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Original Research Article

Study of prescribing pattern of drugs in the management of migraine with psychiatric comorbidities at integral institute of medical science and research

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ABSTRACT

Background: Migraine headaches, a prevalent and serious brain condition, often coincide with mental health issues. This study aims to explore drug prescribing patterns for migraine patients with psychiatric comorbidities.
Methods: Over six months, a prospective observational study was conducted at the psychiatric department of IIMS&R Hospital. 100 prescriptions were analyzed based on specific criteria.
Results: Total 14 different drugs were prescribed. NSAIDs were most common (87%), followed by multivitamins (50%), benzodiazepines (30%), and tricyclic antidepressants (23%).Naxdom (NSAIDs) was frequently used (87%). Patients aged 31-45 years had higher prevalence. Comorbidities associated are depression (18%), anxiety disorder (10%), insomnia (5%).
Conclusions: The study highlights various orally administered drugs, including anti-migraine meds, antidepressants, anticonvulsants, and more. Patients within the 31-45years age group were significantly affected. Migraine correlated with depression, anxiety, and insomnia. The most common medication was naxdom 250mg taken orally.

Keywords: Antidepressants, Anxiety, Depression, Migraine, NSAIDs, Psychiatric comorbidities

INTRODUCTION

The link uniting migraine and mental health problems is crucial in medical practice due to its significant impact on treatment outcomes and the overall prognosis of patients. Understanding this connection is essential as it suggests multiple potential causes, including unidirectional causal explanations involving both common genetic and environmental influences, and their interaction across various levels.[1,2] These factors necessitate careful consideration, particularly regarding the diagnostic and treatment challenges presented by migraine comorbidity.[3]

This association between migraine and psychiatric disorders appears to be strongest for major depression and anxiety disorders (particularly panic and phobia), but increased comorbidity has also been reported with substance abuse, certain mood disorders, and even personality disorders, indicating a broad spectrum of mental health issues linked to migraine.[4,5] The bidirectional relationship between migraine and these psychiatric conditions further complicates treatment, as mental health issues can exacerbate migraine symptoms and vice versa. Therefore, the concern regarding psychiatric comorbidities has become increasingly important, and it is imperative to acknowledge the

mechanisms involved in migraine's link to mental health conditions. Understanding the treatment patterns that can effectively address both migraine and its psychiatric comorbidities is crucial for improving patient outcomes.[3,6]

Migraine, a genetically influenced complex disorder, involves recurring episodes of moderate-to-severe headache, typically affecting one side of the head. These headaches are frequently accompanied by nausea, vomiting, and heightened sensitivity to light and sound, significantly impairing daily functioning.[7,8] Migraine can be categorized into subtypes based on the criteria established by the International Headache Society (IHS) Headache Classification Committee. The different types include migraine without aura, which is a recurring headache lasting from 4 to 72 hours. It usually affects one side of the head, feels throbbing, and its intensity varies from moderate to severe. It worsens with physical activity and is accompanied by nausea, sensitivity to light, and sensitivity to sound.[9,10]

Migraine with aura is another subtype characterized by recurring, fully reversible attacks lasting minutes. These episodes typically involve unilateral symptoms such as visual disturbances, sensory changes, speech and language difficulties, motor impairments, brainstem symptoms, or retinal symptoms.[10] They are often followed by headaches and other migraine symptoms. Aura symptoms are believed to be caused by cortical spreading depression, a wave of electrical activity that moves across the brain, leading to the temporary neurological disturbances seen in these patients.[11-13] Chronic migraine, alternatively, entails experiencing headaches on 15 or more days per month for over three months, with at least eight of those days exhibiting migraine features. Chronic migraine is often more disabling than episodic migraine and is associated with a greater burden of psychiatric comorbidities, as well as a higher rate of medication overuse.[14,15]

Psychiatric comorbidities in migraine are a significant concern. Migraine, a prevalent and disabling neurological disorder, is frequently associated with various psychiatric conditions, particularly in those affected by migraine with aura or chronic migraine.[6,13,16] This comorbidity is not just a coincidence but reflects shared pathophysiological mechanisms, including dysregulation of neurotransmitters such as serotonin and dopamine, which play key roles in both mood regulation and migraine pathogenesis.[17,18]

Migraine and depressive disorder are strongly linked.[17] Individuals with migraine are 2.5 times more likely to experience depression compared to the general population, with 40% of them reporting depressive episodes during their lifetime.[17,19,20] This high comorbidity rate suggests that the neurobiological underpinnings of migraine may overlap with those of depression, possibly involving disruptions in the hypothalamic-pituitary-adrenal (HPA) axis and altered functioning of the limbic system, which regulates emotions and stress responses.[21,22] These two conditions often lead to a higher degree of social life, family life, and career disability, exacerbating the overall burden on patients.[23,24]

Anxiety disorders are also commonly associated with migraine. Migraine has an up to 10-fold likelihood of being comorbid with anxiety disorders, especially generalized anxiety disorder (GAD) and panic disorder (PD).[23,25,26] The presence of anxiety can significantly affect the frequency and intensity of migraine attacks, creating a vicious cycle where the fear of future headaches contributes to increased anxiety, which in turn may trigger more migraines.[23,26] As the number of headache episodes rises, the chance of experiencing anxiety also goes up.[23] Effective management of anxiety disorders in migraine patients is therefore essential to breaking this cycle and improving overall outcomes.[20,26]

The link between migraine and bipolar disorder (BD) is another area of concern, with up to 55% of migraineurs also diagnosed with BD.[12,24] This comorbidity presents unique challenges, as the treatment for one condition can sometimes exacerbate the other. For instance, certain antidepressants used to manage bipolar disorder can trigger migraine in susceptible individuals, highlighting the need for careful selection of therapeutic agents.[19,27] There is also evidence supporting the link between migraine, particularly chronic migraine, and Obsessive-Compulsive Disorder (OCD). The existence of OCD may affect how migraines respond to treatment, both in the short term and over time, due to the potential for compulsive behaviors to interfere with medication adherence and lifestyle modifications necessary for migraine management.[24,27]

In addition, the association between migraine and Post-Traumatic Stress Disorder (PTSD) is noteworthy. PTSD is more prevalent in people suffering from chronic migraine (43%) than in those diagnosed with episodic migraine (9%).[28,29] The overlap between these conditions may be due to shared neural pathways involved in pain perception, stress response, and memory processing. The heightened state of arousal associated with PTSD can exacerbate migraine symptoms, making treatment more challenging.[6,14,28]

METHODS

This study, which took place between January to June 2023, was a prospective observational study done psychiatric comorbidities with migraine patients who were routinely attending the Integral Institute of Medical and Research Hospital in Lucknow, India. 100 participants were enrolled based on the inclusion criteria, exclusion criteria and oral/written consent.[30-32]

Inclusion criteria

All the patients that came with migraine and psychiatric comorbidities associated with it. Patients that have bipolar disorder, depressive disorder, obsessive-compulsive

disorder, panic disorder, post-traumatic stress disorder, anxiety disorder with migraine.

Exclusion criteria

Patients with other psychiatric disorders that is not migraine, those who were mentally challenged.[33,34] Assessment of prescribing pattern of drugs as a therapeutic approach for migraine associated with psychiatric comorbidities by taking data from patient OPD case file, patient case report to analyze the average age range of patients, number of comorbidities associated, type of drugs prescribed.

Statistical analysis

The statistical software SPSS version 23.0 together with Microsoft Excel was utilized for data analysis. Based on the p value, which was deemed statistically significant at $p<0.05$. All the values were expressed as Mean ± Standard Deviation (SD).

RESULTS

Demographics

In 6 months of prospective-observational study a 100 participant were enrolled. Out of which 57% female and 43% male highlights a higher prevalence of migraines within the female patient cohort examined in this research (Table 1).

Table 1: Demographics.

Variables	Number of subject (%)
Gender	
Male	43 (43)
Female	57 (57)
Age (Mean±SD)	37.85±13.64
<18	6 (6.00)
18-30	26 (26)
31-45	50 (50)
46-60	8 (8)
>60	10 (10)
Comorbidities	
Anxiety disorder	10 (10)
Depression	18 (18)
Insomnia	05 (5)

Patients aged between 31 and 45 years exhibited a higher prevalence of the disease, comprising 50% of the subjects. Patients under 18 years of age were least affected, comprising only 6% of the total population. Meanwhile, 26% of patients fell under Individuals between 18 and 30 years old. Additionally, 8% fell within the 45-60 age range, while, 10% fell into the age category of over 60 years old. (Table 1).

Comorbidities like anxiety disorder, depression and insomnia turned out to be associated in 100 patients of migraine. Depression turned out to be the most common psychiatric comorbidity comprising 18% of total patients. 5% turned out to have insomnia and 10 % was comorbid with anxiety disorder (Table 1).

Class of drug prescribed

In 6 months of study, 14 different class of drug turned out to be prescribed to 100 patients which included 87% NSAIDs, 50% multivitamins, 45% benzodiazepines, 23% SSRIs and anti-depressants, along with 38% PPIs, 3% anti-epileptics, anti-migraine drugs, anticonvulsant, SSNRI, calcium channel blockers and hypnotics (Table 2).

Table 2: Class of drug prescribed.

Prescribed Drug	Number of patient (%)
Amity 10mg (TCA)	23 (23)
Naxdom 250 (NSAIDs)	87 (87)
Supradyn (MMV)	50 (50)
R bex 10 ml (MV)	22 (22)
Trixide 0.25mg (TCA)	15(15)
Mirtaz 15mg (TCA)	5 (5)
Zapiz 0.5mg (BZD)	30 (30)
Dicorate ER 250mg (AC)	7 (7)
Sibelium 10mg (CCB)	23 (23)
Depsol pus (TCA)	5 (5)
Benj 2mg (AA)	2 (2)
Divaa OD 250mg (AEP)	6 (6)
Cloba 5mg (BZD)	1 (1)
Lanzol junior 30mg (PPI)	5 (5)
D-VENIZ 100mg (S-NRIs)	2 (2)
LOPEZ MD 2mg (BZD)	2 (2)
Vertin 48mg (AVA)	10 (10)
Megaflexon (NSAIDs)	4 (4)
Tremendus-SP (NSAIDs)	3 (3)
Diclocalm gel (NSAIDs)	1(1)
Cyra D (PPI)	1 (1)
Epitop 25mg (AEP)	14 (14)
Lavera 500mg (AEP)	1 (1)
Betacap plus 10 (AMD)	1 (1)
Pregaba M (AC)	2 (2)
Pan 40 mg (PPI)	1(1)
Nexito 10mg (SSRI)	24 (24)
Zalfresh 10mg (HYP)	23 (23)
Petra DSR (PPI)	1 (1)
PCM (NSAID)	8 (8)
Etilaam pro (AA)	8 (8)
Viogold (MV)	4 (4)
Triptolol (TCA)	3 (3)
Flugrain (CCA)	5 (5)

Mode of administration of drugs

All the 100 patients of migraine receive the drugs by oral route

Most commonly prescribed medications

Most commonly used medication was naxdom (NSAIDs) along with multivitamins, antidepressants, benzodiazepines, Selective Serotonin Reuptake Inhibitors (SSRIs) and proton pump inhibitors.

DISCUSSION

A prospective-observational study of prescribing pattern of drugs or treating migraine with co-occurring mental health conditions was conducted in the IPD of psychiatry for 6 months at Integral Institute of Medical Science and Research Hospital, Lucknow. A total of 100 patients were observed based on inclusion and exclusion criteria. These observations were made relating to the study conducted previously.[35]

In terms of demographics, the study indicates that the majority of patients with migraine and psychiatric comorbidity fall within the age range of 31-45 years, which is different from the previous study in which majority of the patients fell in the age range of 35 years with a higher prevalence among females.[35,36] Regarding the subtypes of migraine, the study primarily focuses on migraine with co-occurring mental disorders experienced by some patients with unilateral migraine with or without aura, in context with the previous study in which migraine without aura gained prominence as the most frequently diagnosed subtype found.[37] Our present research highlights some common triggers, and precipitating factors such as noise and sunlight mainly which turned out to be same as in the previous study.[37]

Anxiety disorder was a common comorbidity among patients with migraine. However, current study finds 10% anxiety disorder prevalence, below earlier study i.e. (40%).[40] The previous study identified a higher rate of major depressive episodes (38.3%), while in current study depression was the major comorbidity affected 18% of total cases followed by anxiety then insomnia.[38]

In terms of prescribed medications, it was found that NSAIDs were the most commonly prescribed medication for migraine treatment with naxdom 87% (naproxen and domperidone), followed by multivitamins 50%, benzodiazepines, and tricyclic antidepressants, while in other study reported that many patients were prescribed NSAIDs to manage acute attacks with naproxen 24.1% followed by diclofenac 2.72%.[39]

NAXDOM, an NSAID, emerged predominantly as prescribed drug. This study has an advantage as it helps to understand the prescribing pattern in the context of migraine patients with comorbid psychiatric disorders there by relieving the migraine symptoms and improving the overall quality of life.

Overall, comparing our findings to those of the previous study shows both similarities and differences in terms of patient demographics, migraine subtypes, precipitating factors, comorbid psychiatric disorders, and medication patterns. These variations could be due to differences in study design, sample characteristics, and geographic factors. Additional research is crucial to explore these differences and gain a more comprehensive understanding of the complex relationship between migraine and psychiatric comorbidity.

CONCLUSION

In conclusion, the study provides valuable insights into the pharmacological management of migraine with psychiatric comorbidity. In the thick of prescribed medications, NSAIDs emerged as the most commonly prescribed class of drug. Findings suggest NSAIDs play a significant role in migraine relief, as their effectiveness is well established in relieving pain and reducing inflammation. The predominant route of administration for these NSAIDs was oral, indicating the preference for oral formulations in the subjects. Multivitamins were prescribed in 50% of the cases along with other drugs, emphasizing the significance of nutritional supplements in managing migraine and psychiatric Comorbidities. Adequate vitamin and mineral intake contributed in supporting overall brain health and reducing migraine frequency or severity. Benzodiazepines and tricyclic antidepressants, indicating their use for managing anxiety symptoms and depression respectively commonly associated with migraine. The research revealed that the age group of 31-45 years had the higher prevalence.

The study suggests the importance of considering and addressing psychiatric comorbidities for treating migraine, as they can significantly impact the overall disease burden and treatment outcomes.

The prevalence of NSAID prescriptions, along with the utilization of multivitamins, benzodiazepines, and tricyclic antidepressants, reflects the multifaceted approach for treating migraine and associated comorbidities. The predominance of Naproxen and domperidone became predominantly the prescribed medication shows its effectiveness in relieve in migraine symptoms.

Present findings contribute to the body of knowledge on the pharmacotherapy of migraine with psychiatric comorbidity, guiding clinicians in making informed decisions and optimizing patient care. Additional research is crucial to explore the long-term efficacy and safety of these medications.

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