

In: Alopecia

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Chapter II

Psychosocial Aspects in Alopecia Areata: Studies on Stress Involvement in Adults and Children

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1. Introduction

Hair is very important in our lives, even in childhood, so hair loss can affect both self-image and social relations. The psychosocial aspects of alopecia could be described by stress as a potential cause or effect of the disease, the anxiety or depression of patients, or the impact of alopecia (especially alopecia areata) on patient's quality of life. Stress is an abnormal or extreme physiological adjustment in animals to cope with adverse effects and management of their environment. The reaction to stress could be influenced by genetics and also by someone's perception. The stressors could be environmental, behavioral or psychological [1]. The aetiopathogenesis of alopecia areata is complex, and includes genetic factors, autoimmune processes, infectious factors and psychological factors (stress and personality characteristics of patients).

First observations are dating from early '60's when alopecia areata was related to mental stress [2, 3]. It took about 15 years to come again to the idea of "alopecia areata and stressful events" [4] or correlating hair loss in children to underlying emotional disturbance [5]. In 1980 the combination "psyche and skin" [6] appeared, mentioning case reports of alopecia areata as psychosomatic dermatoses. Studies on personality traits of alopecia areata are not concordant. Some of them describe patients with alopecia areata as having psychopathological morbidity more often than in the general population. Such morbidity includes depression [7-10], anxiety [7-13], social phobia [8], paranoid disorder [8] and adjustment disorders [9]. Other studies have not found any difference in anxiety or depression compared to controls [14]. Patients with alopecia areata are considered by some authors to lack symbolic or language schemes of representation for experiences of separation and loss, which affects personality and creates a devoid-of-affect impression. There is an inability to link sorrow and body pain [15]. Alopecia areata patients have high rates of alexithymia and avoidant behavior that could reduce the ability to cope with stress [16-18]. There are different opinions regarding the involvement of stress in alopecia areata. Some believe that general events could appear in up to 80% of cases with alopecia areata [19]. On the other hand, Tan's study [20] found that stressful events preceded hair loss in only 9.8% of 132 alopecia areata patients. Van der Steen *et al.* [21] did not correlate the pathogenesis of alopecia areata with emotional stress. As for children and adolescents are even fewer reports regarding stress, starting from no correlation with stress [22] to involvement of stressful events in up to 80% of children [23]. No data available of stress involvement in diffuse hair loss in children.

We performed some studies to add to this knowledge, with the purpose of observing stress involvement before the onset of childhood and adulthood alopecia areata and also of childhood diffuse alopecia. Furthermore, we relate the results to the psychosocial aspect of alopecia areata.

2. Studies of Stress Involvement in Alopecia Areata in Children, Adults and Diffuse Alopecia in Children

Our study was performed at the Department of Dermatology of Cetatea Histria Polyclinic in Bucharest, Romania. Patients (children and adults) were

referred to the polyclinic by general practitioners in the city and its surrounding areas (approximately 500,000 inhabitants).

There were two different studies: a) one conducted between March 2001 and December 2005 for the adults (≥ 15 years old) and b) one conducted between March 2001 and December 2006 for children (≤ 14 years old). We have decided to enroll only children up to 14 years old (included) because usually around 15 years old in Romania there is an important exam to pass from secondary school to high school that could have influenced a lot the situation of stressful events involved.

The studies design was case-control, with each patient having an age- and gender-matched counterpart. Controls had skin diseases with a well-established etiology with a presumably low psychosomatic component, or had skin diseases unrelated to stress (*e.g.* bacterial, viral, and fungal infections, Tables 1, 3).

For the adults, Holmes and Rahe's social readjustment rating scale [24] was used for both cases and controls. For children, we performed interviews with patients and parents.

We have taken in consideration the potential stressful situations or life events occurring during the year before the evaluation were included and those occurring after the onset or exacerbation were excluded. Susceptibility to illness and mental health problems can be influenced by increase in stress levels caused by life events.

We divided situations described in Holmes and Rahe's scale into three groups: family matters, personal problems, and job or financial problems. After patients had filled in the questionnaire they were also interviewed in order to clarify situations that were not included in the scale (or slightly different, for example, spouse beginning to work outside home; meaning attached to going to work abroad), but were considered important in their life.

The situations reported by children and parents were classified into: events related to school and education, family changes, personal illnesses/accidents/ surgeries, and psychosocial trauma (frightening situations to children).

This classification, made after the collection of data, could be considered arbitrary without other references, but we determined this categorization to underline the importance of events related to events of importance in childhood. Odds ratios were calculated and χ^2 and *t* tests were used in order to study the differences between the groups, and used the standard significance value of $p \leq 0.05$.

2.1. Study on Adults

123 cases of alopecia areata were found in 16910 new dermatology consults in patients (≥ 15 years old). The incidence of alopecia areata was 0.72% of all dermatologic conditions. 45 patients with recent onset/recurrence not longer than 3 months before the evaluation were included in our analysis.

2.1.1. Demographics

There were 27 females (60%) and 18 males (40%) in the alopecia areata group. Mean age was 30.6 years old (standard deviation, SD=11.96). For the control group the mean age was 31.04 years old (SD=12.32). There was no significant difference ($p=0.3$) between the mean age in women (32.07 years, SD= 12.75) and men (28.38 years, SD = 10.76).

Data regarding distribution according to age group, lesion type, socio-professional level was collected (Table 1).

Table 1. General data about the groups in adults

	Alopecia areata (AA)		
	women	men	Total (%)
<i>Socio-professional level</i>			
Pupil/student/High	10	11	46.7
Average	13	5	40
Low (housewife, unemployed or retired)	4	2	13.3
<i>Localization</i>			
1. multiple patches	6	1	15.6
2. beard	0	4	8.9
3. parietal /vertex	14	8	48.9
4. occipital	5	4	20
5. temporal	1	0	2.2
6. ophiasis	0	1	2.2
7. universalis	1	0	2.2
<i>Age</i>			
1. 15-20 years old	6	7	28.9
2. 21-30 years old	10	4	31.1
3. 31-45 years old	4	5	20
4.>45 years old	7	2	20
	women	men	
<i>Controls</i>			
Superficial mycosis	19	12	
Benign tumors	8	6	

In the alopecia areata group there was a female predominance in patients between 21 and 30 years of age and in those > 45 years of age. Almost half of alopecia areata patients had a single patch situated in the parietal or vertex area (48.8%). One male patient (2.2%) with alopecia areata had a family history of alopecia areata. Eight patients (17.7%) (7 females and 1 male) had previous episodes of alopecia areata.

2.1.2. Stress Involvement

In alopecia areata group, 31 of 45 (68.9%) patients identified stressful events compared to 10 of the controls (22.2%). The difference was statistically significant ($\chi^2 = 17.919$, $p < 0.0001$). The odds ratio was 7.75 [95% CI: 3.0135-19.931].

There was no significant statistical difference ($p = 0.36$) between men and women (stress involvement in 74.1% of female cases and 61.11% of male cases).

We found a significant difference in the mean number of stressful events between alopecia areata patients and controls ($P = 0.005$). This difference was maintained when men ($P = 0.05$) and women ($P = 0.001$) were analysed separately. The presence of one event ($P < 0.001$) with a greater impact before the onset of alopecia areata seems to be more important than multiple potential stressful situations (77.4% for alopecia areata and 50% for controls).

Regarding the types of events mentioned (Table 2), the most important matters in the alopecia areata group were related to family (45.6% of stressful situations) ($P = 0.0004$), especially in women ($P = 0.0002$). Among family problems, the most often noted were death of a family member and family disputes (together comprising two-thirds of issues).

Personal matters were mentioned by 35.7% of the alopecia areata group, and there was a statistically significant difference between patients and controls ($P = 0.04$). Exam periods were noted by both patients and controls as potential stressful situations. In the control group, the most important problems were almost equally shared among the three categories of problems.

Patients commented on other potential stressful situations than those listed by Holmes and Rahe. Working abroad is a new and increasing potential stressful situation in Romania, with pressure for both the person working outside the country and for the partner staying at home (both situations were mentioned in our results). This situation even increases since 2005 in the EU conditions. Overworking is another potentially stressful situation, particularly for young men who are developing their own firms and for those who have pressure to succeed.

Table 2. Comparison between Alopecia areata and Control Group regarding the Types of Events involved

Types of events	Alopecia areata group			Control group			p		
	F	M	T	F	M	T	Fem.	males	total
<i>1. Family problems</i>									
Death of a family member	18	3	21	5	1	6	0.0002	-	0.0004
Illness of a family member	7	0	7	0	0	0			
New person in the family	3	1	4	3	0	3			
Family disputes	0	0	0	0	1	1			
Reconciliation	4	2	6	1	0	1			
<i>Partner's unemployment</i>	1	0	1	0	0	0			
<i>death of a friend</i>	1	0	1	0	0	0			
<i>member of the family leaving home</i>	1	0	1	1	0	1			
<i>2. Personal problems</i>									
personal illness/accident	8	6	14	3	3	6	0.08	0.25	0.04
pregnancy/birth	1	1	2	0	0	0			
sexual problems	1	0	1	1	0	1			
exams/ ending school	2	0	2	0	0	0			
change of residence	0	5	5	0	3	3			
major changes of sleep	1	0	1	1	0	1			
major changes of food habits	2	0	2	1	0	1			
<i>3. Job/financial problems</i>									
dismissing/ unemployment	8	3	11	5	2	7	0.34	0.63	0.29
resignation	0	0	0	1	0	1			
change of economic status	1	0	1	0	0	0			
change of office	2	2	4	0	0	0			
incapacity to pay the debts	0	0	0	1	0	1			
change of responsibility at work	0	0	0	1	0	1			
problems with superiors	1	0	1	0	0	0			
change of schedule/job conditions	1	0	1	1	2	3			
debts less than 10 times average salary	1	0	1	1	0	1			
Overworking	0	1	1	0	0	0			
Working abroad	1	0	1	0	0	0			

2.2. Study on Children/Adolescents

53 cases of alopecia areata were found in 6917 new dermatology consults in patients (≤ 14 years old). The incidence of alopecia areata was 0.76% of all dermatologic conditions. From those 53 children with alopecia areata we have

chosen 43 with the onset not more than 9 months before the evaluation. We have included the same number of children with diffuse alopecia.

2.2.1. Demographics

There were 25 girls (58.14%) and 18 boys (41.86%) with alopecia areata and 40 girls (93.02%) and 3 boys (6.98%) with diffuse alopecia. The youngest child for both types of alopecia was 18 months old. Data regarding mean age, distribution according to the age group, types of lesions, families, onset of lesions are presented in the Table 3.

The mean age for alopecia areata group was 7.78 years old (SD=3.46). Diffuse hair loss group has the mean age of 9.04 (SD=3.82). There was an almost significant difference between the mean ages in the two groups of alopecia ($p=0.06$).

Most of the children had multiple patches or parietal hair loss. During the evaluation period, there was a boy with the extension of hair loss from multiple patches to alopecia totalis.

There were 2 boys (4.7%) with a family history of alopecia areata. Five cases (2 girls and 3 boys)-11.62% had previous episodes of alopecia areata.

In both groups of alopecia patients, children were coming from families with an average socio-professional level- Table 3. Important to mention that in diffuse alopecia there was a high rate of patients with separated/divorced parents.

2.2.2. Stress Involvement

Twenty-five children with alopecia areata from the group of 43 had mentioned a stressful situation before the onset of hair loss (58.13%), compared to 7 children in controls (16.27%). The odds ratio was 7.14 [95% CI: 2.53-22.60]. There was no difference between girls (60.0%) and boys (55.5%); $\chi^2 = 14.36$, $p=0.0002$.

Twenty-nine children with diffuse alopecia from the group of 43 had mentioned a stressful situation before the onset (67.4%) compared to 9 children in controls (20.9%). The odds ratio was 7.82 [95% CI: 2.95-20.70]; $\chi^2 = 17.02$, $p<0.001$.

88% of alopecia areata children, 86% of diffuse alopecia children and almost all controls had mentioned only one event. The comparison between the two hair loss groups was not statistically significant ($p=0.21$). The mean number of stressful events has reached a statistical significance in both groups of hair loss ($p<0.0001$).

Table 3. General data about the children groups

	Alopecia areata (AA)			Diffuse alopecia		
	girls	boys	Total	girls	boys	Total
<i>Family</i>						
<i>Only child</i>	9	12		24	1	
<i>Socio-professional level</i>			%			
High	4	3	16.27	4		9.31%
Average	12	8	46.51	21	2	53.48%
Low (mother housewife, one parent unemployed or retired)	4	7	25.58	8	1	20.93%
Separated/divorced parents	3	0	6.97	7	0	16.27%
One parent deceased	2	0	4.65	0	0	
<i>Onset of lesions</i>						
1. < 3 months	20	13	76.74	4	1	
2. 3-6 months	4	4	18.6	29	2	
3. 6-9 months	1	1	4.66	7	0	
<i>Localization</i>						
<i>Alopecia areata patients</i>						
8. multiple patches	9	6	34.88			
9. parietal /vertex	9	5	32.55			
10. occipital	3	6	20.93			
11. temporal/frontal	3	1	9.12			
12. totalis	1	1	2.52			
<i>Mean age</i>	7.37 years (SD=3.14)	8.33 years (SD=3.7)	7.78 years (SD=3.46)	9 years (SD=3.88)	9.66 years (SD=2.86)	9.04 years (SD=3.82)
<i>Age</i>			%			
1. <5 years	6	4	39.53	6	0	13.95%
2. 5-9 years old	11	6	37.2	14	1	34.88%
3. 10-14 years old	8	8	23.25	20	2	51.16%
	girls	boys	girls	boys		
<i>Controls</i>						
<i>Mycosis</i>						
1. tinea pedis	1	3	2	1		
2. tinea manuum	1	0	0	0		
3. tinea corporis/faciei	4	4	6	0		
4. pityriasis versicolor	7	6	11	0		
	7	2	8	1		
	5	3	13	1		
<i>Verruca</i>						
<i>Impetigo</i>						

Table 4. Comparison between Patients' Group and Control Group regarding the Types of Events involved

Type of event	AA group			Control group			p			DA group			Control group			p		
	g	b	T	g	b	T	g	b	T	g	b	t	g	b	t	g	b	t
<i>related to school/kindergarten</i>	11	2	13	4	2	6	0.02	1	0.06	17	1	18	8	2	10	0.03	0.5	0.06
- beginning	5	0	5	3	1	4				7	1	8	4	1	5			
- exams	1	0	1	0	0	0				5		5	3	1	4			
- change school/class	1	2	1	0	0	0				1		1	0		0			
- problems/over-solicitation	4		6	1	1	2				4		4	1		1			
<i>family problems</i>	3	3	6							9		9						
- death of a family member	0	1	1							0		0						
- disputes										2		2						
- financial problems	2	1	3							1		1						
- parents left for work abroad	1	0	1							0		0						
- separations/divorces	0	1	1							4		4						
- illnesses in the family										1		1						
- change of residence										1		1						
<i>personal illness/accident/operation</i>	2	1	3							6		6						
<i>psycho-trauma</i>	2	2	4															

56% of the events in alopecia areata group were related to school. The other half was shared among family problems, psycho-traumas or other illnesses or accidents. For control patients there were only situations regarding school-Table 4.

54% of the situations in diffuse alopecia group were related to school/kindergarten. It is important to mention the presence of previous illnesses/accidents or operations or parent's separation as potential stressful events that could lead to diffuse hair loss.

For girls (most of patients) in both alopecia areata and diffuse alopecia the events related to school were statistically significant different compared to controls (p=0.02, p=0.03).

3. Discussion

The spectrum of incidence for alopecia areata ranges from 0.7% in India [25] (similar to our result), 0.94% in China [26], 1.5% in Korea [27] up to 3.8% in Singapore [20].

As for the pediatric population, the results of the literature are much higher than in our report 2.4% in Thailand [28] and 6.7% in Kuwait [29].

Most studies are reporting alopecia areata more often in males [25-27, 30], but the study of Tan [20] has mentioned females mostly affected by patchy hair loss.

In childhood alopecia areata appeared mostly in girls in some studies, like in our results [25, 29]. But there are also reports of alopecia areata more frequent in boys [31-33].

The mean age of our adult cohort (30.6 years old) is similar to the one of Yang [26] (28.98 years old). In a study [25] on more than 800 patients, 88% of them were below 40 years old. High incidences in the third (41.8%) and fourth (20%) decades are also reported by Ro [27].

Our result of mean age (7.78 years old) for alopecia areata in children is higher than in other studies (about 5 years old) [29, 34], but lower than Tan's mean age of 11.2 years old [32].

A family history of alopecia areata (2.2% in adults and 4.7% in children) is a lower rate than all other studies (from 4.6% to 24% in adults, from 10% up to 50% in children) [20, 25-27, 29-34]. The dimensions of our study sample could be considered a limitation and account for differences in demographics from other studies.

3.1. Stress Involvement

Genetic factors could be strong in alopecia areata, but there are also other factors involved, such as infection, socio-economic factors and also psychological stress [26, 35].

In 1991, there is a case-control study on 92 Saudi patients associating atopy and psychological stress to alopecia areata [36].

Our study on adults suggests the importance of stressful events as precipitating or aggravating factor in more than 65% of alopecia areata cases. There was no statistically significant difference between men and women. In a previous study we identified stressful events before the onset of alopecia

areata in 55% of cases (40 patients in study) compared to 67% of cases with diffuse alopecia (56 patients in study) [12]. In other preliminary data on 58 patients with alopecia areata (adults and children) we found stressful events in 75% of patients compared to controls, with 20% involvement [13].

Our findings are comparable with those of Wygledowska [19] who reported the mention of an important general event by 80% of alopecia areata patients, with 62% stating this as a serious event. There are also studies that are correlating stress with alopecia areata in less than 10% of cases [20] or not at all [21].

It seems that stress in alopecia areata is not recent (i.e. during the past year), the 'aetiology' being much more insidious. Old stressful situations are reported more often, revealing a chronic stress [16]. A case-control study on 90 patients reported total lifetime and early childhood traumatic disease, alopecia areata patients having a higher score of the global impact to their traumatic experiences than controls [37].

We aimed to search for potential stressful life events and their involvement in the onset or recurrence of alopecia areata. Some studies mention the importance of perceived stress, which is sometimes even more important than the stressful situation itself for both the first episode and recurrence [11, 14]. Gupta cited a study by Andersen, in which only 23% of subjects had recent stresses that occurred less than 3 months before disease onset [38].

Our results showed a significant difference in the mean number of stressful events between patients with alopecia areata and controls. However, Picardi *et al.* [17] did not find significant differences between the same two groups when comparing the total number of stressful events and the number of undesirable or major events (21 cases studied). Moreover, the control group had a greater number of uncontrollable events. The authors support the idea of the influence of personality characteristics (alexithymia, avoidance of attachment relationships) or poor social support on individual susceptibility to stressful situations.

Our high odds ratio of involvement in stressful events for alopecia areata patients is important, particularly as we carried out age- and sex-matched control comparisons: many other observations on stress as a precipitating or aggravating factor have not been related to control groups.

As well as the impact of stressful life events, psychological vulnerability of the patient is another factor that could influence the onset of psychosomatic diseases. There is a high degree of perceived distress among patients with alopecia areata (both first onset and recidivism) than in healthy control group

[11]. Gupta *et al.* [39] described alopecia areata patients in their study as having high reactivity to stress; these patients also had higher scores for depression.

Some of the life situations listed by Holmes and Rahe are related to psychological characteristics of patients (family disputes, exams, different kinds of changes in activities, etc.). As we have not investigated any psychological vulnerability, we are unable to comment on the impact of an event in association with psychological traits.

In alopecia areata group the occurrence of one event with a high impact before onset seems to be more important than multiple potential stressful situations. It may be that this event had huge consequences (like death of a family member or dismissal), or that patients with multiple life events had developed coping mechanisms that helped them to overcome problems and prevent onset of the disease.

There are no comparative studies on stressful events in relation to dermatological disorders. In other studies we have found 54.4% stressful events in psoriasis (OR=4.92, $\chi^2 = 42.71$, $p < 0.0001$), 65.6% in vitiligo (OR=6.81, $\chi^2 = 10.73$, $p = 0.0011$), 67.3% in lichen planus (OR=7.44, $\chi^2 = 17.58$, $p < 0.001$). In terms of the types of events mentioned, the most important matters in the vitiligo group were personal problems (47.2% of stressful situations). Among personal problems, exams represented a third of problems. As for psoriasis and lichen planus, comparing the presence of major life events (separation, death or illness of a family member, pregnancy, personal illness/accident, dismissing/unemployment, debts > 10 times average salary), there was a significant difference ($p < 0.0001$) between patients and controls. Regarding the types of events mentioned, the most important matters in the psoriasis and lichen planus group were related to family (>42% of the stressful situations). Among family problems, most often cited were death/illness of a family member and also family disputes.

There is a lack of studies in pediatric dermatology to which to compare our data. Our report, which found that 58% of pediatric patients reported stress involvement in the natural history of their disease, was statistically significant: $\chi^2 = 14.36$, $p = 0.0002$ with an odds ratio of 7.14. It seems to be important to mention that 64% of alopecia areata boys were single child in the family. The use of interviews instead of scale to show the presence of stressful situations before the onset of hair loss could be considered as a limitation, but the results are statistically significant comparing patients with controls.

There are reports that alopecia areata pediatric patients experienced more stressful events [40]. In studies regarding alopecia areata in children and

teenagers stress seemed to be a precipitating factor in 9.5% of cases (up to 3 months prior to onset of disease) [34] up to 80% of cases [23].

Liakopolou et al. [41] correlate the alopecia areata in children with the lack of positive events during the time before the onset (33 cases). There are other studies [22] that had found no significant difference between the mean number of positive or negative life events in children with alopecia areata (12 cases compared to a normative sample).

The types of events noticed by children with alopecia areata were mostly related to school (beginning school or kindergarten, exams at the end of gymnasium, change of class or school, problems with school-mates or teachers, too many classes or homework, children feeling over-solicited). The difference between patients and controls had reached a statistical significance in girls ($p=0.02$). Other potential stressful situations were related to family (death of a family member, family disputes, financial restrictions, parents being abroad for work). Other illnesses, accidents or surgery in children, or situations involving a great feeling of fright were also mentioned.

The study of Andreoli [23] on 180 children and teenagers has proposed as potential stressful events: separations (from people, pets, habits, things or familiar environment) in 37% of cases, relational problems (in family, school, with friends) in 32% of cases, but also the difficulties for the child to fulfill the parents' expectations (especially in school activity) in 24% of cases.

Other data [34] had found similar types of events involved before the onset of alopecia areata in children: family disputes, starting school, parent's divorce, operation, but also different kinds (birth of a sibling, commencement of speech therapy).

Our results regarding diffuse alopecia in children are the first, so there is no data to refer to, yet. Situations related to school/kindergarten were mentioned in more than 50% of patients in diffuse alopecia group. Previous illnesses/accidents or operation or parent's separation were also reported as related to diffuse hair loss.

We also studied, in a similarly designed case-control study, children with vitiligo (41 cases) and psoriasis (41 cases). In the vitiligo group, we found stress involvement in 53% of cases (17% in controls). This difference was significant ($\chi^2 = 7.79$, $p=0.005$). The odds ratio was 5.25 [95% CI: 1.73-15.92] [42]. The types of events reported by children with vitiligo were mostly related to school, *i.e.*, beginning school or kindergarten, exams, change of class or school, too many classes or homework. In children with psoriasis, stress was present in 41% of cases (17% in controls). The difference was statistically significant ($\chi^2 = 4.77$, $p=0.028$). The odds ratio was 3.44 [95% CI: 1.23-9.57].

Girls with psoriasis vulgaris and boys with guttate lesions were more often affected by stressful situations. Family issues (death, illnesses, disputes, parents working abroad, financial restrictions) were more often described, but school- related problems (exams or beginning school) were also prevalent.

3.2. Psychiatric Symptomatology

As well as the impact of stressful life events, psychological vulnerability of the patient is another factor that could influence the onset of psychosomatic diseases. Gupta *et al.* [39] described alopecia areata patients as high reactors to stress and also having depressive symptoms.

Alopecia areata patients tend to have high scores for anxiety [7-11, 43, 44], depression [7-10, 43, 44], obsessive-compulsive disorder [10], adjustment disorder [9]. Furthermore, phobic states [43], social phobia [8], paranoid disorder [8] could also appear in alopecia areata patients.

Patients with alopecia areata also have high rates of alexythymia [17, 45, 46]. They have a tendency to avoidant relationships and poor social support. Alexithymic patients may suffer from unnoticed chronic stress with impaired immune response [46].

There are also reports that found no difference between alopecia areata patients and controls regarding the degree of anxiety and depression [14, 46]. Other notes are mentioning psychiatric disorders (anxiety, affective disorder, substance use disorder) in first-degree relatives of alopecia areata patients [7]. Patients with alopecia areata could have an important risk of a family dysfunction [47].

Alopecia areata patients seem to have more often Behaviour pattern A indicating a certain type of relations between the individual and the environment and raising the risk for the disease [48].

As for pediatric patients with alopecia areata there are a few studies with a high rate of major depressive disorder (up to half of cases) and obsessive-compulsive disorder (in a third of cases) [49]. Children with alopecia areata seem to be more anxious or depressed, withdrawn, aggressive and delinquent. They could have problems in social relations and in attention. Children are more worried and have difficulties in concentration [41]. In a previous study we have described in children with alopecia areata anxiety, depressive symptoms, inhibition, fear of confrontation, relational problems (conflicting relationships), need for support and security, adjustment troubles [13].

Other reports found rates of anxiety and depression in normal limits [22].

Overall, the psychiatric comorbidity is requiring psychiatric evaluations of alopecia areata patients. A close relationship between dermatologist and psychiatrist could offer a better management of the disease. There are mentions of hypnosis as associated method to improve and maintain the psychological well-being in refractory alopecia areata [50, 51].

3.3. Quality of Life

Hair loss could have an important impact on the patients' self-image. There are not so many studies on the influence on the quality of life.

Patients have certain beliefs regarding their diseases. Referring to alopecia areata ones, more than 75% of them believed that the role of the stress was the cause of their hair loss. More than half of the patients believed that their illness had major consequences on their lives, only 57% of them considering treatments to be effective [52].

It is important to measure the impact of the disease on the patient's life. Dermatology Life Quality Index (DLQI) is the first dermatology-specific quality of life questionnaire developed in 1994, composed of 10 simple questions validated in different languages. The scores range from 0 to 30 (0-1: no effect on patient's life, 2-5: small effect, 6-10: moderate effect, 11-20: very large effect, 21-30: extremely large effect). There is a study with significant differences between the mean DLQI score in severe forms of alopecia areata than in controls [53]. These forms have to be treated very early, requiring complex approach and psychological support.

Sometimes, our questionnaires are not correlating with patients' own evaluation. As in women with alopecia (alopecia areata, effluvium telogenum or androgenic alopecia) that scored more severe than the dermatologist both the severity and the impact on the quality of life, revealing a different perception [54].

Alopecia areata patients who cope well with their condition (especially with extensive hair loss) have higher self-esteem. There is a study reporting satisfactory adaptation to the illness with few repercussions in family or social life, work or sexual adjustment. Poor adjustment was associated with dependent or antisocial personality, generalized anxiety and depression [9].

A new study [55] on patients' coping reports that alopecia areata patients do not have dysfunctional coping strategies in general, but they could benefit from psychological interventions focusing on training general and alopecia

areata- specific coping competences and regulating negative emotionality and insecurity, especially at the first onset of hair loss.

The clinical presentation of pediatric hair disorders ranges from subtle to disfiguring. Management of hair disorders requires a holistic approach to the child and family. Young children usually lack self-awareness and it may be the parent who, projecting their own concerns onto the child, most acutely feels any associated anxiety. Hair loss for the older child can lead to low self-esteem, depression and humiliation [56].

Conclusion and Limitations

The psychological and cosmetic importance of hair in our society is immense.

Stressful situations can be correlated with the onset or recidivism of alopecia areata. Often, one stressful situation could have an impact on the emotional balance of the patient, triggering or exacerbating the hair loss. Family problems in adults or periods of adjustments to new conditions (beginning education) for children could play an important role and require special attention and the appropriate intervention.

The psychological profile and comorbidities could be also relevant, influencing the impact of potential stressful events in patients' lives. Small samples and the use of the questionnaire for adults could be limitations comparing to larger views offered by in-depth interviews. The recollection of data could also intervene as a limitation. Case-controls studies, especially in the pediatric area are not so many, so our results can offer a comparative perspective.

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