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Research / Araştırma

Post-Traumatic Stress Disorder and Anger in Migraine Patients

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ABSTRACT

Post-traumatic stress disorder and anger in migraine patients

Objective: In recent studies, a relationship between migraine headaches and post-traumatic stress disorder (PTSD) has been suggested. The clinicians in most of these studies have not diagnosed PTSD; the evaluation has been carried out using screening scales. It has also been asserted that there is a relation between anger and migraine and other chronic painful disorders. This study aimed to search the prevalence of clinically diagnosed post-traumatic stress disorder (PTSD) among migraine patients and the relationship with anger.

Method: Sixty consecutive migraine patients directed from neurology clinic and 60 healthy controls having similar features constituted the sample of this study. SCID-I/CV PTSD module and clinician administered posttraumatic stress disorder scale (CAPS) implemented by the clinician were administered to the sample. The sample also filled in the socio-demographic data form and Spielberg's State-Trait Anger-Anger Expression Scale (STAXI).

Results: Seventeen persons (28%) in the migraine group and 5 persons (8.3%) in the control group were diagnosed with PTSD. In the migraine group, PTSD was found at a statistically significantly higher level. The trait anger and anger in subscale scores in the migraine group were found statistically significantly higher compared to the control group. In the migraine group, the anger out subscale mean score was statistically significantly higher in the ones with PSTD than the ones without it. A positive correlation was detected between the scores of trait anger and CAPS and a negative correlation between the scores of anger control and CAPS.

Conclusion: In migraine patients, PTSD, trait anger and internal anger are higher compared to the healthy ones. In migraine patients diagnosed with PTSD, the external anger has increased. It may be suggested to seek for the trauma experiences in migraine patients and search the efficiency of trauma and anger directed therapies.

Key words: Anger, migraine, post-traumatic stress disorder

ÖZET

Migren hastalarında travma sonrası stres bozukluğu ve öfke

Amaç: Son dönemdeki çalışmalar, migren baş ağrıları ile travma sonrası stres bozukluğu (TSSB) arasında bir ilişki olduğunu ileri sürmektedir. Bu çalışmaların çoğunda TSSB tanısı klinisyen tarafından konulmamış, tarama ölçekleri ile değerlendirme yapılmıştır. Migren ve diğer kronik ağrılı bozukluklar ile öfke arasında bir ilişki olduğu da ileri sürülmüştür. Bu çalışmada, migren hastaları arasında klinik görüşme ile tanı konulan travma sonrası stres bozukluğu (TSSB) yaygınlığı ve öfke arasındaki ilişki araştırıldı.

Yöntem: Nöroloji kliniğinden yönlendirilen ardışık 60 migren hastası ve benzer özelliklere sahip sağlıklı 60 kişiden oluşan kontrol grubu çalışmanın örneklem grubunu oluşturdu. Örneklem grubuna, SCID-I/CV TSSB modülü, klinisyen tarafından uygulanan TSSB Ölçeği (TSSB-Ö) uygulandı. Örneklem grubu, ayrıca sosyodemografik formu ve Spielberg Sürekli Öfke-Öfke Tarzı Ölçeğini (SÖÖTÖ) doldurdu.

Bulgular: Migren grubunda 17 (%28), kontrol grubunda 5 (%8.3) kişiye TSSB tanısı konuldu. Migren grubunda istatistiksel olarak anlamlı biçimde daha yüksek oranda TSSB saptandı. Migren grubunda sürekli öfke ve öfke-içe alt ölçek puanları, kontrol grubuna göre istatistiksel olarak anlamlı düzeyde yüksek bulundu. Migren grubunda öfke-dışa alt ölçek puan ortalaması TSSB tanısı olanlarda, olmayanlara göre istatistiksel olarak anlamlı düzeyde yüksekti. Migren grubunda TSSB olan kişilerde, sürekli öfke puanı ile TSSB-Ö puanı arasında pozitif korelasyon, öfke kontrol puanı ile TSSB-Ö puanı arasında negatif korelasyon saptandı.

Sonuç: Migren hastalarında TSSB, sürekli öfke ve içe yönelik öfke sağlıklı bireylerdekinden daha yüksektir. TSSB saptanan migren hastalarında dışa yönelik öfke artmıştır. Migren hastalarında travma deneyimlerinin aranması, travma ve öfke yönelimli tedavilerin etkinliklerinin araştırılması önerilebilir.

Anahtar kelimeler: Öfke, migren, travma sonrası stres bozukluğu

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INTRODUCTION

Recent studies have focused on the relationship between posttraumatic stress disorder (PTSD) and migraine (1-3). Various studies have suggested that severe traumatic life events, such as physical, emotional and sexual abuse, are common in patients with migraine (4-6). The first part of the present study focused on prevalence of PTSD in migraine patients and its relation with alexithymia; PTSD was more frequent in migraine patients than healthy control group and possible causes were discussed (7). The second part of the study, which is presented here, focuses on the association between migraine and anger.

Strong association of anger and PTSD is known. American Psychiatric Association defined irritability and anger outbursts as one of the PTSD diagnostic criteria (8). Anger turned inwards is reported to be more common than anger focused outwards in PTSD (9). In a comparison of war veterans with or without PTSD, those with PTSD reported to have increased heart rate and blood pressure associated with anger towards others (10).

Anger is a feeling with emotional, behavioral, physical and cognitive components and has a range from mild irritation to hate and violence. In order to define individuals who experience anger frequently "trait anger" term is suggested to explain anger as a trait (11). Anger is grouped into three in terms of expression: anger-in, inhibition or suppression of anger, anger-out, expression of anger towards others, anger control, refers to controlled anger. Several studies have shown that anger-in is associated with physical health and have a negative impact on health (11,12). It has been suggested that extreme anger is common in patients with chronic disorders, such as cardiovascular and joint disorders, and it is associated with increased severity of these disorders (13,14) and experience of pain (12).

It has been reported that anger is one of the factors predicting severity of pain in patients with chronic pain (15). Anger, when it is not expressed and turned inwards, leads to severe internal stress, which in turn causes somatic complaints like headache (16). Patients with headache have been reported to have higher trait anger and anger-in scores when compared with healthy individuals (17). Nicholson et al. (18), found higher anger-in in people with headache than healthy individuals. Difference in anger-in score did not change after depression and anxiety were controlled for in the same study. Therefore, it has been suggested that in patients with headache anger-in may be used as a predictive factor by itself. Unlike general consensus on anger-in data, higher anger-out has been reported in patients with "migraine", a type of headache, when compared with healthy individuals and treated migraine patients (19). It has been found that, suppressed anger is significantly more common in migraine patients, that migraine may be a psychosomatic reaction to anger taken in, besides, anger-in may bring along depression and, therefore, depression may be associated with anger-in in depression patients (20). In conclusion, it is not clear whether anger-in or anger-out is more prominent in migraine.

The objective of this study is to test the hypotheses that anger is more prevalent in patients with migraine than control group and to evaluate anger expression styles of migraine patients with or without PTSD.

METHOD

Sample

Institutional review board approval was obtained for the study from Cumhuriyet University Medical School ethics board. Patients who were 18-50 years old and who have applied to Cumhuriyet University Medical School Neurology Outpatient Clinic and have been followed-up for migraine between May-August 2010 and consented to participate in the study were included in the study. Inclusion criteria were giving consent to participate in the study, being 18-50 years of age, having migraine diagnosis and necessary cognitive requirements for structured interview.

Control group consisted of 18-50 years old individuals, who did not have migraine diagnosis per their verbal statements and who have sociodemographical features similar to the patient group.

Measures

Sociodemographical Information Form: Two separate sociodemographic information forms were developed for migraine and control groups. Information was obtained from the individuals. Age, gender, marital status, education, occupation, total monthly income, family structure, smoking, alcohol and substance use, use of pain killers, presence of former psychiatric diagnosis, if there is a psychiatric disorder, onset of the disorder, history of psychiatric disorders and chronic pain in the family, exposure to trauma (physical, sexual abuse, accidents, natural disasters, history of sudden death or deathly disease and witnessing these conditions) were asked to migraine patients. Same questions, except use of analgesics and onset of migraine, were asked to the control group.

Structural Clinical Interview for DSM-IV Axis-I Diagnosis (SCID-I): SCID-I is a structured clinical interview to investigate DSM-IV Axis-I disorders (21). First et al. (21) developed the interview in 1997 and Turkish version of SCID-I (22) is used for PTSD diagnosis in the present study. In the present study SCID-I is used for PTSD diagnosis.

Clinician Administered Post Traumatic Stress Disorder Scale (CAPS): This is a clinical interview scale developed by Blake et al. (23), which is administered by the clinician. Aker et al. (24) studied reliability and validity of the Turkish form. While 17 items evaluate DSM-III-R PTSD symptoms, eight items are grouped under the topic of symptoms accompanying PTSD. Other than these, items considering effects of symptoms on occupational and social functioning, improvement in PTSD symptoms following a former evaluation or having occurred 6 months ago, response validity and overall PTSD severity are included. Total scale score is obtained by summing the frequency and severity ratings of each item changes between 0-136 and it gives an idea of severity of the disorder. Besides qualitative assessment, CAPS may be used to make current and lifetime PTSD diagnosis since it can also be used for quantitative assessment. A symptom is counted as "present" if frequency is at least one and severity is at least two, and sum of severity and frequency scores is at least three. For PTSD diagnosis, at least one re-experiencing, three avoidance or numbing and two hyperarousal symptoms are required. CAPS is considered to be golden standard in evaluation of diagnosis and severity in trauma studies.

State-Trait Anger Expression Scale (STAXI): STAXI is developed by Spielberger; it evaluates trait anger and anger expression styles (25). Validity of the Turkish form was studied by Özer (26). Scale consists of trait anger, anger-in, anger-out, and anger control subscales. It is a self-report scale. Individual answers the questions as "1" almost never, "2" somewhat descriptive , "3" quite descriptive ve "4" almost always. Minimum and maximum possible scores from subscales are as followed: trait anger 10-40; anger-in, anger-out and anger control, 8-32. Subscale scores are obtained by summing the item scores of the particular subscale. First 10 items form trait anger subscale. Anger-in consists of items 13, 15, 16, 20, 23, 26, 27 and 31; anger-out involves 12, 17, 19, 22, 24, 29, 32 and 33; anger control includes items 11, 14, 18, 21, 25, 28, 30 and 34. High trait anger scores reflect high anger level; high anger control score corresponds to better anger control; high anger-in score reflects that anger can be expressed easily, and high anger-out score indicates that anger is suppressed. There is no cut-off score (25,26).

Procedure

Sixty consecutive patients, who were diagnosed with migraine per International Headache Society diagnostic criteria at the neurology outpatient clinic, and controls, which fulfill inclusion criteria, were involved in the study. All approached individuals accepted to participate in the study. At the first phase of the study participants filled sociodemographic information form. At the second phase, SK administered SCID-I PTSD module. Patients who were diagnosed

Table 1: Comparison of migraine and control groups in terms of presence of traumatic life events

	Migraine group		Control group			
	n	%	n	%	χ^2	p
Exposure to physical violence						
Yes	28	46.7	22	36.7	1.23	0.26
Sexual abuse						
Yes	3	5.0	3	5.0	-	-
History of accident						
Yes	21	35.0	15	25.0	1.42	0.23
History of witnessing trauma						
Yes	27	45.0	16	26.7	4.38	0.03
Exposure to traumatic event						
No	22	36.7	31	51.7	6.11	0.04
Present, 1	19	31.7	21	35.0		
Present, 2 or more	19	31.7	8	13.3		

χ^2: Chi square test

with PTSD with SCID-I were evaluated with CAPS by SK. Interviews took an average of 1-1,5 hours. Patients are asked to rate the perceived severity of pain on a 1 to 10 scale.

Statistical Analysis

Parametric variables are described as mean±standard deviation, and categorical variables are described as percents and number. Parametric variables were compared with independent samples t tests, categorical variables with Pearson chi-square test and Fisher exact test. $p<0.05$ was accepted as statistically significant. Statistical Package for Social Sciences (SPSS) was used for all analyses.

RESULTS

Sixty migraine patients and 60 healthy volunteers were included in the study. 44 of the migraine patients were female (73.3%), 16 were male (26.7%) and mean age was 33.4±8.0 years. 45 participants in the control group were female (75%), 15 were male (25%) and mean age was 33.2±7.7 years.

When the groups were compared for PTSD diagnosis, PTSD was significantly more common in migraine patients ($\chi^2=8.015$, $p<0.001$). 17 patients in the migraine group (28.3%), and 5 participants in the control group (8.3%) were diagnosed with PTSD.

When the migraine and control groups were compared for STAXI subscales, migraine group had significantly higher trait anger and anger-in scores. Anger-out and anger control scores were not significantly different between the groups (Table 2).

In the migraine group, patients with or without PTSD were not statistically different in terms of trait anger, anger-in, and anger control scores. Migraine patients with PTSD diagnosis had significantly higher anger-out score when compared with those without PTSD (Table 3).

There was a strong, positive, statistically significant correlation between trait anger and CAPS scores in migraine patient with PTSD ($r=0.71$, $p<0.001$). There was a moderate, statistically significant, negative correlation between anger control and CAPS scores ($r=-0.54$, $p=0.02$). There were no significant correlations between anger-out, anger-in and CAPS scores.

DISCUSSION

Results of this study supported the hypothesis that anger was higher in the migraine patients than healthy control group. Trait anger and anger-in scores were significantly higher in migraine patients when compared with the control group.

Higher trait anger and anger-in scores in migraine patients when compared with control group showed that migraine patients experience anger more frequently

Table 2: Comparison of migraine and control groups for STAXI subscale scores

	Migraine group		Control group			
	Mean	SD	Mean	SD	t	p
Trait Anger	24.33	5.72	20.35	5.20	3.987	<0.001
Anger-in	20.55	4.33	14.76	3.73	7.833	<0.001
Anger-out	16.60	3.89	16.73	3.83	0.189	0.85
Anger Control	20.98	4.76	19.86	5.17	1.230	022

t: Student t test, STAXI: State-Trait Anger Expression Scale, SD: Standard Deviation

Table 3: Comparison of STAXI scores between migraine patients with or without PTSD diagnosis

	Migraine group					
	PTSD present		No PTSD			
	Mean	SD	Mean	SD	t	p
Trait Anger	26.41	5.29	23.51	5.74	1.867	0.07
Anger-in	20.76	4.99	20.46	4.10	0.239	0.81
Anger-out	18.23	3.52	15.95	3.88	2.102	0.04
Anger Control	21.41	5.08	20.81	4.68	0.435	0.66

t: Student t test, PTSD: Post Traumatic Stress Disorder, STAXI: State-Trait Anger Expression Scale, SD: Standard Deviation

and have an intense tendency to suppress anger. These results supported the consensus that migraine patients feel anger more commonly (16,17,27) and that they suppress anger (20,28,29).

Abbate-Daga et al. (20) reported that anger-in was associated with depression in their study which they compared migraine patients with healthy controls. Venable et al. (30), found that anger-in was correlated with depression and anger-out was correlated with anxiety. Nicholson et al. (18), showed in their study which compared patients with migraine and tension headaches with control group, that patients with headache had significantly higher anger-in scores, independent of depression, anxiety and trait anger. Some of the studies in the literature suggested that depression and anxiety might affect anger expression styles in patients with migraine. In this study, possible relations among depression, anxiety disorders and anger were not investigated since the first two were not assessed.

In migraine patients, when anger style and form of expression in those with and without PTSD diagnosis were compared, results indicated that patients with PTSD diagnosis had significantly higher anger-out subscale score. This result indicated that when anger expression styles were compared with other anxiety disorders, anger was more characteristic for PTSD and that there were differences between anger-in, anger-out and anger control between PTSD and non-PTSD anxiety disorders (31). Various hypotheses were raised to explain the relationship between PTSD and anger. According to survival hypothesis, those with PTSD have lower threshold of danger perception and this triggers biological survival response, including fear-flight or anger-fight responses. Fear avoidance hypothesis suggests that, anger is preferred to fear to avoid fear due to traumatic intrusive thoughts, since when compared with fear; anger is more acceptable to the ego (31). In spite of this entire hypothesis, although causal relation between anger and PTSD is not clear, common thinking is that anger develops as a result of PTSD (32).

In this study, when correlations between CAPS and STAXI subscale scores were investigated in subjects with PTSD, there was a strong positive correlation between trait anger score and trauma severity. There was a moderate, negative, significant correlation between CAPS and anger control scores. These results can be interpreted as migraine patients with PTSD comorbidity felt more anger with increasing PTSD severity and that they have difficulty to control anger.

In individuals with PTSD, anger might lead to

violent behavior which cause interpersonal problems and substance use, and might have a negative impact on PTSD treatment (33). Orth and Wieland (9), reported that rumination associated with traumatic life events made the association of anger and PTSD stronger in time, therefore, treatments targeting traumatic rumination may benefit to solve anger problem.

Higher frequency of PTSD in migraine group, trait anger and anger control problems which were significantly associated with PTSD severity might point to the importance of seeking traumatic experiences in migraine patients.

In this study, since a cross-sectional design was used, it was not possible to establish a causal association between migraine, PTSD and anger. Prospective studies are necessary to explain possible associations.

Another limitation of the study was lack of detailed psychiatric interviews regarding psychiatric disorders other than PTSD in migraine patients and control group.

Results of the present study indicated that since PTSD is common in migraine patients and stated pain was more severe in those with PTSD, a detailed trauma history is necessary along with evaluation of anger in migraine patients. These results suggested that, in future studies, it is necessary to investigate effectiveness of treatments focusing on trauma and anger management in patients who applied with migraine headache.

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