Original Article

Frequencies of a spectrum of psychiatric disorders in patients with migraine

Rohit Pai[1*], Padma[2]

{[1]Assistant Professor, Department of Neurology} {[2]Resident, Department of Psychiatry}
Father Muller's Medical College, Mangalore, Karnataka, INDIA.
Email: pairohitn2009@gmail.com

Abstract

Context: Migraine is associated with diverse psychiatric conditions, and particularly with major depression and anxiety disorders. However, substance abuse and certain mood disorders have also been reported as comorbid conditions. Some studies show that greater psychiatric comorbidity exists for migraine patients with aura than for those with without aura. There is evidence that psychiatric comorbidity is higher in patients with transformed migraine than in those with episodic migraine. **Aims:** To assess the prevalence of psychiatric disorders in patients with migraine. **Settings and Design**: A cross-sectional study was conducted assessing all patients with migraine attending the Neurology OPD. **Materials and Methods:** This clinical investigation was conducted in the Department of Neurology. The study was conducted from January 2016 to March 2016. Patients with a definite diagnosis of migraine and aged 20-65 years were included. Patients with other neurological disorders and a history of psychiatric disorders were excluded. **Statistical analysis used:** Descriptive statistics were calculated using SPSS software. Chi square test was used to get the significance. **Results**: Out of the 50 patients with migraine10% had generalized anxiety disorder, 8% had major depressive disorder, 8% had mixed anxiety and depression, 6% had panic disorder, 4% patients had substance abuse, 4% had social phobia, 2% had obsessive compulsive disorder **Conclusions**: Migraine is predominantly associated with generalised anxiety disorder, followed by major depression and obsessive compulsive disorder

Key Words: Migraine, psychiatric disorders, generalised anxiety disorder, depression, obsessive compulsive disorder

[*]**Address for Correspondence:**
Dr. Rohit Pai, Assistant Professor, Department of Neurology, Father Muller's Medical College, Mangalore, Karnataka, INDIA.
Email: pairohitn2009@gmail.com

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INTRODUCTION

Migraine is a common condition all over the world. Many studies show that migraine is more common in women than in men. Several reviews show a strong relationship between migraine and psychiatric disorders. Psychiatric correlates of migraine is very important for many reasons. For instance, depressive disorders are one of the leading causes of disability worldwide.

Comorbidity of psychiatric disorders and migraine: Depression appears to be more common in migraine patients. Studies have shown an association between migraine and depression in 28% of patients with migraine. Depression is more common in migraine with aura.

Anxiety disorders: The prevalence of anxiety disorders in patients with migraine is almost twice that of major depression. Compared to individuals without migraine, people with migraine have a 4–5-fold greater risk of having generalized anxiety disorder (GAD),[1-4] a 5-fold greater risk of having obsessive-compulsive disorder (OCD),[1] and are 3–10-fold more likely to suffer from panic disorder.[1,2, 5-8]. Phobic disorders are also predictive of future migraine, as shown in a 13-year prospective study.[8] The onset of anxiety often precedes migraine, with the risk of depression increasing subsequently.[2,3,4,9] Posttraumatic stress disorder (PTSD) is infrequently studied in comparison to other psychiatric conditions, although there is evidence that PTSD is more common in patients with recurrent headaches than in the general population.[10] It is also know that PTSD is more common in patients with chronic rather than episodic migraine.[11] A history of physical, emotional, or sexual abuse is present in upwards of 1/3 of severe migraineurs[12] and is most common in patients with chronic migraine and in migraineurs with affective comorbidities.[12] Anxiety disorders were found to be the only type of psychiatric

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disorder predictive of the persistence of headaches during an 8-year longitudinal study by Guidetti and colleagues.[13] This study showed that anxiety disorders serve as negative prognostic factors for migraine. Moreover, migraine-related disability is higher for patients with comorbid anxiety than for those with comorbid depression,[14] these studies highlight the required attention for comorbid anxiety in addition to comorbid depression in patients with migraine.

Possible mechanisms Serotonergic dysfunction

The 5-HTTLPR polymorphism in the promoter region of the 5-HTT gene leads to long and short alleles, the latter of which slows down synthesis of the serotonin transporter and may increase the risk of depression, and may influence sensitivity for stress and anxiety. Polymorphisms in the 5-HT transporter have also been associated with migraine susceptibility and attack frequency. Decreased plasma 5 serotonin levels between migraine attacks and increased concentrations of serotonin during attacks have consistently been observed among migraineurs. In fact, selective serotonin agonists (triptans) are the treatments of choice for migraine. A chronically low serotonergic disposition presumably predisposes one to cortical spreading depression, which in turn increases the sensitivity of trigeminovascular pathways that underlie migraine pain. Since depression and anxiety are also associated with reduced serotonergic availability and positive responses to selective serotonin reuptake inhibitors (SSRIs), migraine and psychiatric disorders may ultimately share a mechanism of dysfunction in central 5-HT availability.

Ovarian hormones

Ovarian hormones modulate numerous neurotransmitters in women, and both migraine and depression are strongly affected fluctuations in such hormones. Migraine and psychiatric disorders are 2–3 times more common in women than in men, moreover following puberty. With falling estrogen levels around menses females suffer from migraine attacks. Many women also experience mood disturbances during menses, the postpartum period, and the perimenopausal period. The late luteal phase of the menstrual cycle appears to be a time when women are particularly vulnerable to migraine and psychiatric problems, as estrogen levels decline precipitously and there is an up-regulation of the sympathetic system and a down-regulation of the serotonergic and GABA-ergic systems during this time.

Sensitization and HPA dysregulation

In a minority of individuals, migraine and psychiatric disorders can progress to more chronic states that do not respond to treatment and show poor inter-episode recovery, suggesting that a process of sensitization may also underlie their comorbidity in chronic forms. These central sensitization syndromes may involve numerous sensory and emotional neural networks [15-17]. Frequent migraine attacks have been shown to impair the periaqueductal gray (PAG) area, and repeated episodes of unipolar depression are known to reduce hippocampal volume. Dysregulation of the hypothalamic pituitary adrenal (HPA) axis has been implicated in patients with chronic migraine. Early sensitization in response to significant stress, such as childhood maltreatment, may be a common factor underlying both affective disorders and migraine. It has also been hypothesized that proinflammatory mechanisms may be a link between affective disorders, migraine, and obesity. These mechanisms may alter tryptophan metabolism, reduce 5-HT synthesis, and activate the HPA axis.

MATERIALS AND METHODS

Data described in this study were derived from patients attending the Neurology OPD. Patients with a past history of psychiatric illness were excluded. Subjects were evaluated using a structured interview. Migraine evaluations were conducted by a neurologist. Migraine was diagnosed using International Headache Society (IHS) criteria. A structured interview was used to evaluate the presence of generalized anxiety disorder, obsessive compulsive disorder, panic disorder, major depressive disorder, substance abuse, mixed anxiety and depression, and social phobia. Interviews were performed by a psychiatry resident.

RESULTS

Interviews were performed for 50 patients. Patients 20-65 years of age were selected. Patients with other neurological disorders and past history of psychiatric illness were excluded. Most of the patients were 31-40 years of age (42%). Six patients had a risk for suicide. Fourteen patients had aura (28%), while 36 patients did not have aura (72%). Fifty random patients were studied. Among them, 29 (58%) did not have any psychiatric illness. 5 patients (10%) had generalised anxiety disorder, 4 patients (8%) had major depressive disorder, and 4 patients (8%) had mixed anxiety and depression. Three patients (6%) had panic disorder, 2 patients had substance abuse (4%), 2 had social phobia (4%), and 1 had obsessive compulsive disorder (2%).The prevalence of depression in our study (8%) is in concurrence with a Canadian population based study Majority of the patients belonged to the age group 31-40. This is similar to the study done by Bhatia *et al*. The age distribution of the patients with migraine who had a psychiatric diagnosis was studied. In the 21-30-year age group, 2 patients (12.5%) had social phobia and 1 patient (6.2%) had generalised anxiety disorder. In the 31-40-year age group,

4 patients (19%) had generalized anxiety disorder, 1 patient had obsessive compulsive disorder, 3 patients (14.3%) had panic disorder, 4 patients (19%) had major depressive disorder, 2 patients (9.5%) had substance abuse, and 3 patients (14.3%) had mixed anxiety and depression. In the 41-50-year age group, 1 patient had mixed anxiety depression. In the 51-60-year age group, none of the patients had a psychiatric diagnosis. The data shows that psychiatric diagnosis in patients with migraine varies with the age group. Social phobia was the commonest diagnosis in 21-30 age group whereas generalized anxiety disorder was more common in 31-40 age group. (Chi square test significance p=0.039) We used the Mini International Neuropsychiatric Interview (MINI) to study psychiatric comorbidity in our patients. Our study showed that the MINI scale is a useful scale, which can be used in the outpatient setting. Most studies use other scales, such as the Composite International Diagnostic Interview and the Structured Clinical Interview for DSM, which are very lengthy and cumbersome. We found that migraine coexists with generalized anxiety disorder, major depressive disorder, and mixed anxiety and depression.

Table 1: Age group of patients

Age	Frequency	Percent
21-30	16	32.0
31-40	21	42.0
41-50	9	18.0
51-60	4	8.0
Total	**50**	**100.0**

Table 2: Sex of the patients

Sex	Frequency	Percent
Men	23	46.0
Women	27	54.0
Men	23	46.0
Total	**50**	**100.0**

Table 3: Suicide risk

	Frequency	Percent
Yes	6	12.0
No	44	88.0
Total	**50**	**100.0**

Table 4: Presence of aura

	Frequency	Percent
With aura	14	28.0
Without aura	36	72.0
Total	**50**	**100.0**

Table 5: Psychiatric diagnosis

	Frequency	Percent
Generalized anxiety disorder	5	10.0
Obsessive compulsive disorder	1	2.0
Panic disorder	3	6.0
Major depressive disorder	4	8.0
Substance abuse	2	4.0
Mixed anxiety and depression	4	8.0
Social phobia	2	4.0
None	29	58.0
Total	**50**	**100.0**

Table 6: Psychiatric diagnosis versus age

	AGE				Total
	21-30	31-40	41-50	51-60	
Generalized anxiety disorder	1 (6.2%)	4 (19.0%)	0 (0.0%)	0 (0.0%)	5 (10.0%)
Obsessive compulsive disorder	0 (0.0%)	1 (4.8%)	0 (0.0%)	0 (0.0%)	1 (2.0%)
Panic disorder	0 (0.0%)	3 (14.3%)	0 (0.0%)	0 (0.0%)	3 (6.0%)
Major depressive disorder	0 (0.0%)	4 (19.0%)	0 (0.0%)	0 (0.0%)	4 (8.0%)
Substance abuse	0 (0.0%)	2 (9.5%)	0 (0.0%)	0 (0.0%)	2 (4.0%)
Mixed anxiety and depression	0 (0.0%)	3 (14.3%)	1 (11.1%)	0 (0.0%)	4 (8.0%)
Social phobia	2 (12.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (4.0%)
None	13 (81.2%)	4 (19.0%)	8 (88.9%)	4 (100.0%)	29 (58.0%)
Total	**16 (100.0%)**	**21 (100.0%)**	**9 (100.0%)**	**4 (100.0%)**	**50 (100.0%)**

CONCLUSIONS

Patients with migraine have a higher risk of psychiatric problems. Generalised anxiety disorder, major depressive disorder, and mixed anxiety and depression were the most common psychiatric diagnoses. In addition to medication overuse, mechanisms such as serotonergic dysfunction, ovarian hormone fluctuations, central sensitization, and HPA axis dysregulation have been implicated in the relationship between migraine and affective disorders. The MINI scale is a useful scale, which is short and reliable in outpatient settings.

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