

The Association Between Childhood Traumatic Events and Headache-Related Parameters in Patients with Migraine: A Cross-Sectional Study in Turkish Population

Migren Hastalarında Çocukluk Çağı Travmalarının Klinik Değişkenlerle İlişkisi: Türk Popülasyonunda Kesitsel Bir Çalışma

Esra ÖZDİL DEMİRYÜREK¹, Bekir Enes DEMİRYÜREK², Atilla TEKİN³, Yeşim GÜZEY ARAS², Belma DOĞAN GÜNGEN², Sebatiye ERDOĞAN⁴

¹Clinic of Psychiatry, Sakarya University Training and Research Hospital, Sakarya, Turkey

²Clinic of Neurology, Sakarya University Training and Research Hospital, Sakarya, Turkey

³Clinic of Psychiatry, Abant İzzet Baysal University İzzet Baysal Mental and Neurological Disorders Training and Research Hospital, Bolu, Turkey

⁴Clinic of Neurology, Bağcılar Training and Research Hospital, İstanbul, Turkey

ABSTRACT

Introduction: The aim of this study is to investigate the association between childhood traumatic events and headache-related clinical parameters in migraine patients.

Methods: 95 patients diagnosed with migraine and 50 healthy controls were included in the study. A socio-demographic form, the Childhood Trauma Questionnaire (CTQ), the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI) were completed by all participants. Additionally, the Visual Analog Scale (VAS) and the Migraine Disability Assessment Test (MIDAS) were applied to migraine patients.

Results: Positive correlations were found between emotional abuse, physical abuse, physical neglect, CTQ total scores, and headache fre-

quency ($r=0.33$, $r=0.24$, $r=0.26$ and $r=0.28$ respectively) in migraine patients. A positive correlation was found between physical neglect and headache duration ($r=0.28$). Positive correlations were also found between emotional abuse and physical neglect, and MIDAS total scores ($r=0.22$ and $r=0.23$, respectively). Emotional abuse and CTQ total scores were associated with younger mean age of headache onset ($r=-0.24$ and $r=-0.23$)

Conclusion: Childhood traumatic events are associated with more frequent and more severe headache episodes, and younger headache onset in migraine patients.

Keywords: Headache, childhood trauma, migraine

ÖZ

Amaç: Bu çalışmanın amacı, migren hastalarında çocukluk çağı travmaları ve baş ağrısı ile ilgili klinik özellikler arasındaki ilişkiyi incelemektir.

Yöntem: Çalışmaya migren tanılı 95 hasta ve 50 sağlıklı kontrol alındı. Her bir katılımcı sosyodemografik form, Çocukluk Çağı Travmaları Ölçeği (CTQ), Beck Depresyon Ölçeği (BDÖ) ve Beck Anksiyete Ölçeği'ni (BAÖ) doldurdu. Migren hastalarına ayrıca Görsel Değerlendirme Ölçeği (VAS) ve Migren Yeti Yitimi Değerlendirme Ölçeği (MIDAS) uygulandı.

Bulgular: Migren hastalarında duygusal istismar, fiziksel istismar, fiziksel ihmal ve CTQ-total puanları ile baş ağrısı sıklığı arasında pozitif ilişki sap-

tandı (sırasıyla $r=.33$, $r=.24$, $r=.26$ ve $r=.28$). Fiziksel ihmal ile baş ağrısı atak süresi arasında pozitif ilişki saptandı ($r=.28$). Ayrıca duygusal istismar ve fiziksel ihmal ile MIDAS total puanları arasında pozitif ilişki saptandı ($r=.22$ ve $r=.23$). Duygusal istismar ve CTQ-total puanları ile daha erken yaşta başlayan baş ağrısı arasında ilişki saptandı ($r=-.24$ ve $r=-.23$).

Sonuç: Çocukluk çağı ruhsal travmaları, migren hastalarında daha sık ve daha şiddetli baş ağrısı atakları ve daha erken yaşta başlayan baş ağrısı ile ilişkilidir.

Anahtar Kelimeler: Baş ağrısı, çocukluk çağı travmaları, migren

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INTRODUCTION

Migraine is a neurological disease characterized by sensitivity to light, sound, and odor, accompanied by recurrent headache attacks (1). Life-time prevalence of migraine in Turkey was reported as 16% (2). Migraine is seen 2-3 times more often in women (3).

Even though the etiology of migraine has not been enlightened enough yet, it is thought to correlate with genetic factors and neuroanatomic and vascular structures (especially the trigeminovascular system) playing a role in pain regulation (4).

Correspondence Address / Yazışma Adresi: Atilla Tekin, Abant İzzet Baysal Üniversitesi İzzet Baysal Ruh ve Sinir Hastalıkları Eğitim ve Araştırma Hastanesi, Psikiyatri Kliniği, Bolu, Türkiye E-mail / E-posta: md.atillatekin@gmail.com

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In recent years, studies indicating that traumatic experiences in childhood also play a role in the etiology of migraine have been published (5,6,7). Traumas experienced in early stages of life have been shown to cause chronic stress reactions by impairing the hypothalamic-pituitary-adrenal gland axis (8). Chronic stress is also considered to result in chronic headaches by affecting central and peripheral pain conduction (9).

Even though it has been revealed that there is a correlation between migraine and childhood traumas, this relationship has not been studied sufficiently. The primary goal of this study is to investigate the childhood traumas of patients with migraine in Turkey. The secondary goal of the study is to assess the correlation between clinical characteristics related to headache in migraine patients and childhood traumas.

METHODS

Sample

Ninety-five consecutive patients, who applied to the Neurology polyclinic of Bağcılar Training and Research Hospital between September 2015 and January 2016, were diagnosed with migraine for the first time according to the diagnostic criteria of the International Headache Society, and 50 healthy control individuals were included in the study. Voluntary patients aged between 18 and 55 years, who were at least primary school graduates, had no neurological or internal disease except for migraine, were included in the study. The control group consisted of healthy volunteers who were at least primary school graduates and who had no internal or neurological disease. All participants were informed about the aim of the study and each participant read and signed the informed consent form. The study was approved by the Ethics Committee of Bağcılar Training and Research Hospital.

Each participant filled in the Migraine Disability Assessment Scale, the Beck Depression Inventory, and the Beck Anxiety Inventory (BAI) along with a socio-demographic data form. Attack frequency, attack duration, days with headache, the number of emergency admissions, and mean headache level in last 30 days for people with migraine were determined by the clinician.

Migraine Disability Assessment Scale (MIDAS): The scale evaluates disability in areas such as work, school, family, and social life within the last 3 months in patients with migraine (10). The validity and reliability of the Turkish version of the scale has been demonstrated previously (11).

Beck Depression Inventory: Developed by Beck et al. (12), the inventory consists of 21 questions. Each question is rated between 0 and 3. Its Turkish validity and reliability study was conducted (13).

Beck Anxiety Inventory: It was developed by Beck et al. (14). It consists of 21 questions. Each question is rated between 0 and 3. Its Turkish validity and reliability study was conducted (15).

Visual Analogue Scale (VAS): A 100-mm long scale was used for patients with migraine to show their average headache level in the last month (16).

Statistical Analysis

Statistical Package for the Social Sciences (SPSS Inc.; Chicago, IL, USA) 16.0 packaged software was used for data analysis. Convenience of continuous variables to normal distribution was evaluated by using Shapiro-Wilk test. While student t-test was used to compare variables compatible with normal distribution between groups, Mann-Whitney U test was used to com-

pare variables not showing normal distribution. Categorical variables were compared by using Chi-Square test. The correlation between clinical variables and scale scores was assessed by using Spearman correlation test.

RESULTS

The patients with migraine had an age average of (32.47±9.05), which was lower in a statistically significant way compared to healthy volunteers (36.51±8.14) ($p=0.01$). %74.7 ($n=71$) of migraine patients and %69.4 ($n=34$) of healthy controls were female, no statistical difference was found between groups in terms of gender distribution ($p=0.494$). Table 1 illustrates other socio-demographic characteristics of the patient and control groups.

The mean score of the patients with migraine on the BAI (15.95±11.4) was statistically higher than the mean score of the control group (10.23±4.41) ($p=0.014$). There was not a significant difference in BDI mean scores between the two groups ($p=0.069$) (Table 2).

Mean scores for childhood emotional abuse, emotional neglect, physical abuse, and physical neglect in patients with migraine were determined to be statistically higher than the mean scores of the control group ($p=0.045$, $p=0.001$, $p=0.01$, and $p=0.013$ respectively). A statistical difference was not found between the patient and control groups for childhood sexual abuse mean scores ($p=0.544$). The mean CTQ total score of patients with migraine was significantly higher than the mean of the control group ($p<0.001$) (Table 2).

A Spearman's correlation analysis revealed statistically significant negative correlations between age of disease onset and emotional abuse and CTQ total scores in patients with migraine ($r=-0.235$ and $r=-0.226$, respectively). Statistically significant positive correlations were found between

Table 1. Comparison of socio-demographic variables of migraine patients and healthy controls

	Migraine patients mean (SD)/N (%)	Healthy controls mean (SD)/N (%)		
Age	32.47 (9.05)	36.51 (8.14)	-2.621 ¹	0.010
Gender				
Female	71 (74.7)	34 (69.4)	0.468 ²	0.494
Male	24 (25.3)	15 (30.6)		
Educational status			0.666 ²	0.717
Primary school	26 (27.4)	14 (28.6)		
High school	45 (47.4)	20 (40.8)		
University	24 (25.3)	15 (30.6)		
Occupational status			5.791 ²	0.016
Employee	40 (42.1)	31 (63.3)		
Unemployed	55 (57.9)	18 (36.7)		
Marital status			0.551 ²	0.458
Married	54 (56.8)	31 (63.3)		
Single	41 (43.2)	18 (36.7)		
SD: standard deviation				
¹ Student t-test; ² Pearson chi-Square test				

mean attack frequency and emotional abuse, physical abuse, and physical neglect and CTQ scores ($r=0.330$, $r=0.237$, $r=0.257$, and $r=0.278$, respectively). A statistically significant positive correlation was present between mean attack duration and physical neglect scores ($r=0.271$). There was a statistically significant positive correlation between average number of days with headache and physical neglect scores ($r=0.222$). Statistically significant positive correlations were found between average number of emergency admissions and emotional neglect, physical neglect, and CTQ total scores ($r=0.206$, $r=0.264$, and $r=0.278$, respectively). Statistically significant positive correlations were observed between mean MIDAS scores and emotional abuse and physical neglect ($r=0.219$ and $r=0.229$) (Table 3).

DISCUSSION

The major results of the study are that i) childhood traumatic experiences were more severe in patients with migraine than in healthy volunteers and that ii) childhood traumas in patients with migraine were correlated with more frequent and severe migraine attacks.

Some recent studies showed that there was a correlation between childhood traumas and migraine (6,17,18,19,20). Tietjen et al. (5) reported that 58% of patients with migraine had at least one type of childhood trauma.

Table 2. Comparison of Beck-A, Beck-D, and CTQ scores of migraine patients and healthy controls

Scale	Migraine patients (n=95) Mean (SD)	Healthy controls (n=50) Mean (SD)	Statistic*	p
Beck-A	15.95 (11.40)	10.23 (4.41)	-2.461	0.014
Beck-D	13.60 (9.71)	9.47 (4.50)	-1.821	0.069
Emotional abuse	7.67 (3.09)	6.51 (1.73)	-2.000	0.045
Emotional neglect	11.14 (5.03)	8.25 (2.64)	-3.370	0.001
Physical abuse	6.26 (2.26)	5.20 (0.46)	-2.581	0.010
Physical neglect	8.03 (2.98)	6.53 (1.54)	-2.487	0.013
Sexual abuse	6.06 (2.99)	5.18 (0.44)	-0.607	0.544
CTQ total	39.28 (12.86)	31.78 (5.09)	-3.697	<0.001

SD: standard deviation; BECK-A: beck anxiety inventory; BECK-D: beck depression inventory; CTQ: Childhood Trauma Questionnaire

*Mann-Whitney U test.

ma. In a study conducted by Sumanen et al. (21), patients with migraine were shown to have more childhood adverse experiences than healthy controls. In a study conducted in Turkey, patients with migraine and tension type headache were compared with healthy controls, emotional abuse scores of patients with migraine were determined to be significantly higher than healthy controls (19). The emotional abuse and neglect and physical abuse and neglect scores of patients with migraine were higher than in healthy controls in the present study. The results of the present study are similar to the results presented in publications in the literature.

There are publications indicating that childhood traumatic experiences are correlated with more frequent and severe pain attacks in patients with migraine. In a study with a sample including teenagers, childhood physical traumas were determined to be correlated with more frequent and severe migraine attacks (6). According to the results of an electronic questionnaire survey in which 1,348 patients diagnosed with migraine participated, a correlation was found between childhood emotional abuse and daily continuous headache, severe disability related to headache, and migraine related allodynia (22). Küçüköncü et al. (19) reported that there was a positive correlation between emotional abuse scores and average headache duration in patients with migraine. In addition, they found positive correlations between physical abuse, CTQ total scores and VAS scores. In the present study, positive correlations were observed between attack frequency and emotional abuse, physical abuse, physical neglect, and the CTQ total scores of migraine patients. The results of the present study revealed that there were positive correlations between attack duration, emergency admission and physical neglect scores in patients with migraine. Additionally, the present study showed that headache-related disability was higher in migraine patients with higher emotional abuse or physical neglect scores. Another important result of the present study was that age of disease onset was lower in migraine patients with higher emotional abuse and CTQ total scores. Tietjen et al. (22) also reported that emotional abuse is correlated with earlier onset in patients with migraine.

The present study has a number of limitations. Because this is a cross-sectional study, it cannot explain cause and effect relations sufficiently. Screening traumatic life experiences via retrospective remembering can also be considered a limitation. Though our results indicate that there was a statistically significant correlation between childhood traumatic experiences and headache-related parameters, the correlation coefficients we obtained were below 0.4, which suggests that the correlations between the variables were weak (23). Therefore, further studies examining the correlation between childhood traumas and clinical parameters in migraine patients are required.

Table 3. Correlations between CTQ scores and clinical features in migraine patients

	Emotional abuse	Emotional neglect	Physical abuse	Physical neglect	Sexual abuse	CTQ total
Age of onset	-.235*	-.165	-.192	-.111	-.102	-.226*
Attack frequency (monthly)	.330**	.141	.237*	.257*	.165	.278**
Attack duration (hour)	.058	.060	.037	.271*	.008	.121
Days with headache (monthly)	.197	.049	.121	.222*	.037	.124
Emergency contact (monthly)	.186	.206*	.183	.264*	.152	.278**
VAS	.019	.049	.167	.082	.018	.058
MIDAS	.219*	.051	-.010	.229*	.161	.149

VAS: visual analogue scale; MIDAS: migraine disability assessment scale; CTQ: Childhood Trauma Questionnaire

* $p<0.05$; ** $p<0.01$

Severity of childhood traumatic experiences in patients with migraine was higher than in healthy individuals. Childhood traumatic experiences may cause more frequent and longer migraine attacks in patients with migraine. Therefore, clinicians should take childhood traumatic experiences into account while assessing migraine patients.

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