Metacognition in patients with alopecia areata

Alopesia areatalı hastalarda metakognisyonun değerlendirilmesi

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Abstract

Aim: Though genetic and environmental factors predominate, the pathogenesis of alopecia areata (AA) is not fully known and is associated with emotional stress. A secondary psychiatric disease in psychodermatological disease classification, AA is commonly encountered with depression and anxiety disorder. When the association of alopecia areata with psychiatric diseases is considered, metacognition may play an effective role in its etiology.

Materials and Methods: The study included 50 patients diagnosed with alopecia areata and 50 healthy volunteers. Both groups completed the Sociodemographic Data Form and the Metacognition Questionnaire, while the AA group completed the Structured Clinical Interview For DSM-IV (SCID-I). Both groups were compared in terms of sociodemographic, clinical characteristics and metacognition characteristics.

Results: Apart from familial AA and presence of psychiatric diseases, there was no significant difference between the groups. These were significantly high in the AA diagnosis group. The need to control thoughts was significantly high in the AA group compared to the HV group (p=0.022). When involvement percentage is compared in AA patients, there were significant differences between the groups for uncontrollability and danger, need to control thoughts and cognitive self-consciousness (p=0.01; P=0.002, p=0.009). When AA patients were compared in terms of remission, cognitive self-consciousness was significantly higher in the group without remission (p=0.018).

Conclusion: Many aspects of AA, a psychosomatic disease, have not been researched from a psychiatric viewpoint. Our study is a preliminary study on metacognition; research concerning the association of metacognition with other psychiatric diseases (OCD, GAD) will provide better understanding of AA.

Keywords: Alopecia Areata; Metacognition; Psychiatric Disorder.

Öz

Amaç: Genetik ve çevresel faktörler üzerinde durulsa da patogenezi tam olarak bilinmeyen alopesi areatanın(AA) emosyonel stres ile birlikteliği sıktır. AA da en sık rastlanan psikiyatrik bozuklukların depresyon ve anksiyete bozukluğu olduğu bilinmektedir. Alopesi areata ile psikiyatrik hastalıkların sıklıkla birlikteliği göz önüne alındığında pek çok psikiyatrik hastalığın kaynağını oluşturan metakognisyonun hastalığın etiyolojisinde etkin bir rol oynayabileceği kanaatini taşımaktayız.

Gereç ve Yöntem: Çalışmaya 50 alopesi areata tanılı hasta ve 50 sağlıklı gönüllü alındı. Her iki gruba, tarafımızca hazırlanmış olan Sosyodemografik Veri formu ve Üstbiliş Ölçeği (ÜBÖ-30), alopesi areata grubuna ise ek olarak DSM IV Yapılandırılmış Klinik Görüşme Formu I (SCID-I) uygulandı. İki grup sosyodemografik ve klinik özellikler ile metacognisyon özellikleri açısından karşılaştırıldı.

Bulgular: Sosyodemografik veriler değerlendirildiğinde Ailede AA ve psikiyatrik hastalık varlığı dışında gruplar arasında anlamlı bir farklılık saptanmadı. Bu iki özellik ise AA tanılı grupta SG grubuna oranla anlamlı şekilde yüksek bulundu. Düşünceleri kontrol ihtiyacı alt skoru AA grubunda SG grubuna kıyasla anlamlı oranda yüksek olarak saptanmıştır(p=0.022). AA hastalarının, tutulum yüzdesine göre karşılaştırıldığında; gruplar arasında kontrol edilmezlik ve tehlike, düşünceleri kontrol ihtiyacı ve bilişsel farkındalık skorları açısından anlamlı fark bulunmaktaydı (p=0,01; P=0.002, p=0,009) AA hastaları remisyonu olup olmamasına göre karşılaştırıldığında bilişsel farkındalık alt skorlarında remisyonu olmayan grupta daha yüksek olmak üzere anlamlı bir fark bulunmaktaydı (p=0.018).

Sonuç: Psikosomatik bir hastalık olduğu bilinen AA nın psikiyatrik açıdan araştırılmamış pek çok yönü olduğu kanaatindeyiz. Çalışmamız metakognisyon konusunda bir ön çalışma niteliğinde olup, metakognisyonla birlikte diğer psikiyatrik hastalıkların(OKB, YAB) beraberliğinin araştırılmasının AAnın daha iyi anlaşılmasında daha fazla yol gösterici olacağını düşünmekteyiz.

Anahtar Kelimeler: Alopesi Areata; Metakognisyon; Psikiyatrik Hastalık.

INTRODUCTION

Classified as a psychodermatological disease, alopecia areata (AA) is hair loss that does not form scars yet progresses in patches with regular edges. It may be observed in all areas of the body with hair follicles and affects both adults and children (1, 2). The lifelong prevalence is about 0.2% and the lifelong incidence is 2.1% (1, 2). Though the focus remains on genetic and environmental factors, the pathogenesis is not fully known (3-6). It is considered to be an autoimmune disease related to the T lymphocytes of hair follicles. It is frequently associated with endocrine diseases, diabetes, atopic dermatitis, vitiligo and emotional stress. Alopecia areata is a situation frequently observed to begin after severe stress (3-6).

Metacognition is the individual awareness of events and processes in person's own mind, and is a metacognitive system including the aim of directing events and processes of the mind (7). Our mental processes and thoughts, rules and beliefs related to mental processing are included in the metacognitive field. The metacognitive model proposes that working toward adjustment plays a large role in human cognitive processes. As a result any deviation that occurs in this system naturally is thought to be an important factor in the development and continuation of many psychopathologies (8). Metacognitive processes like assessing thoughts and beliefs about thoughts form the obsessions and compulsions that are symptoms of obsessive compulsive disorder and are emphasized as important for its continuation (9-11). The effects of extreme stress and long term stress may cause or increase pathological changes in the skin. It is a generally accepted idea that stress and traumatic life events have a role in many dermatological diseases including psoriasis, atopic dermatitis, angioedema, urticaria, and alopecia areata (12). When it is considered that situations where early negative experiences or life events with negative emotional load may form sources of stress and be effective in formation of metacognition, we believe research into the relationship between metacognition and stress-sourced skin diseases will aid in providing different perspectives on the etiology of skin diseases (13).

Classified as a secondary psychiatric disease among psychodermatological diseases, AA is most frequently reported to be encountered with the psychiatric disorders of depression and anxiety disorder (14). Together with this, considering the contradictory data related to alexithymia (15, 16) and different temperament character traits (17, 18), we believe there are many more topics to research in AA in terms of psychiatry. As a result, we wish to study the possible role of metacognition in the etiology of alopecia areata.

MATERIALS and METHODS

Sample Group
After receiving permission from Çanakkale Onsekiz Mart University ethics committee, the study included a total of 50 patients who presented at the Dermatology Clinic at

Çanakkale Onsekiz Mart University Training and Research Hospital and were diagnosed with AA and no other diseases disrupting their neurological or general medical situation. The control group comprised 50 healthy volunteers applying to health services with no mental or other medical diseases. The patients and individuals in the healthy subject group were informed about the aim and method of the study and asked for their consent. In the AA group, to exclude Axis I diagnoses, the Structured Clinical Interview for DSM-IV (SCID-I) was applied. For healthy volunteers, a detailed psychiatric examination was performed and those with active psychopathology were not included in the study. The two groups completed the Sociodemographic Data Form, prepared to provide information and demographic characteristics of individuals and the Metacognition Questionnaire (MCQ-30).

Socio-demographic Data Form: Applied to the patients and control group, this form included socio-demographic data such as age, sex, educational level, marital status, occupation, psychiatric disease and AA history in family and cigarette and alcohol use.

Structured Clinical Interview For DSM-IV (SCID-I): This interview was developed in 1994 by the American Psychiatric Association for structured clinical interview for DSM-IV Axis I disorders and semi-structured clinical interview to diagnose major DSM-IV Axis I disorders. It comprises six modules. The adaptation and reliability studies for Turkey were completed by Özkürkçügil et al. (1999) (19).

Metacognition Questionnaire (MCQ-30): This questionnaire was developed by Cartwright-Hatton and Wells (1997), the MCQ-30 comprises five different, but related, conceptual factors. These five factors are; (1) positive beliefs about worry, (2) cognitive confidence, (3) negative beliefs about uncontrollability of thoughts and danger, (4) cognitive self- consciousness and (5) beliefs about need to control thoughts (20). All factors comprise two common components, positive and negative metacognitive beliefs (constructs) and metacognitive processes (selective attention, monitoring of internal cognitive processes). The validity and reliability of this study was completed by Tosun and Irak for Turkey (2008)(21). Each item in the MCQ-30 is answered on a 4 point Likert scale. The points obtained vary from 30 to 120 with increasing points indicating increased pathological metacognitive activity.

Statistical Method
The analysis of obtained data was completed using SPSS 19.0 software. Normal distribution of variables was investigated with the Kolmogorov-Smirnov/Shapiro-Wilk tests. Descriptive data are given as mean, standard deviation, median, minimum, maximum, frequency and percentage. To compare mean values of the patient and control groups, the independent groups t test and Mann-Whitney U test were used for continuous variables. To evaluate differences between categorical parameters, the Yates corrected chi-square test and Fisher's exact test were used. To compare total points for scale subgroups according to disease duration and

involvement percentage in the patient group, the Kruskall Wallis test was used. Conditions with a p value of below 0.05 were accepted as statistically significant.

RESULTS

General Assessment of Participants
The study included 50 alopecia areata (AA) patients and 50 healthy volunteers (HV). While 33 participants were females, 67 were males. The mean age of participants (N=100) was 29.78±9.56 (Median:28.56, Min:17.00, Max:62.00) years. Of all the participants 15 were unemployed, 34 were workers, 23 were civil servants, 1 was retired, 9 were housewives, 15 were students, 1 was self-employed and 2 were soldiers. Of all the subjects in the study, 55 were single, 43 were married and 2 were divorced. In terms of educational background, 28 were primary school graduates, 32 were secondary school graduates and 39 were high school or university graduates. While 10 people had AA in their family history, 90 patients did not. 68 of the participants had no history of alcohol use; 31 participants claimed that they used alcohol. 33 participants were smokers and the remaining 66 participants did not smoke.

The results of the **Structured Clinical Interview For DSM-IV (SCID-I)** applied to the AA group pointed to the following data: 6 (12%) patients had adjustment disorder, 4 (8%) had depression, 6 (12%) had anxiety disorder, 1 (2%) patient had bipolar affective disorder in remission, 2 (4%) patients abused alcohol and 1 (2%) patient abused cannabis.

Comparison of Socio-demographic Characteristics of Patient and Control Groups
While there were 15 women (30%) and 35 men (70%) in the patient group, there were 41 women (51.3%) and 39 men (48.7%) in the HV group. There was no significant difference between the groups in terms of sex (p=0.67). The mean age in the AA group was 29.52 ± 10.17 years while the mean age in the HV group was 30.04 ±9.00 years, with average ages similar in the groups (p=0.78). The sociodemographic data of the participants is shown in Table 1.

Assessment of Metacognitive characteristics of Patient and Control Groups
When the metacognition subscales are investigated in the AA group, positive beliefs about worry, negative beliefs about uncontrollability of thoughts and danger, cognitive confidence, beliefs about need to control thoughts and cognitive self-consciousness subscores were 11.93 ± 4.26, 15.15 ± 3.71, 12.25 ± 5.32, 14.93 ± 4.81 and 17.00 ± 3.38, respectively. In the HV group, the positive beliefs about worry, negative beliefs about uncontrollability of thoughts and danger, cognitive confidence, beliefs about need to control thoughts and cognitive self-consciousness subscores were 12.28 ± 4.35, 13.64 ± 3.38, 12.21 ± 4.99, 13.15 ± 3.75 and 17.18 ± 3.03, respectively. There was no difference between the groups in terms of the metacognition subscales of positive beliefs about worry, negative beliefs about uncontrollability of thoughts and danger, cognitive confidence and cognitive self-consciousness (p= 0.81,

p=0.08, p = 0.98, p=0.54, respectively). The belief about the need to control thoughts subscore was found to be higher in the AA group compared to the HV group (p=0.011) (Table 2).

Table 1. Socio-demographic data comparison: AA and HV groups

	AA N=50	HV N=50	p
Sex			
Female	15 (45.5%)	18 (54.5%)	
Male	35 (52.2%)	32 (47.8%)	0.671*
Age	29.52 ± 10.17	30.04 ±9.00	0.787***
Marital Status			
Single	31 (56.4%)	24 (43.6%)	
Married	19 (44.2%)	24 (55.8%)	0.321*
Education			
Primary School	18 (64.3%)	10 (35.7%)	
Secondary School	16 (50.0%)	16 (50.0%)	0.113*
University	15 (38.5%)	24 (61.5%)	
Occupation			
Unemployed	12 (80.0%)	3 (20.0%)	
Worker	17(50.0%)	17 (50.0%)	
Civil Servant	8 (34.8%)	15 (65.2%)	
Retired	0(0.0%)	1(100.0%)	0.068*
Housewife	6 (66.7%)	3 (33.3%)	
Student	5 (33.3%)	10 (66.7%)	
Self-employed	0 (0.0%)	1(100.0%)	
Soldier	2(100.0%)	0 (0.0%)	
Psychiatric Disease in Family			
Present	8 (80.0%)	2 (20.0%)	
Absent	42 (46.7%)	48 (53.3%)	**0.046***
AA in Family			
Present	9 (100.0%)	0 (0.0%)	
Absent	41 (53.2%)	36 (46.8%)	**0.009****
Smoking habit			
Present	20 (60.6%)	13 (39.4%)	
Absent	29 (43.9%)	37 (56.1%)	0.177*
Alcohol Use			
Present	19 (61.3%)	12 (38.7%)	
Absent	30 (44.1%)	38 (55.9%)	0.171*

*: Yates corrected chi-Square test; **: Fisher's Exact Test; ***: Independent Groups T test

Table 2. Metacognition subscales comparison: AA and HV groups

	AA (n=50)	HV (n=50)	p*
Positive Beliefs	11.93 ± 4.26	12.28 ± 4.35	0.814
Uncontrollability of thoughts and danger	15.15 ± 3.71	13.64 ± 3.38	0.089
Cognitive confidence	12.25 ± 5.32	12.21 ± 4.99	0.986
Need to control thoughts	14.93 ± 4.81	13.15 ± 3.75	**0.022**
Cognitive self-consciousness	17.00 ± 3.38	17.18 ± 3.03	0.540

*: Independent groups t test

DISCUSSION

According to the metacognitive model in individuals, the use of maladaptive metacognitive control strategies such as obsessive thoughts, selective attention to threats, attempting to suppress thoughts and avoiding thoughts, in addition to lack of production of coping skills and repetitive negative self perception, play a role in the occurrence and continuation of psychopathologies (22).

According to the metacognitive model (Wells, 1995; 1997), people with GAD positively view worry as an efficient way to deal with threats, similar to most individuals. But in their case, worry becomes a rigid way to cope and when negative beliefs about worry occur, such as lack of ability to control worry and dangers, it can cause harmful control strategies (23, 24).

The importance of metacognitive processes like evaluation of thoughts and beliefs about thoughts has been emphasized in creating and maintaining the obsessions and compulsions that constitute the symptoms of obsessive compulsive disorder (25, 26, 27). At the end of measurements conducted by De Bruin et al. (2005) in a non-clinical sample, they obtained findings on peoples' awareness of their own thoughts, negative assessment of intrusive thoughts and efforts to suppress thoughts (28). Hermans et al. (2003) found that the cognitive confidence of patients with OCD diagnosis was lower compared to a normal group (29).

Morrison and Wells emphasized higher levels of problematic metacognition in PD patients when compared with normal cases (30). The PD patients had more negative beliefs about inability to control thoughts and the danger of thoughts and stronger belief in the need to control thinking. The dysfunctional cognition presenting in OCD and PD cases is proposed to have a significant contribution from metacognition and this should be taken into account during treatment (27, 31).

As far as the notion that metacognition is a predictor of disorder characteristics and progression in OCD is concerned, PD and GAD indicate the importance of metacognition for AA considering the association of psychiatric diseases and symptoms. Considering this situation in our study investigating metacognition in AA, the need to control thoughts subscore in the AA group was identified to be significantly high compared to the HV group and this may be related to lack of production of coping skills and repeated negative self-perception in these patients. However, to the best of our knowledge, there is no study on self-perception in AA. Again, in the comparison of the AA group with more than 25% involvement and AA groups with less involvement, the significant differences in positive beliefs, uncontrollability of thoughts and danger and cognitive self-consciousness subscores support this hypothesis. Additionally, in a study of 850 university students, Tosun and Irak (2008) showed that metacognition, especially metacognitive beliefs related to danger and uncontrollability, was an independent strong predictor of obsessive compulsive symptoms and continuous

anxiety (21). This situation may explain why the 35.7% rate of AA in children and youth is related to OCD (32). Subsequently, the necessity to make research on continuous and pathologic anxiety in AA may be concluded from this scientific data.

In the AA group without remission, the cognitive self-consciousness subscores were found to be significantly high, which may show that the thoughts about thinking and perhaps the stress factor due to this prevents remission causing the disease to continue actively or to recur.

A study in England reported the lifelong prevalence of developing major depression and anxiety disorder in AA patients was 39% (14). The association of AA with psychiatric disorders is known to occur at the high rate of 74% (15). A country analysis in Taiwan by Chu et al. compared AA patients with a control group and identified increased risk of anxiety and depression in AA patients (33). It is noteworthy that other studies found similar results (14, 15, 17, 18). A retrospective cross-sectional study screened 2115 AA patients over 11 years and reported depression or anxiety disorder in 25.5% of patients (34). A recent study evaluated psychological disorders in AA patients and showed greater depression and anxiety to a clear degree in AA patients compared with healthy controls (35). The same study concluded that sociocultural levels of patients affected findings. No matter how high depression and anxiety levels are in AA patients, it is notable that none of the patients have thoughts about death or acute suicidal ideation. In our study, we found depression in 8% and anxiety in 12% of our AA patients, lower than the levels mentioned above. This difference may be due to the fact that the majority of AA patients in our study were initial diagnosis patients.

The fact that AA is a psychosomatic disease has attracted attention in terms of alexithymia and personality traits. The data related to AA and alexithymia are contradictory (36,37). Sayar et al. mentioned 58% alexithymia in male patients, while Cordan et al. compared AA patients with healthy controls and found higher Toronto Alexithymia Scale (TAS) scores in AA patients (38,39). However, a similar study by Picardi et al. identified no difference between AA patients and healthy controls in terms of alexithymia (40). The results from a study by Sellami et al. were similar (41). Alexithymia is linked to metacognition of the self and is a significant consideration in the metacognition setting. It is related to a range of problems linked to determining feelings, describing feelings to other people, restricted imagination and externalized thinking style (42). As a result, evaluation of alexithymia and metacognition together in AA may allow us to obtain different findings.

In a study investigating personality traits in AA, Alfani et al. compared AA patients and healthy volunteers using the Minnesota Multiphasic Personality Inventory and found that AA patients displayed an appearance of greater depressive, hysteric and anxious feelings about experiences. The same study noted that AA patients had hypochondriac tendencies and conflict with social circles

(43). Additionally, one of the two studies using the Temperament and Character Inventory to research personality traits found no difference between AA patients and healthy controls, while the other study found that the AA patients had lower scores for novelty seeking, reward dependence and self transcendence compared to healthy controls (17, 18).

In the light of all this data, we believe that many aspects of AA, known as a psychosomatic disease, have not been studied from a psychiatric point of view. Our study is a preliminary study on metacognition, and we think that making research on the association of metacognition together with other psychiatric diseases (OCD, GAD) will provide more guidelines to better understand AA.

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