Vitamin D status in patients with frontal fibrosing alopecia: A retrospective study

To the Editor: Frontal fibrosing alopecia (FFA) is a primary lymphocytic cicatricial alopecia characterized by the recession of the frontal hair line. The pathogenesis is complex and multifactorial, with hormonal, environmental, and genetic factors implicated. Facial sunscreen products have been suggested as possible external etiologic contributors, and avoidance is recommended by some hair specialists as part of the treatment[1,2]; nevertheless, this theory requires further research to substantiate. Although rigorous photoprotection can affect vitamin D status, the use of facial sunscreen alone is not associated with its deficiency.[3]

Conic et al[4] noted the capability of vitamin D to alter the immune response, possibly by increasing the autoreactive T cells. Patients with lichen planopilaris had an average vitamin D level of 24.6 ng/mL and demonstrated 8.3-fold increased odds of severe vitamin D deficiency compared with controls.[4] A subclassification of lichen planopilaris, FFA has a predilection for postmenopausal women, a cohort at higher risk of low bone mineral density, benefiting from vitamin D supplementation. Thus, we aimed to assess the baseline levels of vitamin D in a cohort of patients with FFA.

In this retrospective study, conducted between March 2013 and February 2020, the baseline vitamin D levels in 100 women with FFA were compared with those in 100 women with female pattern hair loss. Patients taking vitamin D supplementation were excluded. Data on sex, race, age, and comorbidities were recorded, as summarized in Table I. Vitamin D insufficiency was defined in accordance with the Australian therapeutic guidelines as levels of <50 ng/mL and was categorized as follows: mild (30-49 nmol/L), moderate (12.5- 29 nmol/L), and severe (<12.5 ng/mL). Statistical analysis was performed using Kruskall-Wallis and Fisher's exact tests; significance was determined by a P value of <.05. Statistical analysis was performed using IBM SPSS Statistics.

Table II summarizes the baseline vitamin D levels. Most patients across the groups were found to be vitamin D sufficient at the first visit. The mean 25-hydroxy vitamin D level in women with FFA was 68.9 nmol/L (SD, 21.44 nmol/L) compared with 65.96 nmol/L (SD, 23.02 nmol/L) in women with female pattern hair loss. Vitamin D insufficiency was observed in 20% of patients from both groups. No patients had severe vitamin D insufficiency. When analyzed for specific age brackets (<50, 50-59, and >60 years), the mean vitamin D levels observed were 65.38, 56.16, and 74.47 nmol/L in the FFA group, compared with 63.9, 57.2, and 75.83 nmol/L in the female pattern hair loss group. There was no statistical significance between the vitamin D levels recorded across the different age groups or identified between the 2 groups.

Table I. Patient characteristics

Characteristic	Subcategory	*N* (%)
Age range, y		16-90
Mean age, y		
	Combined	56
	FFA	63
	FPHL	51
Ethnicity		
FFA	Caucasian	97 (97)
	Asian	2 (2)
	African	1 (1)
FPHL	Caucasian	83 (83)
	Asian	16 (16)
	African	1 (1)
Smoking status		
	Smoker	2 (1)
	Nonsmoker	198 (99)
Comorbidities (at least 1 additional comorbidity)		
	FFA	63 (63)
	FPHL	52 (52)

FFA, Frontal fibrosing alopecia; *FPHL*, female pattern hair loss.

Table II. Vitamin D status in FFA and control groups

Vitamin D status	FFA *n* (%)	FPHL *n* (%)	Fisher's exact test	Kruskal-Wallis test
Sufficient (>50 nmol/L)	80	80	0.762	0.340
Insufficient	16	18	0.311	0.616
Mild (30-49 nmol/L) Insufficient	4	2	0.200	0.140
Moderate (12.5-29 nmol/L) Insufficient	0	0	N/A	N/A
Severe (<12.5 nmol/L)				

FFA, Frontal fibrosing alopecia; *FPHL*, female pattern hair loss; *N/A*, not applicable.

Historically, patients with nonscarring alopecia are reported to have consistently lower vitamin D concentrations than controls, justifying serum monitoring.[5] Our findings suggest that there may be no additional requirement to measure vitamin D levels in patients with FFA compared to other forms of alopecia. Given the similarity and status of vitamin D levels across our patients, vitamin D deficiency is unlikely to be implicated in the pathogenesis of FFA. This finding neither supports nor disproves an association between the application of facial sunscreen and FFA. The limitations of the study include its retrospective nature, small size, and the overrepresentation of women. The difference in findings between our patients with FFA and those with lichen planopilaris in the study by Conic et al[4] suggests that larger studies with more diverse populations may be beneficial.

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Conflicts of interest

Dr Eisman has been principal investigator in clinical trials for Pfizer Inc, AbbVie, Arena Pharmaceuticals, Boston Pharmaceuticals, Bristol Myers Squibb, Botanix, Dermira, Eli Lilly and company, LEO Pharma, Novartis, Regeneron, Tigermed, TEVA pharmaceuticals, Jansen, Suzhou Connect Biopharmaceuticals, Kobiolabs, and Avance Clinical. Dr Wall reports honoraria from Janssen, grants from Pfizer, and consultancy with Eli Lilly and company and Bristol Myers Squibb, all outside the submitted work. Dr Sinclair reports being a member of, on the International advisory board of, and principal investigator in sponsored clinical trials for Pfizer and Eli Lily; is the founder, director, and principal investigator in the clinical trial for Samson clinical; and has been/is currently a principal investigator in clinical trials for Jaansen, Sun Pharma, Arena, Demira, Astra Zenica, Novartis, Merck, Sanofi, AbbVie, Galderma, Prinicipia, Reistone Pharma, and Aclaris. Drs Arasu and Meah do not have any conflicts of interest to declare.

REFERENCES

1. Cranwell WC, Sinclair R. Sunscreen and facial skin care products in frontal fibrosing alopecia: a case-control study. *Br J Dermatol*. 2019;180(4):943-944. https://doi.org/10.1111/bjd.17354
2. Tosti A, Bergfeld WF, Christiano AM, et al. Response from the American Hair Research Society to "Sunscreen and frontal fibrosing alopecia: a review." *J Am Acad Dermatol*. 2020;82(3):729-730. https://doi.org/10.1016/j.jaad.2019.10.032
3. Neale RE, Khan SR, Lucas RM, Waterhouse M, Whiteman DC, Olsen CM. The effect of sunscreen on vitamin D: a review. *Br J Dermatol*. 2019;181(5):907-915. https://doi.org/10.1111/bjd.17980
4. Conic RRZ, Piliang M, Bergfeld W, Atanaskova-Mesinkovska N. Vitamin D status in scarring and nonscarring alopecia. *J Am Acad Dermatol*. 2021;85(2):478-480. https://doi.org/10.1016/j.jaad.2018.04.032
5. Gerkowicz A, Chyl-Surdacka K, Krasowska D, Chodorowska G. The role of vitamin D in non-scarring alopecia. *Int J Mol Sci*. 2017;18(12):2653. https://doi.org/10.3390/ijms18122653

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