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Prevalence of Major Depressive Disorder and Anxiety in Patients with Primary Headache

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Abstract: ***Background: Migraine is third most prevalent disorder and seventh-highest specific cause of disability worldwide. So also is the case with Major Depressive Disorder and anxiety which are growing in prevalence almost world over. In a psychiatry outpatient clinic, presentation of primary headache, major depressive disorder and anxiety are common. Various studies have found psychiatric co morbidities associated with various types of headache. Our study focuses on co existence of depression and anxiety in patients with primary headache. Aims & Objectives: To explore and establish co existence of headache with MDD or anxiety disorder or both, to categorize severity of MDD or anxiety disorder in patients with headache and to find out incidence of occurrence of MDD and anxiety disorder according to the type of headache. Materals & Methods: 100 outpatients presenting with primary headache were evaluated for depression and anxiety on HAM-D and HAM-A scales respectively over a period of 7 months. Results: The study found that out of 100 patients under the evaluation, that total 67% of the subjects were having MDD (HAM-D ≥ 7), out which 20.8% subjects were having severe depression and 9% were having very severe depression. Also, 59% of subjects were having anxiety (HAM–A ≥ 14), out of which 47.4% of subjects were having moderate anxiety and 23.7% subjects were having severe anxiety. Also Tension type type headache was more associated with depression (41.7%) and anxiety (54.3%). Female patients were having more co morbidity than males. Conclusion: Headache, MDD and anxiety co exist and hence require a detailed interview with appropriate application of scales for proper diagnosis and management.***

Keywords: Migraine, Cluster Headache, Tension headache, Major Depressive Disorder, Anxiety, Co existence.

1. Introduction

Migraine is a common disabling primary headache disorder. Epidemiological studies have documented its high prevalence and high socio-economic and personal impacts. In the Global Burden of Disease Survey 2010, it was ranked as the third most prevalent disorder and seventh-highest specific cause of disability worldwide.[1] According to WHO, Globally, it has been estimated that prevalence among adults of current headache disorder (symptomatic at least once within the last year) is 47%. Half to three quarters of the adults aged 18–65 years in the world have had headache in the last year and among those individuals, more than 10% have reported migraine. Headache on 15 or more days every month affects 1.7–4% of the world's adult population. Despite regional variations, headache disorders are a worldwide problem, affecting people of all ages, races, income levels and geographical areas.[2] Today, depression is estimated to affect 350 million people. The World Mental Health Survey conducted in 17 countries found that on average about 1 in 20 people reported having an episode of depression in the previous year.[3] The prevalence of anxiety disorders was obtained from 87 studies across 44 countries. Estimates of current prevalence ranged between 0.9% and 28.3%.[4]

Various studies have found out co existence to depression and anxiety in headache patients.[5,6,7,8,9,10] Migraine and psychiatric disorders, specially depression, overlap in different clinical and epidemiological aspects. From a clinical perspective, premonitory symptoms of migraine attacks often include psychiatric symptoms, such as depression, elation, irritability, anxiety, overactivity, difficulty thinking, anorexia or increased appetite. Also, chronic migraine is commonly comorbid with other conditions. Depression is one of the most frequentely reported (up to 80%), followed by anxiety (70%), insomnia (71%) and other medical conditions such as chronic fatigue (66%), and fibromyalgia (35%).[18,19] Although, in many studies it has been found that diagnostic criteria of these disorders are substantially different from each other, they co exist. This study is intended to explore and establish such co relation is in existence or not.

Aims and Objectives

1. To explore and establish co existence of headache with MDD or anxiety disorder or both.
2. To categorize severity of MDD or anxiety disorder in patients with headache.
3. To find out incidence of occurance of MDD and anxiety disorder according to the type of headache.

2. Methodology and Materials

Setting: The study was conducted in a general hospital setting department of psychiatry which is attached to a medical college which is having patient population from village and city areas.

Subjects: OPD patients who are diagnosed to have primary headache i.e. Migraine, Tension type headache and Cluster headache.

Inclusion Criteria

- All the patients diagnosed to have primary headache i.e. Migraine, Tension type headache and Cluster headache according to IHS guidelines.

Exclusion Criteria

- Patients diagnosed to have secondary headache according to IHS guidelines.
- Patients suffering from psychiatric illness other than MDD and anxiety disorder.
- Non co operative patient.

Time frame : November 2014 to May 2015

3. Study Flow (Protocol)

Instruments:

1. International Classification of Headache Disorders developed by Headache Classification Committee of International Headache Society.[1]
2. Hamilton Rating scale of Depression [13,14,15] – The HDRS (also known as the Ham-D) is the most widely used clinician-administered depression assessment scale. The original version contains 17 items (HDRS17) pertaining to symptoms of depression experienced over the past week. Although the scale was designed for completion after an unstructured clinical interview, there are now semi-structured interview guides available. The HDRS was originally developed for hospital inpatients, thus the emphasis on melancholic and physical symptoms of depression. For the HDRS17, a score of 0–7 is generally accepted to be within the normal range (or in clinical remission), while a score of 20 or higher (indicating at least moderate severity) is usually required for entry into a clinical trial. The severity ranges for the HAMD: no depression (0–7); mild depression (8–16); moderate depression (17–23); and severe depression (≥24). Application of scale – Once confirmed that patient was having primary headache, HAM D was applied in OPD.
3. Hamilton Rating scale of Anxiety [16,17]– The HAM-A was one of the first rating scales developed to measure the severity of anxiety symptoms, and is still widely used today in both clinical and research settings. The scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56, where <17 indicates mild severity, 18–24 mild to moderate severity and 25–30 moderate to severe.

Application of scale – Once confirmed that patient was having primary headache, HAM A was applied in OPD.

4. Results and Analysis

Table 1: Demographic profile of individuals under study (N=100)

Demographic characteristics	*Sub categories*	*Males*	*Females*	*Percentage Distribution in study (%)*
Sex		53	47	100
Age	10 to 25 years	22	8	30
	26 to 40 years	13	20	33
	41 to 55 years	13	15	28
	56 to 70 years	5	4	9
Occupation	Unemployed	3	4	7
	Job	29	12	31
	Business	19	9	28
	Household work	2	22	24
Education	Primary schooling	12	15	27
	Secondary schooling	23	19	42
	Graduate	9	8	17
	Post graduate	9	5	14
Residence	City	37	23	60
	Village	16	24	40

Table 1 – Above table shows the demographic profile of the study population. In this study out of total 100 subjects , 53 were males and 47 were females. According to age distribution, 30% were 10 to 25 years age, 33% were 26 to 40 years age, 28% were 41 to 55 years age and 9% were 56 to 70 years age. Occupation wise, 7 % were unemployed, 31% were doing job, 28% were doing business and 24% were doing household work. As per education level of subjects, 27% did primary schooling, 42% did secondary schooling, 17% were graduates and 14% were post graduates. Also, among the study subjects, 60% were residing in city and 40% in village.

Table 2: Classification according to type of headache (N= 100)

Type of headache	Male	Female	Total
Migraine with aura	7	5	12
Migraine without aura	15	17	32
Tension type headache	20	22	42
Cluster headache	11	3	14
Total	53	47	100

Table 2 – The above table describes classification of subjects according to type of headache diagnosed by IHS criteria. Out of 100 subjects under study, 42% were suffering from Tension type headache, 44 % were suffering from migraine and 14 % were suffering from cluster headache. It was observed that Tension type headache and migraine without aura was more common in females and cluster headache was more common in males.

Table 3a: MDD in Headache patients (N=67) ; MDD (HAM-D ≥ 7)

Demographic characteristics	Sub categories	Males	Females
Sex		29	38
Age	10 to 25 years	14	5
	26 to 40 years	9	19
	41 to 55 years	5	12
	56 to 70 years	1	2
Occupation	Unemployed	0	4
	Job	19	12
	Business	9	9
	Household work	1	22
Education	Primary schooling	9	8
	Secondary schooling	13	17
	Graduate	5	9
	Post graduate	2	4
Residence	City	15	20
	Village	14	18

Table 3a describes that total 67% of the subjects were having MDD (HAM-D ≥ 7), out of which 57% were females, HAM-D scores are more in age group 26 to 40 years, job going patients, education level to secondary schooling and patients residing in city.

Table 3b: MDD and Type of Headache patients (N=100)

Type of headache	MDD (HAM – D ≥ 7)		Total
	Male	Female	
Migraine with aura	4	5	9 /12
Migraine without aura	9	11	20/32
Tension type headache	12	19	28/42
Cluster headache	4	3	8/14
Total	29	38	67/100

Table 3b shows us distribution of MDD and type of Headache. Out of 67 subjects, 28 (41.7%) subjects of Tension type headache and 20 (29.8%) subjects of migraine without aura were having MDD.

Table 3c: Severity of Depression in Headache patients (N=67)

HAM D scores	Severity of Depression	No of patients	Percentage (%)
8 to 13	Mild	19	28.3
14 to 18	Moderate	28	41.7
19 to 22	Severe	14	20.8
≥ 23	Very severe	6	8.95
Total	-	67	100

Table 3c – Out of 67 patients with MDD and Headache, 41.7% of subjects were having moderate depression, 28.3% were having mild depression, 20.8% subjects were having severe depression and 9% were having very severe depression.

Table 4a: Anxiety in patients of Headache (N=100)

Demographic characteristics	Sub categories	Males	Females
Sex		27	32
Age	10 to 25 years	9	5
	26 to 40 years	9	17
	41 to 55 years	8	9
	56 to 70 years	1	1
Occupation	Unemployed	0	4
	Job	11	10
	Business	16	1
	Household work	0	17
Education	Primary schooling	8	10
	Secondary schooling	13	16
	Graduate	4	4
	Post graduate	2	2
Residence	City	18	21
	Village	9	9

Table 4a describes that total 59% of the subjects were having MDD (HAM-D ≥ 7), out of which 57% were females(54%), HAM-A scores are more in age group 26 to 40 years, job going patients, education level to secondary schooling and patients residing in city.

Table 4b: Anxiety and Type of Headache patients (N=100)

Type of headache	Anxiety (HAM – A ≥ 14)		Total
	Male	Female	
Migraine with aura	2	3	5 /12
Migraine without aura	7	10	17/32
Tension type headache	10	22	32/42
Cluster headache	4	1	5/14
Total	23	36	59/100

Table 4b shows us distribution of Anxiety and type of Headache. Out of 59 subjects, 32 (54.3%) subjects of Tension type headache and 17 (25.3%) subjects of migraine without aura were having Anxiety.

Table 4c: Severity of Anxiety in Headache patients (N=59)

HAM A scores	Severity of Anxiety	No of patients
14 – 17	Mild	17
18 – 24	Moderate	28
25 – 30	Severe	14
Total	-	59

Table 4c – Out of 59 patients with Anxiety and Headache, 28 (47.4%) of subjects were having moderate anxiety, 17 (28.8%) were having mild anxiety, 14 (23.7%) subjects were having severe anxiety.

Table 5a: MDD (HAM – D ≥ 7) and Anxiety disorder (HAM – A ≥ 14) both in Headache patients.

Patients with Headache	Male	Female	Total
100	13	16	29

Table 5 – out of 100 patients with primary headache, 29% had both MDD and Anxiety disorder, out of which 16 (55%) were females and 13 (45%) were males.

Table 5b: Type of headache and MDD (HAM – D ≥ 7) and Anxiety disorder (HAM – A ≥ 14) both.

Type of headache	HAM – D ≥ 7	HAM – A ≥ 14	Total
Migraine with aura	2	4	6
Migraine without aura	2	3	5
Tension type headache	7	6	13
Cluster headache	4	1	5
Total	15	14	29/100

Table 5 b – Out of 29 patients with both MDD and Anxiety, patients with Tension type type headache (45%) were more associated with these disorders than other types of headache.

5. Discussion

- According to study by J A Zwart et al[5], Depression and anxiety disorders as measured by HADS, were significantly associated with migraine (OR = 2.7, 95% CI 2.3–3.2; OR = 3.2, 95% CI 2.8–3.6) and non migrainous headache (OR = 2.2, 95% CI 2.0–2.5; OR = 2.7, 95% CI 2.4–3.0) when compared with headache free individuals. The association was stronger for anxiety disorders than for depression.
  In our study, we found that majority of the subjects with primary headache (N=100), were having MDD, out of which 21% were having severe depression and 9 % having very severe depression. Also, as per our evaluation anxiety disorders, majority of subjects with primary headache were having anxiety out of which 24% were having severe anxiety. This finding suggests depression is more in headache patients than anxiety.
- Franco Mongini et al[6] studied about accompanying symptoms and psychiatric comorbidity in migraine and Tension type type headache patients and found that the mean number of symptoms was significantly higher in patients (n=10.3) than in controls (n=3.4). Most symptoms were significantly associated with depression

and anxiety, while only some of them were significantly associated with headache, with no relevant difference among groups. Another study by Guidetti V, Galli F, Fabrizi P et al found that Migraine and Tension type Type Headache change their clinical characteristics, with a high tendency to remission (mostly in males). Also, anxiety disorders in 1988 are related to enduring of headache and migraine shows comorbidity with anxiety disorders and depression. [10]

In our study we found that, patients having Tension type headache as a diagnosis, 30% were having depression and 25% were having anxiety which parallels the above study findings.

- Mitsikostas D. and Thomas A in their study on Comorbidity of headache and depressive disorders found that the frequency of headache attacks, the history of headaches, and gender (women more than men) were correlated with the score of the Hamilton rating scale for both anxiety and depression.[8]

  In our study we found that , total 67% of the subjects were having MDD (HAM-D $\geq$ 7), out of which 57% were females and total 59% of the subjects were having Anxiety (HAM – A $\geq$ 14) out of which 54% were females. This suggests that women are having more co morbidity than men.
- Juliane Prieto Peres Mercante et al in their study about depression in chronic migraine, severity and clinical features assessed depression on Beck's Depression Inventory (BDI) in patients with chronic migraine. The results of this study were moderate or severe depression, were present in 58.7% of the patients. Some degree of depression appeared in 85.8% of patients.[18]

  In our study, we found that 41.7% of subjects were having moderate depression, 28.3% were having mild depression, 20.8% subjects were having severe depression and 9% were having very severe depression which are much lower scores than the above mentioned study results. Hence, duration of migraine might affect the severity of depression in these patients.
- Yucel et al. studied depression and alexithymia in patients with tension type headache. They found that compared to healthy controls, the subjects with headaches had significantly higher scores on measures of depression and alexithymia.[9] Another study by Hatch J P et al found similar results.[11]

  In our study, we found that MDD (41.7%) and anxiety (54.3%) are more common in subjects of Tension type headache patients.

- Few studies like one by Felicity Materazzo, Stuart Cathcart, Donald Pritchard; Anger, depression, and coping interactions in headache activity and adjustment: a controlled study, found that chronic tension type headache are associated with higher levels on depression and various anger scales compared to controls.[12] Where as other studies had some different findings like Breslau et al found that lifetime prevalence of MDD in patients with migraine with aura (MWA) was significantly higher than in persons with migraine without aura.[20,21,22] In our study we also found that patients with Tension type type headache (45%) were more associated with depression and anxiety than other types of headache.

6. Conclusion

1) Primary headache is more common in males(53%) than females(47%).
2) Young age patients (10 to 40 years) are suffering from headache (63%), depression (70%) and anxiety (67%) than other age groups.
3) Job going patients suffer from headache, depression and anxiety than other occupation groups.
4) Residents of city are suffering from headache, depression and anxiety than village patients.
5) Primary headache shares a co existence of Major Depressive Disorder and Anxiety.
6) Tension type headache and Migraine without aura are more common primary headache diagnosis in patients with complaints of headache.
7) Tension type headache and Migraine without aura are more common in females where as Cluster headache is more common in males.
8) MDD and anxiety are more common in subjects of Tension type type headache patients.
9) Females are having more co morbidity of depression and anxiety than males.
10) Depression is more in headache patients than anxiety.
11) Headache should not be considered as only a somatic symptom of depression, but should be treated as an important comorbid disorder because it might exacerbate or interact with depression during a depressive episode.

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