

Migraine Patients Had Lower COVID-19 Phobia and PCL-5 Scores During Lockdown Period

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ABSTRACT

Background and purpose: To examine the impact of the lockdown period of the pandemic on COVID-19 phobia and post-traumatic stress disorder in migraine patients.

Method: A total of 73 patients, including 39 migraine and 34 controls, completed the study during the lockdown period. The patients were evaluated by using Structured Headache Questionnaire, PCL-5 and COVID -19 Phobia Scale via the telephone-based telemedicine method.

Results: Migraine patients had significantly lower scores in all subgroups of the COVID-19 Phobia Scale (mean = 42.33 ± 12.67) than those in the healthy control group (mean = 52.88 ± 13.18). PCL-5 scale scores in migraine patients were significantly lower (mean = 27.18 ± 14.34) compared to the healthy controls (Mean = 34.03 ± 14.36). Migraine attack frequency decreased or did not change in 67% of the patients during the lockdown period.

Conclusion: Acute stress response to an extraordinary situation such as a pandemic may be more controlled in migraine patients, yet specific phobia and post-traumatic stress disorder have been reported more frequently in patients with migraine under normal life conditions. We interpreted that the life-long headache associated stress may generate tendency to a resilience and resistance to extraordinary traumatic events in migraine patients

Keywords: COVID-19; Migraine; Phobia; PTSD

List of abbreviations: PTSD: Posttraumatic Stress Disorder; PCL-5: PTSD Checklist for DSM-5; COVID-19: Coronavirus Infectious Disease; SARS: Severe Acute Respiratory Syndrome

Introduction

Migraine is a complex neuro-vasculo-inflammatory disorder and the third most common disease in the world. Migraine is 2-3 times more frequent in women, with a prevalence rate of 21.1% in women [1,2]. It is known that both genetic and environmental mechanisms play a complex role in the pathogenesis and attacks can be triggered by various factors including emotional stress, lifestyle changes or dietary contents. There are many studies and information about nutrition, fluid consumption, sleep and lifestyle changes, and the effect of stress on migraine attacks, especially in people with genetic predisposition. Skipping meals and fasting are frequently reported among the accepted “triggers” of migraine headache attacks. In a study evaluating 1207 migraine patients with and without aura, it was found that fasting was a headache trigger in 57% of patients, stress, hormonal fluctuations (among women) and sleep disturbance were the most common migraine triggers [3]. Healthy lifestyle choices such as, regular sleep, stress management and regular eating can prevent attacks and the transformation of chronic migraine over time [4].

On the other hand, exposure to extreme stress, even if emotional, can lead to post-traumatic stress disorder (PTSD) [5]. PTSD is a chronic clinical syndrome resulting from exposure to traumatic events that involve a perceived threat to life or physical health. Its symptoms include 3 main elements and must be present over a period of at least 1 month: 1) re-experience of traumatic events, 2) persistent avoidance of trauma-related stimuli, and emotional dullness 3) increasing symptoms of physiological arousal [6]. Although there is a similar frequency of exposure to trauma among groups, PTSD is observed more common in migraine patients compared to the general population (14-25% versus 1-12%) and more common in patients with chronic migraine than episodic migraine patients (43% vs 9%) [7].

In addition, community studies established an association between migraine and specific phobia such as agoraphobia or pet [8]. In a study by Korkmaz et al, the comparison of the patient and control groups based on SCL-90-R findings demonstrated that the patient group scores of phobias (0.64 ± 0.75 (patient group) were higher than controls (0.24 ± 0.29) [9].

COVID-19 is the most life threatening pandemic of the century, and which still have a huge impact globally. According to the data of the world health organization, more than 135 million cases have been reported in 214 countries with almost 3 million deaths [10]. Headache, with some distinctive features is one of the early manifestations of COVID-19 and may appear as an isolated symptom in some patients [11-13]. It seems that SARS CoV-2 virus can not only cause systemic infection and nervous system involvement, but also induce psychological symptoms of fear, anxiety and phobia in the community.

During the lockdown period, fear of the COVID-19 disease, uncertainties, future anxieties were the major stress factors on people. On the other hand, patients had a more regular daily life, less work-related stress due to flexible working schedule and the presence of health policy assuring drug availability without renewal of prescription. Therefore, we aimed to evaluate the impact of lockdown period on COVID-19 phobia and PTSD scales and the frequency of migraine attacks.

Lockdown period contained some regulations, such as flexible working schedule, reduced capacity of outpatient clinics and admissions of only emergencies to the hospitals. Therefore, telemedicine applications have also become an important tool to reduce complication and recurrence rates particularly for chronic diseases. Telemedicine means providing healthcare services using information communication technologies regardless of distance. Applications can be video conferencing, e-mail, web-based and telephone-based. Especially teleconsultations are widely applied with potential benefits of improved access of information, care delivery, professional education and reduced health care costs [14,15].

Material and Methods

This study conducted during the first lockdown period in 2020. Ethical approval was obtained from both Ministry of Health Ethical Committee and Local Ethical Committee. Written informed consent was obtained from all patients. None of the patients, healthy controls or their households had COVID-19 diagnosis.

Subjects: All patients with migraine diagnosis (ICDH 1.1, 1.3) who were admitted to the Department of Neurology Algology Head-

ache Outpatient Clinic for the last 6 months were evaluated by telemedicine method by two headache experts during the COVID-19 lockdown period.

Inclusion criteria: Patients with migraine without aura and chronic migraine according to the ICHD-3 criteria and healthy controls who did not have neuro-psychiatric comorbid disorder were included in the study. 18-65 years old female migraine patients or subjects were included due to the high prevalence of migraine in women [16,17].

Exclusion criteria: Migraine patients who were less than 18-year-old, more than 65 years old, and who had headache other than migraine were excluded. In control group, patients with history of psychiatric illness and had any headache were excluded. All patients who had COVID-19 disease during the study period or did not complete surveys were excluded.

Among 78 patients diagnosed with migraine and controls, 73 patients were enrolled in the study. Patients who did not complete questionnaire (n=3) and patients who did not deliver written informed consent (n=2) were excluded from the study.

Study period and design of a telemedicine-based questionnaire: During two and a half months of first lockdown period when outpatient clinics were closed except for emergencies due to the COVID-19 pandemic. Phone interview was completed by headache specialists using a questionnaire. The questionnaire included demographic characteristics and questions about migraine attacks, PTSD Checklist for DSM-5 (PCL-5) and COVID-19 Phobia scale. The COVID-19 Phobia scale consisted of 20 questions in which Psychological, Psycho-somatic, Economic and Social factors are evaluated. All items in the scale are rated on a 5-point scale between "strongly disagree (1)" and "strongly agree (5)". Scores of the scale can range from 20 to 100, and a higher score indicates a greater phobia in the counted subscales and total scale [18].

Statistical analysis: Statistical evaluations were made using SPSS 21.0 IBM package program. In all evaluations, parametric tests were used in the analysis of the data, as they showed normal distribution in terms of dependent variables. The person conducting the analysis was blind to the groups. When the number of people in the new groups fell below 30, nonparametric analyzes were used. Descriptive analysis methods were used in the evaluation of sociodemographic data, and T-Test, Mann-Whitney U and Kruskal Wallis analysis methods were used when comparing between groups.

Results

Thirty-nine women with diagnosis of episodic migraine (79%) and chronic migraine (21%) completed the study. Demographic features were summarized in Table 1. Twenty-eight (71.7%) of 39 patients were followed up for more than 3 years with a diagnosis of migraine. Eleven (28.3%) patients were diagnosed in the last 3 years. Twenty-six (66.7%) of the patients did not have any comorbid disease. Four (10.3%) patients had hypertension (HT), 2 (5.3%) patients had diabetes mellitus (DM), 2 (5.3%) patients had asthma, 3 (7.7%) patients had hypothyroidism and the other 2 (5.3%) patients had both HT and DM.

Six out of 39 migraine patients were not receiving any prophylactic treatment. Thirty-three patients were using prophylactic treatment for migraine attacks: 14 beta-blockers (propranolol 40-80 mg /day or metoprolol 50 mg/day), 10 duloxetine (60 mg/day), 3 amitriptyline (10-25 mg/day) 6 topiramate (50-100 mg/day). Twenty-eight (85 %) patients who received prophylactic treatment continued to use their medications regularly during lockdown period. Five (15%) patients stopped their medication completely during the lockdown. All patients were receiving analgesic, antiemetic or triptan during migraine attacks. Also, there was no significant alteration their sleep pattern (67%) or appetite (72%) was detected.

Migraine attack frequency decreased in 16 (41%) of 39 patients during lockdown period. There was no change in the frequency of headache attacks in 10 (25.7%) patients. Increase in the frequency of migraine attacks was observed in only 13 (33.3%) patients (Figure 1). Nine out of the 13 patients whose attack frequency increased during the lockdown did not change their headache treatment, but 3 out of 13 patients discontinued preventive treatment. other 1 (7.7%) patient was already not on prophylactic treatment.

Migraine attacks severity decreased in 11 (28%) of 39 patients during this period. Migraine attack severity had not change in 17(44%) patients. Worsened in the severity of pain attacks was observed in 11(28%) patients (Figure 2).

Scales	Group	N	Mean	s	sd	t	p
PCL-5	Migraine Patient	39	27.18	14.34	69.64	-2.034*	.046
	Control	34	34.03	14.36			
Covid-19 Phobia Scale	Migraine Patient	39	42.33	12.67	68.81	-3.473**	.001
	Control	34	52.88	13.18			
Total Score	Migraine Patient	39	18.20	6.03	70.84	-2.593*	.012
	Control	34	21.71	5.50			
Physiological Factors	Migraine Patient	39	5.74	2.40	65.44	-2.039*	.046
	Control	34	7	2.81			
Psychosomatic Factors	Migraine Patient	39	5.38	2.03	49.20	-3.498**	.001
	Control	34	7.91	3.76			
Economic Factors	Migraine Patient	39	13.18	5.31	69.63	-2.241*	.028
	Control	34	13.18	5.31			

*p<.05,**p<.01

Table 1: Comparison Of The Groups In Terms Of COVID-19 Phobia Scale And PCL-5 Scale Scores

Figure 1- Migraine Attack Frequency

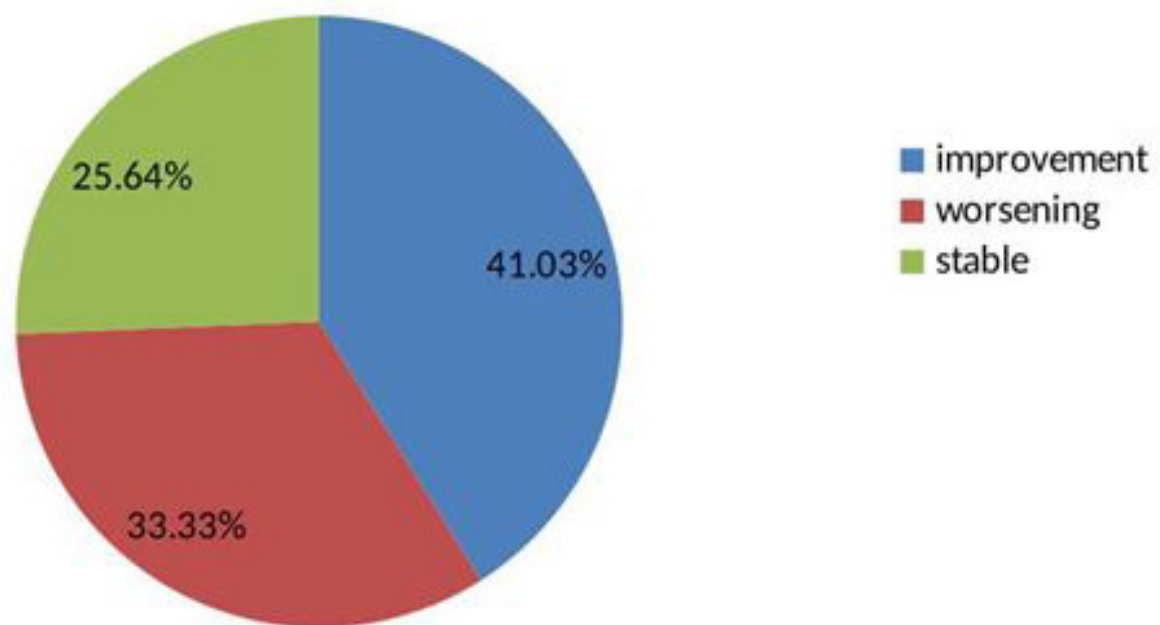


Figure 1: Migraine attack frequency

Figure 2- Migraine Attack Severity

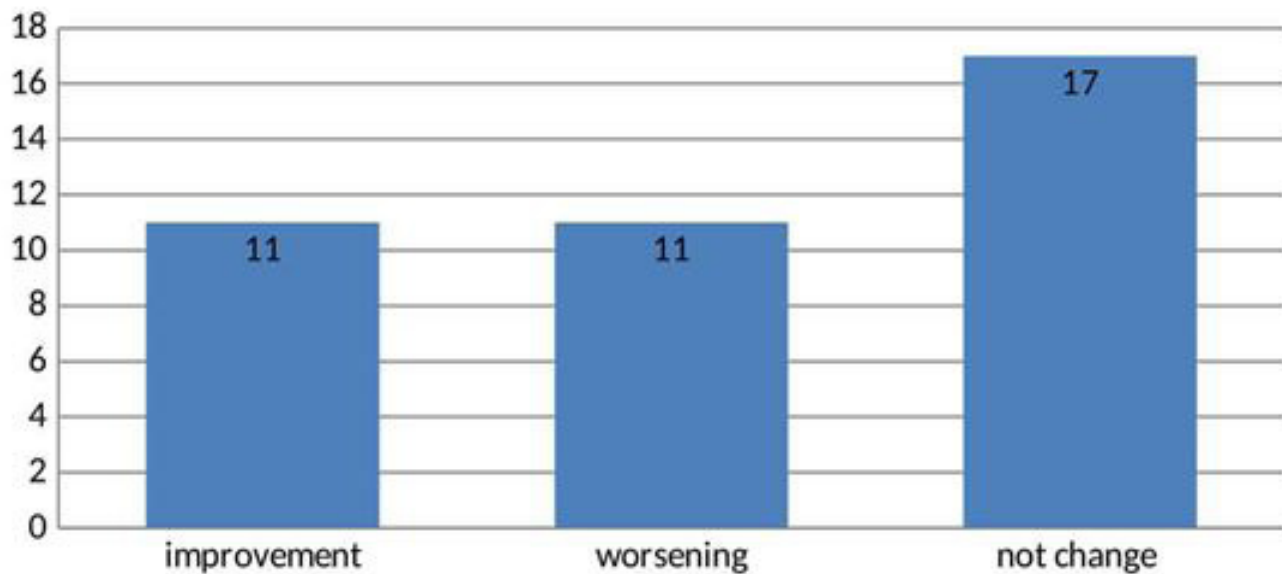


Figure 2: Migraine attack severity

The number of analgesics and/or triptans used for abortive migraine medication was decreased in 15 (38.5%) of 39 patients. On the other hand, the number of analgesics used was increased in 15 (38.5%) patients, in whom 13 of these patients had increased frequency of migraine attacks and other had arthralgia.

The groups that make up the sample were compared in terms of applied PCL-5, Covid-19 Phobia Scale total and subscale scores, and the results are shown in Table 1. Significant differences were found between groups in PCL-5 ($t = -2.034$, $p < .05$), Covid-19 Phobia Scale ($t = -3.473$, $p < .01$), Physiological Factors subscale ($t = -2.593$, $p < .05$), Psychosomatic Factors subscale ($t = -2.039$, $p < .05$), Economic Factors subscale ($t = -3.498$, $p < .01$), and Social Factors subscale ($t = -2.241$, $p < .05$) scores. Migraine patients (Mean = 27.18 ± 14.34) received significantly lower PCL-5 scale scores than those in the healthy control group (Mean = 34.03 ± 14.36). Similarly, migraine patients (Mean = 42.33 ± 12.67) had significantly lower Covid-19 Phobia Scale scores than those in the healthy control group (Mean = 52.88 ± 13.18). Again, migraine patients (Mean = 18.20 ± 6.03) had significantly lower Physiological Factors subtest scores than those in the healthy control group (Mean = 21.71 ± 5.50). Migraine patients (Mean = 5.74 ± 2.40) had significantly lower Psychosomatic Factors subtest scores than healthy control group (Mean = 7 ± 2.81). Migraine patients (Mean = 5.38 ± 2.03) had significantly lower Economic Factors subtest scores than the healthy control group (Mean = 7.91 ± 3.76). Likewise, migraine patients (Mean = 13.18 ± 5.31) had significantly lower Social Factors subtest scores compared to healthy control group (Mean = 15.97 ± 5.31).

COVID-19 phobia scale and PCL-5 scale scores were statistically indifferent among 3 groups of migraine patients in whom attack frequency was increased, decreased or unchanged. In terms of applied COVID-19 phobia and PCL-5 scale scores, migraine patients using duloxetine or amitriptyline were compared with those who did not use. There was no significant difference between these two groups in terms of any applied scale scores (Table 2).

Discussion

Our study is the first that evaluated COVID-19 phobia in migraine patients during the lockdown period of the pandemic. We found significantly lower COVID-19 phobia score in migraine patients compared to the healthy controls. In accordance with the total test, all subgroup scores of the COVID-19 phobia scale were found to be lower in patients with migraine. Reduced PTSD PCL-5 scale scores in migraine patients supported COVID-19 phobia results. In parallel to these data, migraine attack frequency was found to be decreased or not changed

Scales	Antidepressant (SNRI and/or TCA)	N	Mean	Mean Total	U	p
PCL-5	Using	13	19.27	250.5	159.5	.780
	Not using	26	20.37	529.5		
Covid-19 Phobia Scale Total Score	Using	13	19	247	156	.713
	Not using	26	20.50	533		
Physiological Factors	Using	13	19.85	258	167	.965
	Not using	26	20.08	522		
Psychosomatic Factors	Using	13	17.62	229	138	.368
	Not using	26	21.19	551		
Economic Factors	Using	13	19.35	251.5	160.5	.803
	Not using	26	20.33	528.5		
Social Factors	Using	13	16.88	219.5	128.5	.231

*p<.05, **p<.01

Table 2: Comparison of Between Using Antidepressant Non-Using Antidepressants in Migraine Patients in Terms of Scale Scores

in 67% of the patients during the lockdown period. We interpreted the data that acute stress response in migraine patients to an extraordinary condition during COVID-19 pandemic may not be as exaggerated as healthy controls.

Comorbid psychiatric disorders including anxiety and mood disorders were reported in 23.1% of patients with migraine headache [22] and life-time social phobia frequency was found in 4% of migraine patients [22]. Specific phobia was found to be higher in patients with migraine headache compared to the control group [9]. However, in our study during the alarming, extraordinary conditions of lockdown period, we found that specific COVID-19 phobia was unexpectedly lower. It is also notable that the physiological, psychosomatic, economic and social subscales of COVID-19 phobia test were also significantly different in migraine patients.

COVID-19 phobia scale was applied to the migraine patients for the first time and determined lower scores than the control group. Though, specific phobia and post-traumatic stress disorder have been reported more frequently in patients with migraine under normal life conditions, we suggest that migraine headache patients might be more resilient to unexpected, alarming events.

Thirteen migraine patients were taking duloxetine or amitriptyline. The latter two drugs have been given at a low dose to benefit from its sedative effect, and the antidepressant efficacy is not expected at this lowest dose. Still, we evaluated whether the lower scores in migraine patients were related to the antidepressants used for migraine treatment. However, but no significant difference was found in terms of Phobia and PCL-5 scale scores applied between those patients using duloxetine or amitriptyline and those who did not used. This finding confirmed/ supported the reliability of the newly developed COVID-19 phobia scale. In addition, the application of all these questionnaires by two headache professionals and the correlation between PTSD and COVID-19 Phobia scale scores increase the value of the study.

Studies on stress adaptation in migraine patients are limited, yet perceived stress was reported to be higher in migraine patients with increased frequency of attacks [23]. Notably, no significant difference was found in the 'Upset because of something that happened unexpectedly' subgroup in the perceived stress scale when patients with migraine were compared with the control group, while other PSS subgroup scores were significantly higher in migraineurs [23]. These results are in line with our data and support that the reaction to extraordinary, unexpected and alarming stress could be different in migraine patients and also suggests that migraine patients can be resistant to stress in extraordinary situations.

Reaction to lockdown stress during pandemic has not been reported in adults, yet two studies evaluated stress response and anxious symptoms during COVID-19 to the lockdown period, in children and adolescents with migraine. Frequency of migraine attacks and anxiety symptoms were found to be decreased or not changed in the majority of patients during the lockdown period. It was related to the reduced environmental challenges and pressures [20]. In a multi-center study involving children aged 5-18 years, patients with migraine with or without aura and tension type headache were included, and their pain characteristics and COVID-19 anxiety, general anxiety and depression were evaluated. It was found that reduced school effort and anxiety were the most important factors explaining the improvement in headache tendency and the frequency and severity of attacks. It has been established that lifestyle change is the main factor affecting headache [21].

As in the whole world, many things had to change in our country. Strict quarantine rules were applied, and many places have high risk of contamination such as schools, shopping malls, cafes, restaurants, hotels, hairdressers and beauty salons were suspended. Curfew restrictions were imposed especially on weekends and some public holidays. As a result of all these measures, the majority of the people of the country had to spend most of the day at home. Again, many people limited their social activities and relationships due to contagion concerns.

Conventional hospital services were the most affected area. Admission to hospitals decreased significantly due to both the limitation of outpatient clinic in most hospitals and the patients seeing the hospital as a dirty area. In this environment where face-to-face meeting could not be as comfortable as it used to be, Telemedicine began to be spoken and applied as a new communication method for the medical field.

The relatively late entry of COVID-19 pandemic to our country, provided valuable short time to take measures for preparation and informing community compared to countries that encountered the virus earlier. Therefore, the public may show less panic reaction and anxiety. But still this does not explain why healthy controls had a higher PTSD and phobia scores than migraine patients.

As an important trigger for migraine, we can see impact of stress on the migraine attack frequency. Work stress, insomnia, some food and drinks and lighting systems increase attacks in patients with migraine [19]. In these patients, decrease in work stress and intensity, less exposure to external stressor factors (factors such as shopping mall lights, crowded environment, noise), more regular and healthy nutrition of patients (eating from outside, food such as fast food to a minimum and meals Factors such as less skipping) attention to water consumption may be effective.

In 66.6% of the patients, migraine attack frequency was reduced or not changed. In parallel, analgesic intake was significantly lower in 38% and not changed in 23% of migraine patients. We think that reduced stress and relaxing factors such as regular living, flexible working schedule played a role in these patients. No new treatment was prescribed in any of the patients, and all majority continued their current treatment. New easy prescription policy that abortive and preventive medications were delivered to the patients without visiting hospital could play a role in that result. On the other hand, increased attack frequency was detected in 33.3% of migraine patients in whom the stressors were more prominent.

The positive effects of the pandemic process on the attacks were observed more clearly in our migraine patients who were trying to adapt to the new world with social distancing with the COVID-19 pandemic. The attacks did not increase in most of the patients. As the factors such as being isolated in a safe home environment, healthy and regular nutrition, work environment and socialization stress decreased, it was found that the frequency and severity of attacks decreased in patients and consequently, the use of analgesics decreased.

COVID-19 phobia was evaluated for the first time in migraine patients along with PCL-5 scale during lockdown period of COVID-19 pandemic. The advantageous of the study is that two headache experts completed the phone interview with migraine patients. One of the limitations of the study is that the sample size of the study was not adequate for subgroup analysis. The socioeconomic status, lifestyle and environmental factor were not similar in some patients during the lockdown period. The period of two and a half months was not enough, when the lockdown ended in June, a longer follow-up could not be made.

Conclusion

We reported for the first time that COVID-19 phobia was lower in migraine patients compared to healthy controls during lockdown. PTSD test results supported COVID-19 phobia data in migraine patients. Also, migraine attack frequency, headache severity and abortive medication figures were in line with COVID-19 phobia scores. We believe the reaction to unexpected and alarming stress due to SARS CoV2 pandemic may be controlled in migraine patients, suggesting that migraine patients can be resilient to stress in extraordinary situations.

Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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