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ARAŞTIRMA / RESEARCH

Attention deficit hyperactivity disorder and impulsivity in patients with trichotillomania

Trikotillomani tanılı hastalarda dürtüsellik ve dikkat eksikliği hiperaktivite bozukluğu

Meliha Zengin Eroğlu[1], Ebru Sahan[2], Mehmet Emin Demirkol[3], Volkan Gelegen[4], Lut Tamam[3]

[1]İstanbul Haydarpaşa Numune Sağlik Uygulama ve Araştirma Merkezi, Psikiyatri Kliniği, İstanbul, Turkey
[2]Bezm-İ Âlem Vakif Üniversitesi, Tip Fakültesi, Dahili Tip Bilimleri Bölümü, Ruh Sağliği ve Hastaliklari Anabilim Dalı, İstanbul, Turkey
[3]Çukurova Üniversitesi, Tip Fakültesi, Ruh Sağliği ve Hastaliklari Anabilim Dali, Adana, Turkey
[4]Osmaniye Devlet Hastanesi, Psikiyatri Bölümü, Osmaniye, Turkey

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Abstract

Purpose: The aim of this study was to assess impulsivity and attention deficit hyperactivity disorder in adult patients with trichotillomania.

Materials and Methods: Subjects diagnosed with trichotillomania primary or comorbid to other psychiatric disorders who met the inclusion criteria were enrolled in the study. Data were collected retrospectively. Minnesota Impulse Control Disorders Interview Scale (MIDI), the Barratt's Impulsivity Scale (BIS), Adult ADD/ADHD DSM IV- Based Diagnostic Screening and Rating Scale, Wender Utah Rating Scale (WURS) were evaluated.

Results: 40 patients with trichotillomania and 18 patients with trichotillomania + adult attention deficit hyperactivity disorder were included in the study. Sociodemographic characteristics of two groups were similar. Rate of pathologic gambling was higher in trichotillomania + adult attention deficit hyperactivity disorder group. Trichotillomania + adult attention deficit hyperactivity disorder group had statistically higher scores from attention deficit part of Adult ADD/ADHD DSM IV-Based Diagnostic Screening and Rating Scale.

Conclusion: Adult attention deficit hyperactivity is more related to attention deficit in trichotillomania patients and impulsivity is a common feature in both disorders.

Keywords: Trichotillomania, impulsivity, impulse control disorders, ADHD.

Öz

Amaç: Bu çalışmada trikotillomani hastalarında dürtüsellik ve erişkin dikkat eksikliği ve hiperaktivite bozukluğunu değerlendirmeyi amaçladık.

Gereç ve Yöntem: Birincil ya da eş tanı olarak trikotillomani tanısı konulan ve dahil edilme kriterlerine uygun olan hastalar çalışmaya dahil edildi. Veriler retrospektif olarak toplandı. Minnesota Dürtü Kontrol Bozuklukları Görüşmesi (MIDI), Barratt İmpulsivite Ölçeği (BİÖ), Erişkin Dikkat Eksikliği Hiperaktivite Bozukluğu tanı ve değerlendirme envanteri, Wender Utah Derecelendirme Ölçeği (WUDÖ) uygulandı.

Bulgular: Çalışmaya trikotillomani tanısı olan 40 ve erişkin dikkat eksikliği hiperaktivite bozukluğu + trikotillomanisi olan 18 hasta dahil edildi. Her iki grubun sosyodemografik özellikleri birbirine benzerdi. Patolojik kumar oynama erişkin dikkat eksikliği hiperaktivite bozukluğu + trikotillomani grubunda daha sıktı. Erişkin dikkat eksikliği hiperaktivite bozukluğu + trikotillomani grubu, erişkin dikkat eksikliği hiperaktivite bozukluğu tanı ve değerlendirme envanterinin dikkat eksikliği alt ölçeklerinden istatistiksel olarak anlamlı düzeyde daha yüksek puan aldı..

Sonuç: Trikotillomani hastalarında erişkin dikkat eksikliği ve hiperaktivitenin daha çok dikkat eksikliğiile ilişkili olduğunu, dürtüselliğin ise her iki bozuklukta ortak bir özellik olduğunu göstermiştir.

Anahtar kelimeler: Trikotillomani, dürtüsellik, dürtü kontrol bozuklukları, DEHB.

Yazışma Adresi/Address for Correspondence: Dr. Meliha Zengin Eroğlu, İstanbul Haydarpaşa Numune Sağlik Uygulama ve Araştirma Merkezi, Psikiyatri Kliniği, İstanbul, Turkey E-mail: dr_ferzan13@yahoo.com.tr
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INTRODUCTION

Trichotillomania (TTM) is repeated pulling out of one's own hair, leading to hair loss and functional impairment[1,2]. TTM was not officially included as a psychiatric disorder by the American Psychiatric Association (APA) until the Diagnostic and Statistical Manual of Mental Disorders, Third Edition Revised (DSM-III-R, 1987)[3]. It was classified in the category of Impulse Control Disorder Not Elsewhere Classified in Diagnostic and Statistical Manual of Mental Disorders, Third and Fourth Edition, Text Revisions (DSM-III-R, DSM-IV-TR)[4,5]. In the 5th edition of the DSM (DSM-5) in 2013, criteria B (an increasing sense of tension immediately before pulling out the hair or when attempting to resist the behavior) and C (pleasure, gratification, or relief when pulling out the hair) were removed[6]. There is no longer a requirement for diagnosed individuals to show urges to pull and subsequent relief after pulling[6]. TTM was included in the chapter on Obsessive-Compulsive and Related Disorders with obsessive compulsive disorder (OCD), excoriation disorder, body dysmorphic disorder, and hoarding disorder. TTM and excoriation (skin-picking) disorder (SPD) are categorized as body-focused repetitive behavior disorders (BFRBs), a subcategory within the obsessive-compulsive and related disorders[7].

Impulsivity may be defined as participation in a rewarding behavior based on overestimating immediacy of reward and underestimating longer-term disadvantageous outcomes[8]. Impulsivity in the TTM, evinced by feelings of tension and irresistible urge prior to hair pulling and relief afterward[9]. In many individuals with TTM (39%), there is a distinctly pleasurable feeling resulting from the pulling that allows potentially positive reinforcing consequences for the behavior[10]. The satisfaction derived from handling of the hairs may further serve to reinforce the behavior[11].Individuals with TTM report being aware that there are aftermaths to their behavior but they feel incapable to withstand the immediacy of the reward they gain from pulling[10].

Compulsivity, on the other hand, refers to the performance of repetitive behaviors with the goal of repressing or preventing anxiety or distress, not to provide pleasure or gratification[11]. Confirming this characterization, Christenson and Mansueto (1999) found that 68% of subjects with TTM reported problems with tension or anxiety[12]. Elevated rates of co-occurring anxiety disorders (58%) reported in subjects with TTM[13]. Pulling, at least in some individuals with Hair Pulling Disorder (HPD), may permit a person to escape uncomfortably high anxiety levels that are unpleasant[14].

Currently, in this categorization of BFRDs (TTM and SPD) the importance of compulsivity is implied, though impulsivity has been reported as a common feature of these disorders. A number of studies have assessed impulsivity using both self-report and neurocognitive measures in bothTTM and SPD[15-18].

Dysfunction of the reward system was proposed as a contributor to hair pulling[19] as was the dopaminergic system implicated in the pathophysiology of TTM. The dopamine/norepinephrine reuptake inhibitor bupropion had been successful in the treatment of a case with TTM[20].

Attention-deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder with symptoms of hyperactivity, irritability, and impulsivity[9]. Numerous epidemiologic surveys detected a high rate of ADHD among TTM patients when compared with the general population[21]. Young patients with TTM were determined to have lower levels ofattention, particularly selective attention[22].

In most cases, TTM begins in childhood or adolescence (4-17 years)[13]. The prevalence of the disorder in adolescents is approximately 1%[23]. Trichotillomania may appear as an isolated disorder or as one of the numerous comorbid conditions, such as mood and anxiety disorders, substance use disorders, eating disorders and ADHD[21,24], as well as mental retardation and autism[13]. Childhood trauma may play also a role in the development of TTM[25,26].

As seen, there is a high rate and wide range of comorbidity with TTM, nevertheless the pathophysiology still remains unclear. The prevalence of ADHD and impulsivity in special groups have been studied often among child and adolescent patients for substance use disorders, eating disorders and other impulse control disorders[27,28]. Recently, research data is increasing in adults for the relationship between ADHD, impulsivity, and diseases like fibromyalgia[29], diabetes[30], etc. In this study, we aimed to assess the comorbid impulsivity, ADHD and any other impulse control disorders in adult patients with TTM.

MATERIALS AND METHODS

A total of 64 TTM patients who applied to outpatient impulse control clinic at Cukurova University, Department of Psychiatry were included in the study. Patients were between 18-45 years of age, educated at least at primary school level and diagnosed with or treated for trichotillomania. Also, patients diagnosed with or treated for any other psychiatric disorders were included in the study. Patients with lower educational level than primary school or who have psychotic disorders, bipolar disorders, neurological diseases, movement disorders, autistic spectrum disorders, mental retardation or any other severe physical disorders and those who refused to take part in the study were excluded. Three patients were excluded because of comorbid diagnoses listed above and three patients were excluded because of missing test results. The Cukurova University institutional review board approved the study and written informed, signed consent was obtained from all the participants that they agreed to allow us include their medical records for a scientific study.

Assessment

Diagnoses were established in accordance with DSM-IV-TR criteria, for both TTM and ADHD. All data were obtained from medical records and evaluated retrospectively. Axis I psychiatric diagnoses were made by using structured clinical interview (SCID-I) for DSM-IV axis I disorders[31,32]. By using Minnesota Impulsive Disorders Interview(MIDI), we investigated the frequency impulse control disorders not otherwise specified totally. Each impulse control disorder was recorded separately in our data form[33]. Patients diagnosed with TTM were administered the following rating scales: Barratt's Impulsivity Scale (BIS), Adult ADD/ADHD DSM IV- Based Diagnostic Screening and Rating Scale, Wender Utah rating scale (WURS).

Measures

Sociodemographic data were collected from medical reports. It included age, marital status, working status, duration of education (years), place of residence and socioeconomic status. Childhood and the current diagnosis of ADHD, previous and present diagnosis of comorbid psychiatric or physical illness were recorded. Psychiatric and physical illnesses were primarily based on self-report of cases and psychiatric examination conducted on-site. Information provided by the patients was checked with other accessible sources, such as living parents or siblings, spouses, and available medical files. (For statistical purpose, patients with mid and high socioeconomic status were treated as one group while patients who had been divorced or never married were grouped as single, and housewives, students, and retired patients were grouped as unemployed).

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)

It is a structured clinical interview applied by the interviewer to investigate the diagnosis of Axis-I psychiatric disorders. It consists of six modules. The application lasts 30-60 minutes onaverage. It has been developed by First et al.[31] and Turkish validity and reliability study was conducted by Özkürkçügil et al.[32].

Minnesota Impulse Control Disorders Interview Scale (MIDI)

It is a semi-structured interview consisting of 36 items with separatemodules investigating the presence of impulse control disorders (eg. pathological gambling, intermittent explosive disorder, trichotillomania) according to DSM-IV[33].

Barratt's Impulsivity Scale (BIS)

This is a self-reported scale using a 3-factor impulsivity model that includes both motor and cognitive impulsivity. It has 30 items measuring impulsivity on 3 subscales including attention, motor, and non-planning[34]. After the evaluation, 4 different scores are obtained: total (BISt), non-planning (BISnp), attention (BISa) and motor (BISm) impulsivity. Turkish validity and reliability were assessed by Güleç et al.[35]. It has similar psychometric properties as the original.

Adult ADD/ADHD DSM IV- Based Diagnostic Screening and Rating Scale

This scale consists from 3 parts (Attention deficit, Hyperactivity/ impulsivity and features with ADHD), Turkish validity and reliability were assessed by Gunay et al.[36].

Wender-Utah Rating Scale (WURS)

This scale was developed to inquire retrospectively into symptoms of ADHD in childhood and to help

to diagnose ADHD in adults[37]. WURS is a self-report scale, adults with ADHD are scored with 25 items that were found to discriminate best from healthy controls. It is a five-point Likert type self-reporting scale (0 = no, 4 = extreme) where each item is rated 0-4. The total WURS score is between 0 and 100. The cut-off score was set at 36. When this cut-off point was taken, sensitivity was 82.5% and specificity was 90.8%. It has been shown to be a valid and reliable scale to help the clinician in diagnosing ADHD in adults. Turkish validity and reliability were performed by Öncü et al.[38].

Statistical analysis

For comparison of two independent and normally distributed variables Student's t-test wasused and to compare two independent and non-normal distributed variables the Mann-Whitney U test used. Chi-square test was used to determine the relationship and dependency between variables. Statistical significance level was determined as 0.05. Analyzes were performed using MedCalc Statistical Software version 12.7.7 (MedCalc Software bvba, Ostend, Belgium;http://www.medcalc.org; 2013).

Table 1. Distribution of impulse control disorders among groups

	Trichotillomania+ADHD	Trichotillomania	Total		p
	n (%)	n (%)	n (%)		
Compulsive buying	5 (33.3)	10 (66.7)	15(25.9)	0.050	0.823
Kleptomania	2 (66.7)	1 (33.3)	3 (5.2)	1.877	0.171
Pyromania	0 (0)	1 (100)	1 (1.7)	0.458	0.499
Pathological gambling	5 (71.4)	2 (28.6)	7 (12.1)	6.069	0.014*
Present					
Compulsive sexual behavior	1 (33.3)	2 (66.7)	3 (5.2)	0.008	0.930
Compulsive exercise	1 (100)	0 (0)	1 (1.7)	2.261	0.133
Intermittent explosive disorder	5 (31.2)	11 (68.8)	16(27.6)	0.000	0.983

ADHD:Attention deficit and hyperactivity disorder, Chi-square test was used, p values in bold are statistically significant

Table 2. Comparison of BIS, WURS scores and Adult ADHD criteria between groups

	Trichotillomania+ADHD Mean.±SD	Trichotillomania Mean.±SD	Total Mean.±SD		p
BIS total	71.88±10.62	67.87±11.73	69.12±11.46	1.239	[a]0.220
BISnp	27.11±6.56	27.40±5.77	27.31±5.97	-0.169	[a]0.866
BISm	23.77±4.65	21.95±4.68	22.51±4.71	1.377	[a]0.174
BISa	20.66±3.75	18.35±3.56	19.06±3.75	-1.909	[b]0.056
WURS	42.22±18.09	26.20±13.02	31.17±16.42	3.827	[a]<0.001**
Adult ADHD AD criteria	6.00±2.49	2.62±2.50	3.67±2.94	-3.906	[b]<0.001**
Adult ADHD AD score	16.50±5.95	9.52±5.80	11.68±6.65	4.199	[a]<0.001**
Adult ADHD HI criteria	3.33±3.06	2.65±2.43	2.86±2.63	0.911	[a]0.366
Adult ADHD HI score	10.33±8.94	9.45±6.42	9.72±7.23	0.427	[a]0.671
Adult ADHD features criteria	14.05±6.64	11.52±6.29	12.31±6.45	1.392	[a]0.169
Adult ADHD features score	45.33±17.24	36.00±14.29	38.89±15.73	2.156	[a]0.035*
Adult ADHD total criteria	24.22±9.16	17.40±9.46	19.51±9.82	2.563	[a]0.013*
Adult ADHD Total score	73.05±27.42	55.57±22.33	61.00±25.14	2.567	[a]0.013*

BIS: Barratt Impulsivity Scale score; BISnp: Barratt Impulsivity Scale non-planning score; BISa: Barratt Impulsivity Scale attention score; BISm: Barratt Impulsivity Scale motor score; WURS: Wender Utah Rating Scale score; ADHD:Attention deficit and hyperactivity disorder; AD:Attention-deficit; HI:hyperactivity/impulsivity [a] Student t-test, [b] Mann Withney U test, p values in bold are statistically significant

RESULTS

Totally 39 women and 19 men were included in the study. 31% (n=18) of patients were diagnosed as TTM+ADHD and 69% (n=40) of patients were TTM. TTM+ADHD group consisted of 10 women and 8 men. TTM group consisted of 29 women and 11 men. No statistically significant difference was found between two groups in sociodemographic features such as age, gender, marital status, education level, socioeconomic status and place of residence. Unemployed individuals were statistically high in TTM group (60% vs 40%, p=0.028). Familial psychiatric history and previous psychiatric treatment rates were similar in two groups (p=0.719 and p =0.060 respectively).

Distribution of lifetime and current psychiatric disorders were similar in two groups. Distribution of lifetime psychiatric disorders were; anxiety disorders 34.4%, depression 20.7%, somatization 10.4%, substance abuse 6.9%, eating disorders 1.7%. Distribution of current psychiatric disorders were; anxiety disorders 48.3%, depression 29.3%, somatization 15.5%, substance abuse 6.9%, eating disorders 5.2%. Just 2 patients defined traumatic life experience and both of them were in TTM+ADHD group (p=0.032). Pathologic gambling rate was found higher in TTM+ADHD group (p=0.014). Rate of impulse control disorders according to MIDI were shown in Table 1.

Childhood ADHD was higher in TTM+ADHD group (58.3% vs 41.7%, p<0.001). WURS scores were significantly higher in TTM+ADHD group (p<0.001).

The comparisons of BIS, WURS and ADHD scale scores between two groups are presented in Table 2. BIS scores did not show any significant difference between TTM and TTM+ADHD groups (p>0.05, Table 2)

DISCUSSION

Our study results showed that TTM patients with ADHD have more attention deficit problems than TTM patients without ADHD. These results were partially consistent with the literature. High levels of attention deficit problems in TTM patients were searched in previous studies[21,22]. Stanley et al.[22] found some attentional problems in TTM patients by neuropsychological test evaluation. They compared TTM patients with normal controls and obtained significantly different results in paced auditory serial addition test, trail making B and Stroop test which measure divided attention. TTM group demonstrated poorer performance on divided attention tests but not focused attention[22]. In our study, attention subscale of BIS seems higher in TTM patients with ADHD but it is not a statistically significant difference.

On the other hand, we saw no difference between groups in hyperactivity and impulsivity areas (Table 2). In one sense, this means TTM and ADHD share impulsivity feature but they differ in attention deficit dimension. Similarities in all BIS scores of groups corroborate this idea too (Table 2). Impulsivity levels did not differ in TTM patients from normal controls in a previous study[22].

As we expected WURS, adult ADHD total score and adult ADHD features scores were higher in TTM patients with ADHD. These scores are used to evaluate ADHD so it is an inherent status in this case. Rate of traumatic life experience was higher in TTM patients with ADHD. Childhood trauma may cause TTM but at the same time childhood ADHD may cause traumatic life experience because of their social compatibility defects[25,26,39].

Although overlapping TTM and ADHD, we found no difference in comorbid psychiatric disorders, previous psychiatric treatment or familial psychiatric history in between two groups. The only rate of pathologic gambling was higher in TTM patients with ADHD (Table 1). Porteret et al.[40] found that 1.2% of patients with ADHD had TTM and 7.4% of them had pathological gambling. Cortical thickness is reduced in obsessive-compulsive disorder, ADHD and gambling while it is increased in TTM[41]. All these data indicate gambling is more associated with ADHD rather than TTM. Our study results supported this notion..

As a result, the relationship between TTM and ADHD is still not well understood. Most of the literature about this issue consists of case reports. Many case reports inform that agents used for the treatment of children with ADHD may cause trichotillomania as a side effect[42-44]. Interestingly, atomoxetine is advised as a successful treatment choice in an adolescent with TTM and ADHD[45]. A limited number of researchers evaluated the effect of stimulants on children or adolescents with TTM comorbid ADHD and did not observe any improvement in symptoms[9,46]. In this point, our

study steps forward by evaluating issue in adult ADHD and TTM. But the retrospective design, other psychiatric comorbidities, and psychiatric treatment may have affected our study results. Follow up studies with pure cases may help to overcome the obstacles and help us for understanding the relationship between these two psychiatric disorders.

Yazar Katkıları: Çalışma konsepti/Tasarımı: MZE, ES, MEÖ, VG, LT; Veri toplama: MZE, ES, VG; Veri analizi ve yorumlama: MEÖ, LT; Yazı taslağı: MZE, MEÖ LT; İçeriğin eleştirel incelenmesi: LT; Son onay ve sorumluluk: MZE, ES, MEÖ, VG, LT; Teknik ve malzeme desteği: MZE, ES, MEÖ, VG, LT; Süpervizyon: LT; Fon sağlama (mevcut ise): yok.
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