Social Status May Interfere in the Prognosis of Frontal Fibrosing Alopecia in Female Patients: An Observational Study

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Keywords

Scarring alopecia · Groups of occupation · Social level · Frontal fibrosing alopecia · Education

Abstract

Introduction: Frontal fibrosing alopecia (FFA) is a cicatricial alopecia whose incidence has greatly increased worldwide over the last years. The main purpose of the study was to investigate the possible association of the social status of FFA patients with the prognosis of the disease. **Methods:** A total of 100 female patients with FFA, monitored at Andreas Sygros Hospital, Athens, Greece, during the last 3 years, were recruited in this observational study. The age of the women ranged from 29 to 92 years with a mean age of 61.2 years (SD = 10.3); 97% of them were Greek, with skin type II and III. **Results:** In total, 46% of the patients were intermediate graduates, and 42% had received tertiary education; 82% were married and 21% had 1 child. The duration of the disease ranged from 0.5 to 20 years with a mean duration of 5.2 years. In 53% of the women, the frontal hairline recession was <1 cm, in 26% it was 1–2 cm, and in 15% it was 3–4.99 cm. Overall, 55.6% of patients were professionals, 26% were technicians and associate professionals, 23% were office workers, 9% were service and sales workers, and 13% were

at elementary occupations. The severity of the disease was higher in lower-educated patients, who belong to the category of unskilled or with elementary occupation. **Conclusions:** Women with high educational level and social status are more likely to be diagnosed earlier, resulting in sufficient therapeutic response.

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Introduction

Frontal fibrosing alopecia (FFA) is a scarring alopecia, described in 1994 by Kossard [1]. The North American Hair Research Society, based on the predominant histopathological features of scalp biopsies, classifies the disease into primary lymphocytic cicatricial alopecias [2].

FFA was originally thought to be rare and to affect postmenopausal women. Recently, it has also been observed in younger women and, rarely, in men [3, 4]. In the last decade there has been a significant increase in FFA incidence, and many dermatologists consider that they are experiencing an epidemic [5, 6]. The disease usually presents in the sixth decade of life. Sometimes the slow progression and the mild clinical picture, especially at early stages, make it difficult to estimate the onset of FFA [7].

The etiopathogenesis of FFA is still unclear [8]. The epidemiology of the disease indicates that some environmental factors might be related to FFA development. The occurrence in members of the same family may detect exposure to common environmental triggers [9]. Tziotzi- os et al. [10] recently showed that FFA is a genetically predisposed immunoinflammatory disorder driven by HLA-B*07:02. They identified four genomic loci at which genetic variation is strongly associated with the lichenoid inflammatory and scarring dermatosis FFA in two independent cohorts of European ancestry. Ranasinghe et al. [11] demonstrated that FFA is associated with androgen deficiency. FFA may coexist with diffuse androgenetic alopecia, senile alopecia, thyroiditis, dyslipidemia, hypertension, and osteoporosis [9].

The most common autoimmune diseases encountered in patients with FFA are vitiligo, alopecia areata, atopy, psoriasis, rheumatoid arthritis, lupus erythematosus, and polymyositis [9]. Clinically, a progressive recession of the frontotemporal hairline (up to 8 cm from the original hairline) is observed bilaterally and symmetrically with or without accompanying loss of eyebrow hair [11]. At the side of alopecia, the skin appears atrophic, smooth, with porcelain-like color and damaged follicular orifices [12–14]. The severity grade of the disease is based on the recession of the frontal hairline and ranges between grade I and grade V [15].

The diagnosis is based on clinical and histopathological findings. However, trichoscopy has been shown to be a practical tool, especially in early stages [16]. Treatment is difficult, and the main therapeutic goal is to prevent or delay the progression of FFA [11].

Although alopecia is not a threatening condition for human life, it significantly affects the patient's quality of life. [17]. Hair loss appears to be associated with serious social, professional, and economic consequences. FFA patients have decreased self-esteem, and increased levels of anxiety, fear, social phobia, and even depression [17–19]. In this study we evaluated the demographic, social, and economic factors of female patients with FFA and we investigated the association of these factors with the disease severity.

Materials and Methods

The study included 100 patients diagnosed with FFA, who were examined during the last 3 years at Andreas Sygros Hospital of Venereal and Dermatological Diseases, Athens, Greece. In order to collect the data, patients were interviewed with questions related to demographics, occupation, lifestyle habits, and medical history data.

Table 1. Demographic characteristics of patients

	<i>n</i>	%
Age (mean ± SD), years	61.2±10.3	
Birthplace		
Athens	33	33.0
Other provinces	57	57.0
Abroad	10	10.0
Place of origin		
Athens	13	13.0
Other provinces	71	71.0
Abroad	16	16.0
Nationality		
Greek	97	97.0
Other	3	3.0
Place of residence		
Athens	58	58.0
Attica region	20	20.0
Other provinces	21	21.0
Abroad	1	1.0
Profession		
Professionals	27	27.6
Technicians and associate professionals	26	26.5
Clerical support workers	23	23.5
Service and sales workers	9	9.2
Elementary occupations	13	13.3
Education		
Intermediate	46	46.0
Post secondary	12	12.0
Tertiary (University)	36	36.0
Postgraduate	6	6.0
Marital status		
Married	82	82.0
Unmarried	12	12.0
Widows	5	5.0
Divorced	1	1.0
Number of children		
0	20	20.0
1	21	21.0
2	50	50.0
3	7	7.0
4	1	1.0
5	1	1.0

Average, mean, standard deviation (SD), and median and interquartile ranges were used to describe the quantitative variables. Absolute (*n*) and relative (%) frequencies were used to describe the qualitative variables. Pearson's χ^2 test or Fisher's exact test was used to compare ratios where necessary. For comparison of quantitative variables between two groups, Student's *t* test or the non-parametric Mann-Whitney criterion was used. For comparing quantitative variables between more than two groups, the non-parametric Kruskal-Wallis criterion was used. The correlation coefficient of Spearman (*r*) was used to control the relationship of two quantitative variables. Relation was considered low when the correlation coefficient (*r*) ranged from 0.1 to 0.3, moderate when

Table 2. Clinical data of patients

Disease and treatment of patients	<i>n</i>	%
Duration of disease, years		
Mean ± SD	5.2±3.9	
Disease severity, cm		
<1	53	53.0
1–2	26	26.0
3–4.99	15	15.0
5–6.99	6	6.0
>7	0	0.0
Topical treatment		
No	4	4.0
Yes	96	96.0
Topical treatment type		
Corticosteroids	94	94.0
Minoxidil	59	59.0
Anti-hair loss lotion	76	76.0
Salicylic acid	34	34.0
Systemic treatment		
No	83	83.0
Yes	17	17.0
Systemic treatment type		
Hydroxychloroquine	10	10.0
Cyclosporin	2	2.0
Corticosteroids	8	8.0
Finasteride	1	1.0

the correlation coefficient ranged from 0.31 to 0.5, and high when the factor was greater than 0.5. The significance levels were two-sided, and the statistical significance was set to 0.05.

Results

Demographic and social characteristics of the patients are shown in Table 1. The age of women ranged from 29 to 92 years with a mean age of 61.2 years (SD = 10.3). The duration of the disease ranged from 0.5 to 20 years with a mean duration of 5.2 years (SD = 3.9). In total, 80% of the patients were menopausal, with an average menopause age of 49.9 years (SD = 4.0 years).

Most patients were born in other places but stayed in Athens, while 97% were Greek with skin type II and III. Patients' occupations were classified according to ISCO-08 classification [20]. Concerning their level of education, 46% were intermediate graduates, 12% were post-secondary graduates, and 42% had received a university education. A total of 82% of the patients were married and 50% had 2 children; 18% of the patients were smokers and 34% mentioned alcohol consumption.

The women's mean age at their first pregnancy was 27.5 years (SD = 5.7) and 80% of them have breastfed their

children. At the onset of the disease, 80% of the patients were entered in the menopause, with an average onset age of 49.9 years (SD = 4.0). Information about their clinical and medical data are presented in Table 2.

The duration of FFA was associated with the severity of the disease. Patients with >1 cm frontal hairline recession had a significantly longer duration of FFA compared to patients with a recession <1 cm ($p = 0.009$). On the other hand, there appears to be no statistically significant association between the duration of the disease and smoking habits ($p = 0.97$) or alcohol consumption ($p = 0.85$). There was also no significant correlation of the duration of the disease with age, age at first pregnancy ($p = 0.76$), breastfeeding ($p = 0.40$), and age at menopause of patients ($p = 0.99$) in this study. Additionally, the duration of the disease was not significantly associated with topical treatment, systemic therapy, or a combination of both ($p = 0.22$, $p = 0.94$, $p = 0.67$ respectively).

Patients with hairline recession >1 cm were significantly older compared to patients with a recession <1 cm. The severity of the disease did not seem to differ significantly depending on the smoking habits of the patients ($p = 0.20$), alcohol consumption ($p = 0.092$), age at first pregnancy ($p = 0.25$), and breastfeeding ($p = 0.43$).

The severity of FFA was not significantly associated with topical treatment ($p = 0.62$), while on the contrary there was a statistically significant association with systemic therapy or a combination of both ($p = 0.018$, $p = 0.032$, respectively). Statistically significant results were obtained between the recession of the hairline >1 cm and systemic therapy ($p = 0.018$) and the combination of therapies ($p < 0.001$).

Also, this study revealed that women with a high level of education had lower disease severity compared to women with a lower level of education ($p = 0.018$). The percentage of patients receiving systemic therapy varied considerably depending on the educational level ($p = 0.036$). It was observed that women who were highly educated received systemic treatment in low frequency. In a significantly higher percentage, unskilled workers, manual workers and those with elementary occupations suffered from the greatest disease severity ($p = 0.018$).

Discussion

Patients in this study had the same mean age compared to the baseline study cohort of Vañó-Galván et al. [14]. Most of the patients (69%) in our study did not smoke, 18% were smokers, and 13% were ex-smokers. The percentage of nonsmoking patients is consistent with

the findings of other studies that estimate that 87% of patients with FFA are nonsmokers [14]. Concerning alcohol consumption, 34% of patients reported drinking small amounts of alcohol per week (light to moderate drinkers).

An interesting result, which to our knowledge is reported for the first time, is that the severity of the disease appears to be higher in women with a lower level of education and with unskilled or elementary occupation. This can be explained by the fact that women with a higher level of education, better jobs, and possibly better economic situation identify FFA earlier, and thus, they might slow the progression of the disease. The better therapy response in patients with a higher social level are due to early diagnosis of the disease and not to the systemic therapies.

We also observed that women with a high level of education were receiving systemic treatment less often because they had the ability to be informed about the disease, treatment options, and possible side effects.

Patients with a recession >1 cm were significantly older in comparison to patients with a recession <1 cm. This observation is similar to findings from the study by Vañó-Galván et al. [14]. The duration of the disease was associ-

ated with the severity of the disease, i.e., patients with a recession >1 cm frontal hairline translocation had a significantly longer duration of disease. This observation is identical to the corresponding results of the study by Vañó-Galván et al. [14].

As this study showed that social status interferes in the prognosis of FFA in female patients, more relevant studies should be conducted in order to confirm these results.

Statement of Ethics

The Institutional Review Board of the hospital approved the study, and participants provided oral informed consent.

Disclosure Statement

The authors have no conflicts of interest to declare.

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