflammatory process such as FFA to develop. Zinc oxide is much less photoreactive.

Finally, the culprit could be another, inactive ingredient.

Of particular importance is the limited, published experience that early FFA can stop and the patient can have significant regrowth of hair if the products are discontinued.⁶

Stay tuned.



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1. Kossard S. Postmenopausal frontal fibrosing alopecia. Scarring alopecia in a pattern distribution. *Arch Dermatol* 1994;130:1407.
2. Aldoori N, Dobson K, Holden CR, et al. Frontal fibrosing alopecia: possible association with leave-on facial skin care products and sunscreens; a questionnaire study. *Br J Dermatol* 2016;175:762-7.
3. Debroy Kidambi A, Dobson K, Holmes S, Carauna D, et al. Frontal fibrosing alopecia in men: an association with facial moisturizers and sunscreens. *Br J Dermatol* 2017;177:260-1.
4. Moreno-Arrones OM, Saceda-Corralo D, Rodrigues-Barata AR, et al. Risk factors associated with frontal fibrosing alopecia: a multicentre case-control study. *Clin Exp Dermatol* 2018;70(Suppl):670.
5. Fujishima A, Honda K. Electrochemical photolysis of water at a semiconductor electrode. *Nature* 1972;238:37-8.
6. Cranwell WC, Sinclair R. Frontal fibrosing alopecia: regrowth following cessation of sunscreen on the forehead. *Australas J Dermatol* 2018 June 12. doi:10.1111/ajd.12833. [Epub ahead of print].