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Prevalence of Comorbidity of Depressive Disorders and Panic Disorder in Patients Diagnosed With Migraine (With and Without Aura)

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Abstract **Original Research Article**

Migraine is a common neurological disorder and that be severely disabling during attacks, and has been observed to be associated with other psychiatric disorders like panic disorder and depressive disorders. The disease burden maybe magnified when psychiatric co morbidities are present [1]. Objective: In this study, we have tried to find out the prevalence and comorbidity of depressive disorders and panic disorder in patients diagnosed with migrainous headache, with and without aura, coming to psychiatry OPD of MMMC&H, Kumarhatti,Solan. Material and Methods: International Society for Headache, criterion (ICHD-3) [2] was applied to screen patients having migrainous headache (with and without aura). 220 such patients, who gave consent for the study, were selected for the study and MINI Scale [3] was applied to these patients to find out which of these, had a diagnosable comorbidity with panic disorder and depressive disorders. Observations: The prevalence of Panic Disorder was found to be 11.5% in cases of migraine without aura whereas it was 14.3% in cases of migraine with aura showing no significant association (p=0.665).Prevalence of Depression was found to be 29.2% in cases of migraine without aura whereas it was 64.3% in cases of migraine with aura, thus showing statistically highly significant association (p<0.001). Conclusion: Odds Ratio of panic disorder in cases of migraine with aura as compared to migraine without aura was 1.288(95% CI : 0.409-4.059: p= 0.666), showing insignificantly more chances of Panic Disorder in cases of migraine with aura as compared to migraine without aura. Cases of migraine with aura had significantly higher odds of having depression as compared to cases without aura (OR: 4.371; 95% CI: 1.900-10-058: p = 0.001).

Keywords: Migraine without aura, Migraine with aura, Panic Disorder, Depressive Disorder.

INTRODUCTION

Migraine is an extremely common, recurrent and disabling disorder, and is often accompanied by other psychiatric disorders, which magnifies its impact on a patient Migraine and has been linked with several psychiatric disorders, such as depression and anxiety [4]. Migraineurs are 2.5 times more likely to be depressed than those without migraine [5, 6] and 2-5 times more likely to have anxiety disorders [7]. The relationship between migraine and certain psychological features such as a tendency toward perfectionism, neuroticism, repressed aggressivity and melancholic mood has been reported for more than a century [8]. Comorbidity is significant as co-occurrence can complicate the diagnosis or one treatment may suffice for the two diseases. Psychopathology of primary headache can reflect shared risk factors, pathophysiologic mechanisms like decrease concentration of platelet serotonin, an increase of urinary 5- hydroxyl- tryptamine, and a possible increase of 5- hydroxyl- indole acetic acid [9]. The studies assessing migraine in psychiatric patients are limited. In the present study we will examine the prevalence of comorbidity of depressive disorder and panic disorder, to better understand the relationship between the two.

AIMS AND OBJECTIVES

To find the prevalence and comorbidity of depressive disorders and panic disorder in patients diagnosed with migrainous headache, with and without aura.

METHODS AND PROCEDURE

International Society for Headache, criterion (ICHD-3) [2] was applied to screen patients having migrainous headache (with and without aura). 220 such patients, who gave consent for the study, were selected for the study and MINI Scale [3] was applied to these patients to find out which of these, had a diagnosable

comorbidity with panic disorder and depressive disorders.

INCLUSION CRITERION

- Age 18 years or more
- Patients coming to Psychiatry OPD of Maharishi Markandeshwar Medical College, diagnosed to have migraine (with or without aura) by International Society for Headache criterion, (ICHD-3)
- To be first diagnosed in the hospital
- Those willing to give a written informed consent.

EXCLUSION CRITERION

- Patients who are already on psychiatric treatment.
- Patients having any comorbid medical ailments like diabetes, hypertension, hypothyroidism or hyperthyroidism.
- Patients of substance abuse or dependence.

Chi square test was used to compare the prevalence of depressive disorder and panic disorder in patients of migraine (with or without aura). Data analysis was performed using SPSSS (version 17.0). Statistical significance will be set at the 5% level. Odds Ratio will be determined within the 95% confidence interval for the risk of migraine with and without aura among patients with depressive disorder and panic disorder. An odds ratio greater than 1 will be considered statistically significant.

RESULTS

Patients coming to psychiatry OPD of MMMC&H, Kumarhatti, from October 2019-December 2019, were interviewed and those that were diagnosed to have either migraine with aura or migraine without aura (as per ICHD-3 criteria), were selected. Out of these 220 patients who met our inclusion and exclusion criteria and gave consent for the study were selected. Consent from our institute's Ethics Committee was obtained and MINI Scale the English version of the Mini International Neuropsychiatry Interview , was applied to find out whether they also met criteria for any comorbid psychiatric disorder, such as Panic Disorder or Depressive Disorder .Mini International Neuropsychiatry Interview (MINI),is an easy structured diagnostic interview with different sections exploring the principal DSM(IV) (Axis I) psychiatric conditions and for the purpose of the study, sections concerning major depressive disorder and panic disorder were used.

Chi square was used to compare the prevalence of Depression and Panic Disorder in the two main diagnostic groups: migraine without aura and migraine with aura. Statistical significance was set at 5% level. The association of demographical factors: age, sex, education and socio-economic status incident with migraine was calculated.

Incidence rates were higher for females for every age group (71.8%). Youngest age group (18-29) had the highest rates for Migraine (58.2%): as shown in Table 1 and 2.

Table-1: Age group distribution of sample

Age (years)	Number	%age
18 – 29	128	58.20
30 – 44	72	32.70
>44	20	9.09
Total	220	100.00

Table-2: Gender distribution of sample

Gender	Number	%age
Male	62	28.20
Female	158	71.80
Total	220	100.00

Overall Migraine without aura was found to be more prevalent than Migraine with aura, prevalence rates 87.3% and 12.7% respectively: as shown in Table 3.

Table-3: Diagnosis - Migraine with aura / Migraine without aura

Diagnosis	Number	%age
Migraine without aura	192	87.30
Migraine with aura	28	12.70
Total	220	100.00

Maximum prevalence among the various socio-economic groups was found in the lower status, while prevalence was almost the same in middle and upper socio-economic status: as shown in Table 4.

Table-4: Distribution of sample as per socio-economic status

Socio-economic status	Number	%age
Low	120	54.50
Middle	43	19.50
Upper	57	25.90
Total	220	100.00

Prevalence of Depression was 29.2% in cases of migraine without aura whereas it was 64.3% in cases of migraine with aura, thus showing statistically highly significant association ($p<0.001$): as shown in Table 5.

Table 5: Prevalence of Migraine (with or without aura), and association with Depressive Disorder

Diagnosis	Depressive disorder				Total
	Absent		Present		
	N	%	N	%	
Migraine without aura	136	70.80	56	29.20	192
Migraine with aura	10	35.70	18	64.30	28
Total	146	66.40	74	33.60	220

$x^2 = 13.502$; df = 1; $p < 0.001$; Highly significant

The prevalence of Panic Disorder was 11.5% in cases of migraine without aura whereas it was 14.3% in cases of migraine with aura showing no significant association (p=0.665): as shown in Table 6

Table-6: Prevalence of Migraine (with or without aura), and association with Panic Disorder

Diagnosis	Depressive disorder				Total
	Absent		Present		
	N	%	N	%	
Migraine without aura	170	88.50	22	11.50	192
Migraine with aura	24	85.70	4	14.30	28
Total	194	88.20	26	11.80	220

$x^2 = 0.187$; df = 1; p = 0.665; Not significant

Odds Ratio of panic disorder in cases of migraine with aura as compared to migraine without aura was 1.288(95% CI : 0.409-4.059: p= 0.666), showing insignificantly more chances of Panic Disorder in cases of migraine with aura as compared to migraine without aura. Cases of migraine with aura had significantly higher odds of having depression as compared to cases without aura (OR: 4.371; 95% CI: 1.900-10.058: p = 0.001).

DISCUSSION

Since the first introduction of the IHS criteria, several studies of community- drawn samples have examined psychiatric co morbidity in migraine.

Migraine prevalence has been estimated to occur in 34.5% of women and 20.1% of men, while depression das been estimated to occur in 12.6% of women and 6.3% of men in United States [10]. Incidence rates were higher for females for every age group (71.8%). Youngest age group (18-29) had the highest rates for Migraine (58.2%), which is quite similar to the above findngs.

Female sex and younger age has previously also been identified as risk factors for Migrainous headaches [11, 12]. The HADAS study by Beghi *et al* [13], in 2010, showed that psychiatric disturbances are the commonest comorbid complaints in patients with migraine without aura and or tension type headache, with depression, anxiety, panic and OCDs in decreasing order. The MINI detected a depressive episode in 59.9%, 67.0%, and 69.6% of the cases. Values were 18.4%, 19.3%, and 18.4% for anxiety, 12.7%, 5.5% and 14.2%, for obsessive compulsive disorder. Multivariate analysis showed panic disorder prevailing in migraine compared with other groups (OR 2.9: 95%CI 1.2-7.0). Panic disorder was reported by 20 patients with migraine without aura (12.7%), 6 patients with tension-type headache (5.5%), and 15 patients with migraine plus tension-type headache (14.2%). Panic disorder was the only psychiatric disturbance found to predominate in patients with migraine without aura when compared with the other headache groups (odds ratio, OR 2.9; 95% confidence interval, CI 1.2–7.0). These results are quite at par with our findings, as prevalence of depressive disorder was 29.2% in patients of migraine without aura and 64.3% in patients with migraine with aura. Values for Panic disorder were 11.5% in patients with migraine without aura and 14.3% in patients with migraine with aura.

Major depression was reported in upto 1/3rd of the cases, in keeping with Breslan and co- workers [14], who found major depression in 40.7% of patients with migraine and 35.8% of those patients with other severe headaches. Association has been reported to be higher in patients with migraine with aura than in those with migraine without aura [15, 16] as was the finding in our study.

In a study by Karen L Swartz *et al.* [17], in October 2000, in a cross- sectional analysis, also found that younger age and female sex showed higher prevalence of migraine, as in our study. Major depression (OR 3.14; 95% confidence interval, 2.03-4.84) and panic disorder (OR, 5.09; 95% CI, 2.65-9-79) had the strongest association. Depression in our study followed almost the same trend and was found to be (OR: 4.371; 95% CI: 1.900-10-058: p = 0.001). But the prevalence of panic disorder was found to be lesser 1.288(95% CI: 0.409-4.059: p= 0.666. This could be due to the fact that patients with panic attacks were mostly diagnosed as having depressive disorder as mood symptoms were predominating in them.

Comorbidity of migraine, major depressive disorder, and generalized anxiety disorder in adolescents and young adults was studied by Dindo LN in2017 [18], in which it was found that having a diagnosis of MDD was associated with a higher prevalence of migraine (OR= 3.4, 95%CI= 1.1, 10.2, p<0.02). Having a diagnosis of GAD was significantly associated with the presence of migraine (OR= 2.8, 95%CI= 1.3, 6.2, P<0.01.

In a study conducted by Senaratne R *et al.* in 2010 [19], the prevalence of migraine headaches in an anxiety disorders clinical sample was done. A prevalence of migraine headaches among anxiety disorders patients was 67% which is significantly higher than the 11-13% prevalence of migraine reported in general population. In this study, it was found that presence of a diagnosis of major depression/ dysthymia and panic disorder was significantly associated with the presence of migraine.

Breslau N *et al*. [20] in 1991 found that the lifetime prevalence of major depression was 3 times higher in patients with migraine and a bidirectional association existed between migraine and depression. In patients with Migraine with aura, prevalence was 49.4 %(OR= 4.9), and n patients of Migraine without aura, prevalence was 37.0 %(OR= 3.03).

A meta-analysis of high-quality epidemiologic study data from 1990 to 2012, conducted by Smitherman TA [21] indicated that the odds of PD are 3.76 times greater among individuals with migraine than those without. This association remains significant even after controlling for demographic variables and comorbid depression.

Cross-sectional studies conducted by Patel NV [22] in 2004, report an increased prevalence of major depression among persons with migraine (21–34%) compared to those without migraine (9–10%).

Of the anxiety disorders, panic disorder has the strongest association with migraine [23], with an increased prevalence among migraine sufferers (10.9–17%), relative to migraine-free individuals (1.8%) which are quite similar to the finding of 12.9% prevalence in our study.

CONCLUSION

Findings of our study report, that the highest prevalence of migraine (with or without aura) occurs between the ages of 18-29 years, potentially the most productive period of life. Prevalence of migraine in females was more than double that in males, in this study. Prevalence of Depression was 29.2% in cases of migraine without aura whereas it was 64.3% in cases of migraine with aura, thus showing statistically highly significant association (p<0.001). The prevalence of Panic Disorder was 11.5% in cases of migraine without aura whereas it was 14.3% in cases of migraine with aura showing no significant association (p=0.665). Odds Ratio of panic disorder in cases of migraine with aura as compared to migraine without aura was 1.288(95% CI: 0.409-4.059: p= 0.666), showing insignificantly more chances of Panic Disorder in cases of migraine with aura as compared to migraine without aura. Cases of migraine with aura had significantly higher odds of having depression as compared to cases without aura (OR: 4.371; 95% CI: 1.900-10.058: p = 0.001).

Migraine leads to a burden not only for the patient, but also for his/her family and society in general. Psychiatric comorbidity, depressive disorder and panic disorder, indeed affects migraine evolution, specially migraine which is associated with aura, as seen in our study and also reported in previous studies, as it may lead to chronic substance use and may change treatment strategies, eventually modifying the outcome of this important disorder.

REFERENCES

1. Peterlin B, Katsnelson M, Calhoun A. The associations between migraine, unipolar psychiatric comorbidities, and stress-related disorders and the role of estrogen. Current Pain and Headache Reports. 2009;13(5):404-412.
2. Headache Classification Committee of the International Headache Society (IHS) The International Classification of Headache Disorders, 3rd edition. Cephalalgia. 2018;38(1):1-211.
3. Sheehan DV, Lecrubier Y, SheehanKH. The Mini International Neuropsychiatry Interview (MINI): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. J. Clin. Psychiatry. 1988; 59(l20):22-23.
4. Bigal M, Liberman J, Lipton R. Age-dependent prevalence and clinical features of migraine. Neurology. 2006;67(2):246-251.
5. Lipton RB, Hamelsky SW, Kolodner KB, Steiner TJ, Steward WF. Migraine, quality of life, and depression: A population- based case-control study. Neurology. 2000; 55: 629-35.
6. Zwart JA, Dyb G, Hagen K, Oedgard KJ, D ahl AA, Bovim G. Depression and anxiety disorders associated with headache frequency. The Nord-Trondelag health study. Eur J Neurol. 2003; 10: 147-52.
7. Breslau N. Psychiatric comorbidity in migraine. Cephalgia. 1998; 18(22):56-8.
8. Peterlin B, Ward T. Neuropsychiatric aspects of migraine. Current Psychiatry Reports. 2005;7(5):371-375.
9. Ferrari M, Odink J, Tapparelli C, Van Kempen G, Pennings E, Bruyn G. Serotonin metabolism in migraine. Neurology. 1989;39(9):1239-1239.
10. Riolo S, Nguyen T, Greden J, King C. Prevalence of Depression by Race/Ethnicity: Findings From the National Health and Nutrition Examination

Survey III. American Journal of Public Health. 2005;95(6):998-1000.
11. Linet M, Stewart W. Migraine headache: Epidemiologic perspectives. Epidemiologic Reviews. 1984;6(1):107-139.
12. Silberstein S, Lipton R. Headache epidemiology. Neurologic Clinics. 1996;14(2):421-434.
13. Beghi E, Bussone G, D'Amico D, Cortelli P, Cevoli S, Manzoni G. Headache, anxiety and depressive disorders: the HADAS study. The Journal of Headache and Pain. 2010;11(2):141-150.
14. Breslau N, Davis G, Andreski P. Migraine, psychiatric disorders, and suicide attempts: An epidemiologic study of young adults. Psychiatry Research. 1991;37(1):11-23.
15. Breslau N, Schultz L, Stewart W, Lipton R, Lucia V, Welch K. Headache and major depression: Is the association specific to migraine?. Neurology. 2000;54(2):308-308.
16. Oedegaard K, Neckelmann D, Mykletun A, Dahl A, Zwart J, Hagen K. Migraine with and without Aura: Association with Depression and Anxiety Disorder in a Population-Based Study. The HUNT Study. Cephalalgia. 2006;26(1):1-6.
17. Swartz K, Pratt L, Armenian H, Lee L, Eaton W. Mental Disorders and the Incidence of Migraine Headaches in a Community Sample. Archives of General Psychiatry. 2000;57(10):945.
18. Dindo L, Recober A, Haddad R, Calarge C. Comorbidity of Migraine, Major Depressive Disorder, and Generalized Anxiety Disorder in Adolescents and Young Adults. International Journal of Behavioral Medicine. 2016;24(4):528-534.
19. Senaratne R, Amerigan MV, Mancini C. The Prevalence of Migraine Headaches in an Anxiety Disorders Clinic Sample.CNS Neuroscience and Therapeutics. 2010;16(2):76-8
20. Breslau N, Schultz L, Stewart W, Lipton R, Lucia V, Welch K. Headache and major depression: Is the association specific to migraine?. Neurology. 2000;54(2):308-308.
21. Smitherman TA,Kolivas E, Bailey JR. Panic disorder and migraine: comorbidity, mechanisms, and clinical implications. Headache: The Journal of Head and Face Pain. 2012;53(1):23–45
22. Patel NV, Bigal ME, Kolodner KB, Leotta C, Lafata JE, Lipton RB. Prevalence and impact of migraine in a health plan. Neurology. 2004; 63: 1432-1438.
23. Merikangas KR, Merikangas Jr., Angst J. Headache syndromes and psychiatric disorders: association and familial transmission. J Psychiatr Res. 1993; 27:197–210.