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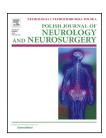
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# Original research article

# Association of depression, anxiety and posttraumatic stress disorder with migraine: Data from Kosovo

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#### ABSTRACT

Introduction: Migraine is ranked as the seventh leading cause of disability worldwide, and it is characterized by a manifestation of combined neurological, gastrointestinal, and autonomic symptoms linked with different provoking factors.

Aim of the study: This study investigates the association between migraine and PTSD, depression and anxiety in the Kosovo population during the post-war period.

Material and methods: 273 war survivors with headache were enrolled in the study and were divided into two groups: 153 individuals with confirmed migraine (the study group) and 120 individuals with non-migraine headaches (control group). All individuals were evaluated using the ICHD-II 2004 diagnostic criteria for migraine, as well as the mini-test for PTSD, MMPI (Minnesota Multiphasic Personality Inventory) for psychological evaluation, PAI (Personality Assessment Inventory) and Hamilton Scale for Depression.

Results: Among migraine patients, depressive disorders were present in 27.5% of patients, anxiety was found in 60.8%, and PTSD was present in 39.2%. While the prominence of depression was not different between groups, anxiety was significantly more common (p < 0.05) in women from the control group. PTSD was significantly more common (p < 0.001) in migraine patients overall, whereas the difference in PTSD prevalence between women from the migraine and control groups came close to significance (p = 0.05). Females in the migraine group had higher incidences of aura (50% vs. 25.5%), whereas the incidence of aura in males in each group was approximately equal (9.8% vs. 7.84%).

 ${\it Conclusion:}\ Based\ on\ our\ data,\ we\ can\ confirm\ an\ association\ between\ PTSD\ and\ migraine\ in\ a\ sample\ of\ patients\ from\ Kosovo.$ 

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### 1. Introduction

Migraine is a primary headache disorder characterized by moderate to severe recurrent headaches with manifestations of combined neurological, gastrointestinal, and autonomic symptoms that are linked with different provoking factors. It is more highly prevalent in urban residents and females [1,2]. It is known that migraine is ranked as the seventh leading cause of disability worldwide when it is combined with asthma, anxiety and depression [1]. Because of these stressors, an individual's response is associated with increased anxiety [3,4].

There are studies demonstrating an association between migraine and specific psychiatric disorders in the general population [4,5]. Although the association between migraine and depression is the most widely reported, there are also strong associations between migraine and other psychiatric disorders and conditions [6]. Researchers have reported that anxiety disorder, post-traumatic stress disorder (PTSD) and depression are more common in adults with migraine [2,7]. Migraine and PTSD are both more common in women than in men (up to three times higher incidence) [8], indicating that gonadal hormones are likely responsible for the divergence in prevalence rates of migraine and PTSD between the sexes after puberty [9]. Other authors have reported higher incidences of PTSD in females compared to males, and this is linked with higher rates of interpersonal trauma in females, such as physical and sexual abuse [7,10]. Recent data suggest that the probability of a year-long prevalence rate of PTSD is increased in both sexes with episodic migraine; however, a stronger correlation was observed for men [11,12]. The age at which a traumatic life event resulting in PTSD occurs seems to have an important influence on PTSD -migraine association, such that when a traumatic event occurs before the age of 13, the risk of major depression is greater than the risk of PTSD; however, when the traumatic life event occurs after 12 years of age, the risk of PTSD is greater and has a direct influence on disability [7,13]. In a multi-center study conducted by Peterlin et al. [7], the impact of headache on participants with PTSD and episodic migraine was higher than in individuals without PTSD. Another study conducted by Sareen at al. [14] reported that anxiety, combined with several community conditions, directly influences both quality of life and disability. To improve quality of life and disability, prophylactic stress management therapies were recommended [15].

Since different stressors such as PTSD and depression have a direct impact on the frequency and gravity of migraine [7,14], and taking into consideration the high prevalence of PTSD among survivors of the Kosovo war (showing the vulnerability of Kosovar population) [16–19], the aim of our study was to determine the influence and association of migraine with PTSD, depression and anxiety among war survivors in the Kosovo population during the post-war period.

#### 2. Material and methods

The study was carried out between 2005 and 2008.

### 2.1. Participants

Participants were sorted into two groups: a study group (153 individuals) and a control group (120 individuals). The study group was a group of patients diagnosed with migraine, whereas the control group was a group of patients complaining of headache but not diagnosed with migraine. The patients in both the study and control groups experienced the war and had histories of headache. The study was approved by the Ethical Committee of the University Clinical Centre and the participants have signed the informed consent.

#### 2.2. Assessment

Participants in both the study and control groups were Q2 evaluated using the ICHD-II 2004 diagnostic criteria for migraine, as well as the mini-test for PTSD, the MMPI (Minnesota Multiphasic Personality Inventory) for depression evaluation, the PAI (Personality Assessment Inventory) to distinguish between depression and anxiety, and the Hamilton scale for depression and electroencephalography. The study was carried out on the basis of a self-assessment questionnaire about migraine, neurological and psychiatric evaluation. Subjects completed a questionnaire to evaluate migraine symptoms, anxiety, depression, and post-traumatic stress. For both groups, the first part of the instrument consisted of questions related to the 2004 diagnostic criteria for the International Headache Society (IHS) for migraine. The subjects with confirmed migraine underwent a detailed neurological assessment by a neurologist, as well as a psychiatric examination using the structured clinical interview for DSM-IV-R Axis I (Diagnostic and Statistical Manual of Mental Disorders).

#### 2.3. Statistical analysis

A Chi-square test was applied to analyze the association between psychological factors and migraine. IBM SPSS software was used.

#### 3. Results

During the period between 2005 and 2008, 153 migraine patients (consisting of 126 women and 27 men, ages 11–60) and 120 non-migraine patients (including 72 women and 48 men, ages 11–60) were enrolled in the study. The majority (68.6%) of the migraine patients were between 30 and 50 years old. Among the study group, 66 patients (54 women and 12 men) were from rural areas, whereas 87 (72 women and 15 men) were from urban areas. On the other hand, in the control group, 51 patients (31 women and 20 men) were from rural areas, while 69 patients (41 women and 28 men) were from urban areas. A summary of characteristics of patients in the study and control groups is presented in Table 1.

Somnolence and vertigo were found more frequently in migraine patients than in subjects from the control group ( p < 0.001 and p < 0.05 respectively), whereas other signs and symptoms, such as transitory diplopia, scintillating scotoma, mydriasis and ataxia appeared only in the migraine patient

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