

REVIEW



A PEER VIEW ON DRUG UTILIZATION PATTERN IN PRIMARY HEADACHE SYNDROME

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ABSTRACT

Headache is a pain anywhere in the orbiteomeatal line. It may be a symptom of different disease. Headache is classified into primary and secondary headache based on source of pain. Primary headaches are benign, recurrent headache not caused by underlying disease or structural problems. About 47% of population is suffering from headache. 90% of all headaches are primary headache. Migraine, tension type & cluster headache are the frequently observed primary headache from the studies. The prevalence was more in female patients. Certain cardiovascular drugs tend to increase the risk of headache. Migraine is most frequently observed in female within the age group of 30-49 yrs. NSAIDS, triptans, ergot derivatives were prescribed as acute treatment. Beta blockers, Tricyclic antidepressants, calcium channel blockers, antiepileptic are prescribed as prophylactic medication for primary headache. Gastrointestinal problems, dizziness, drowsiness, dry mouth, blurred vision are most commonly observed adverse effects of drugs used for headache treatment.

KEY WORDS: Drug Utilization study, Primary headache, Acute treatment, Prophylactic medications

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INTRODUCTION

Drug utilization studies as per WHO guideline is defined as marketing, distribution, prescription, and use of drugs in the society with special emphasis on the resulting medical, social, & economic consequences¹. Drug utilization studies are of two types descriptive and analytical studies. The descriptive study gives information about the pattern of drug utilization and helps to identify problems deserving more detailed study. Analytical study provides data on morbidity, outcome of the treatment and quality of care received. In short, drug utilization studies aims to reduce drug related & health related treatment costs, improving quality of medical treatment, decreasing number of medication related problems & medication errors also in improving prescriber awareness and practice towards appropriate prescribing.

Headache is a pain anywhere in the region of head or neck. It can be a symptom of number of disease & conditions. Based on the source of pain headache is being classified into primary headache, secondary headache, cranial neuralgia. Primary headache are benign recurrent headaches not caused by underlying disease or structural problems². 90% of the all headache are primary headache. Primary headache usually start when people are between 20-40yrs. The most commonly type of primary headache are migraine and tension type headache. Other types of primary headache include cluster headache, trigeminal neuralgia, Hypnic headache, primary cough headache primary headache can be identified based on the signs and symptoms which they presents Migraine headache is one of the common primary headache typically present with pulsating head pain, nausea, photophobia, phonophobia. Tension type headache is another primary headache usually occurs band like pressure on both sides of the head. Cluster type headache is a rare type headache which occurs mostly in smokers, it presents with severe pain around one eye with autonomous symptoms such as tearing, red eye, nasal congestion which occur at same time every day³.

The treatment of primary headache is based on the patient's headache severity, concurrent symptoms, co morbid conditions efficacy and adverse effect and also based on the cost of the treatment. Currently there are two types of treatment available for primary headache syndrome: Acute treatment

and prophylactic treatment⁴. Beside of these certain behavioural therapy and patient education is needed to maintain a good healthy life. Patients must be encouraged to keep headache diarycation.

TREATMENT

The aim of acute treatment is to relieve headache pain and associated symptoms. Its use should be limited to two or three times in a week. However the route of administration depends upon the patient preference, prior response to that route of administration, and the presence disease symptoms. The most commonly prescribed acute medication is analgesics, with or without caffeine, opioids, triptans, and dihydroergotamine

PROPHYLACTIC MEDICATION

They can reduce the frequency, severity and length of migraines and may increase the effectiveness of symptom-relieving medicines used during migraine attack. Tricyclic antidepressants, antiepileptic cardiovascular drugs such as beta blockers and calcium channel blockers are used as prophylactic medication

STUDY DETAILS

Subranshu Shekhar Jena et al⁵ conducted a study On "The Pattern of Prescription of Drugs in the Management and Prevention of Migraine & Also Adverse Drug Reactions"⁵. This was a cross-sectional observational study. Migraine was reported in a predominantly female population. Medications were used for the acute migraine in 1540 patients. Medications were used for the acute migraine in 1540 patients. Unilateral headache (59.8%) was common as compared to bilateral type (40.2%). NSAIDs alone were prescribed in 44.6% and combined with ergots and triptans in 33.8% cases. For prophylaxis, monotherapy was used most commonly (55.3%) followed by dual and poly therapy. Beta-blockers were most commonly used (57.1%) followed by antidepressants and calcium channel blockers. There were lots of limitations to the use of NSAID due to GI side effects. Amitriptyline showed drowsiness, dry mouth, blurred vision, and constipation

The study ended with the conclusion that physicians should be well aware of the different groups of drugs, efficacy and side effect profile of the drugs they choose, but not basing on their

clinical experience only. Patient education is the most important measure for effective migraine treatment program

Anna Luisa Dozza, et al. conducted a study titled "Adherence to Migraine Medication Does Not Depend On Number of Prescribed Medication"⁶. The aim of the study was to compare the adherence between monotherapy and polytherapy in prophylactic migraine treatment. Me Five hundred consecutive patients with migraine from a tertiary centre were retrospectively studied as to the number of preventive medications prescribed during the first visit. Adherence, defined as returning for the next consultation after 4 to 6 weeks and following the prescribed regimens, were also evaluated and compared between patients. Results showed that 71.8% were women, and 6% of the patients did not receive any preventive medication 11.4% received one drug, 22.2% two drugs, 41.4% three drugs, and 19% four drugs for the prevention of migraine. The overall adherence was 79.6%. Respectively, 73.7, 71.8, 82.6 and 86.3% of those who received the prescription of one, two, three and four drugs returned, complying with the treatment. The study ended with conclusion that there is no difference in adherence to monotherapy or polytherapy (one to four drugs) for the prophylaxis of migraine

Chen T.B et al. Conducted "A Study on treatment adherence among new triptans users: 2yrs cohort study"⁷. The aim of the study was to investigate prescription refill pattern and predictors of adherence among users of newly prescribed triptans. ended with a A population based retrospective cohort study was performed based on data collected from national health research database. Of the 13951, participants with new triptan prescription (99.9% sumatriptan), 67.4% prescribed by a neurologist, and 67.4% were prescribed at least one prophylactic agent for migraine. Of them 34.3% adhered to the newly prescribed triptans at the first refill, 0.01% switched to another triptans, 40.9% switched to non triptans acute migraine medication the two year retention rate was 4% however the study ended with a conclusion stating that refill and two year retention rate were low in new users of triptans. The frequency of neurological visit & triptans prescription by a neurologist were predictors of adherence.

Aubrey Mannack et al. conducted a study entitled "Sociodemographic Disability, and Employment Differences between Persons with Chronic and Episodic Migraine"⁸.

The aim of the study was to characterize headache-related disability, socio demographic characteristics, and employment status in individuals with chronic migraine (CM) and episodic migraine (EM) A prospective, web-based cohort study was used to characterize migraine clinical course, family burden, barriers to care, endophenotypes, and co morbidities among those with CM and EM Individuals with migraine were identified from a 2.4-million member web-based panel using a validated screening questionnaire and quota sampling to ensure a sample demographically representative of the US population. Of 80,783 respondents, 20.8% met *ICHD-2* criteria for migraine and were classified as follows: CM (15 headache days/month for past 3 months) or EM (<15 headache days/month for past 3 months). Headache-related disability was measured with the Migraine Disability Assessment (MIDAS) questionnaire. Of the 16,789 eligible respondents, 1,476 (8.8%) had CM and 15,313 (91.2%) had EM. Groups were similar in age (41.0 y vs 40.6 y; $P=0.32$). Compared with the EM group, those with CM were more likely to be female (81.1% vs 73.8%; $P<0.001$) and white (87.5% vs 83.3%, $P<0.001$), and experienced higher levels of headache-related disability (mean MIDAS score=60.5 vs. 13.1; $P<0.001$). Those with CM completed fewer years of education (34.9% vs 45.9% had bachelor's degrees or higher; $P<0.001$), were less likely to be employed full- or part-time (56.4% vs 66.0%; $P<0.001$), and were more likely to have lower annual individual incomes (cumulative odds ratio, 0.65; $P<0.001$) and household incomes (cumulative odds ratio, 0.63; $P<0.001$). the study ended with the conclusion that Participants with chronic migraine experienced higher levels of headache-related disability, unemployment, and underemployment, with corresponding reductions in personal and household income, than those with episodic migraine.

Samaneh Aalami Harand et al. (2013) conducted a study on the title "Cardiovascular Risk Factors and Migraine without Aura: A Case Control Study"⁹. The study was conducted to assess the association between cardiovascular risk factors and

migraine without aura among Iranians. In this study the prevalence of cardiovascular risk factors, including hypertension, hyperglycaemia, dyslipidemia, obesity, cigarette smoking, and family history of early coronary artery disease were studied in 347 migraineurs without aura and 267 non-migraineurs. The odds ratio (ORs) with 95% confidence interval (95% CI) was used to assess the strength of the association. Patients with migraine without aura were at an increased risk of developing hypertension (ORadj = 1.9; P = 0.029), there was no difference in other cardiovascular risk profiles, including hyperglycaemia, dyslipidemia, obesity, cigarette smoking, and family history of early coronary artery disease. Conclusion: Our study revealed that the prevalence of hypertension was higher in migraineurs without aura in comparison with non-migraineurs. The study ended with conclusion stating that the physician were supposed to be more vigilant in examining these patients and take care not to prescribe medications that may provoke hypertension.

Hameed Malik et al. conducted "A study on prevalence of headache in school going children in Kashmir valley"¹⁰. A prospective study of primary headache disorders in school going children of age 8-18yrs in Srinagar district of Kashmir valley was conducted. About 5000 school going children in age group of 8-18yrs from various institutions were enrolled in the study a self-administered pre-test questionnaire was filled by participants and diagnosis established by following international headache society criteria (2004). The results showed that overall prevalence of primary headache was found to be 664/1000. The prevalence of tension type headache (50.99%), & migraine headache found to be (26.98%) respectively. The study ended with conclusion that overall prevalence of primary headache disorders among school children to the tune of 664/1000 population with an upward trend with increase in age. Gender specific prevalence rates revealed a statistically significant higher prevalence of primary headache disorders in the female sex. Among all the primary headache disorders, tension type headache was the most common headache disorder followed by migraines' headache and stress was the most common trigger for all headache disorders. Furthermore studies are required in the future to find out precipitating factors for primary headache disorders to avoid its

adverse impact on the quality of life as well as unnecessary use of medications to alleviate headache.

Espen Saxahuang et al. Conducted "A Study On Management Of Primary Chronic Headache In General Population"¹¹. The aim of the study was to evaluate utility of health services & medication use. A cross sectional epidemiological survey was performed. 30,000 people of age between 33-40 yrs participated in the survey. A self-posted questionnaire screened of headache prepared. 71% responded to it. Of all primary headache 80% consulted general practioner of these 19% consulted a neurologist & 4% has been hospitalized. Co-occurrence of migraine increased contact with physician. Complimentary & alternative medication were used by 62% most often physiotherapy, acupuncture & chiropractic. Acute headache medication was taken by 87% & only 3% used prophylactic medication. The studies ended with conclusion stating that acute headache medication were over used & prophylactic medication was rarely used. Thus avoidance of medication over use & increased use of prophylactic medication may improve the management of primary headache in future.

Alessandro Panconesi, et al. conducted "A Study on Triptans in Italian Population Drug Utilization Study & a Literature Review"¹². The aim of the study was to establish the pattern of triptan utilization in large sample covering 1/10 of Italian population. On a total of 5, 5971 resident population the subjects received triptans were 32584 out of it 22.3% were males and 72.7% were males. Males and females aged 15-yrs 51.45% of total users while those of age of 45-65 were 38.7% the patients' over 65yrs were 9.5%. the study ended with a conclusion that a low percentage of migraine patients utilized triptans.

Charley Gaul et.al conducted a study on "Clinical outcome of a headache-specific multidisciplinary treatment program and adherence to treatment recommendations in a tertiary headache centre: an observational study"¹³. The aim of the study was to investigate the outcome of a 5-day headache-specific multidisciplinary treatment program (MTP) and the adherence to treatment recommendations in 295 prospectively recruited consecutive headache patients. It showed that 210 had migraine, 17 had tension-type headache (TTH),

68 combination headache, including 56 medication-overuse headaches (MOH)]. Headache frequency decreased from 13.4 (± 8.8) to 8.8 (± 8.0) days per month after 12–18 months. Forty-three percent of the participants fulfilled the primary outcome (reduction of headache frequency of $\geq 50\%$), which was less likely in patients with combination of migraine and TTH compared to migraine (OR = 3.136, $p = 0.002$) or TTH (OR = 1.029, n.s.). Increasing number of headache days per month (OR = 1.092, $p \leq 0.0001$) and adherence to lifestyle modifications (OR = 1.269, $p = 0.004$) predicted primary outcome. 51 of 56 MOH patients were treated successfully. Thirty-five percent of the patients were adherent to pharmacological prophylaxis, 61% to relaxation therapy, and 72% to aerobic endurance sports. The study ended with conclusion that multidisciplinary treatment was effective in headache treatment. Adherence to therapy was associated with better outcome

Hatim Attar S. et al. conducted a study on “Impact of physician empathy on migraine disability and migraine compliance”¹⁴. The aim to establish the role that perceived physician empathy plays in determining migraineurs’ outcomes and compliance with migraine management. 63 migraineurs were enrolled between July and September 2011. Questionnaire administered at the time of inclusion into the study included self-assessment of disability due to migraine (Migraine Disability Assessment Test) followed by migraineurs’ assessment of physician empathy (Consultation and Relational Empathy Measure). Three months later, a telephonic questionnaire ascertained changes in disability due to migraine and compliance with migraine treatment. Statistically significant positive Pearson's correlations are seen between perceived empathy and decrease in migraine disability and symptoms over three months ($P < 0.05$). Significant positive relationships are also seen between perceived empathy and compliance with diet/meal timings, exercising, de-stressing/sleep pattern modification and medications ($P < 0.05$). Self-reported compliance is significantly correlated with improved patient outcomes ($P < 0.05$) the study ended with conclusion stating that Substantial positive associations are found between perceived physician empathy and migraineurs’ outcomes and compliance with management plans. This

emphasizes the importance of empathy in migraineur-physician communication

Walter Stewart .F. et al. conducted a study entitled “Prevalence of Migraine Headache in the United States in relation to Age, Income, Race, and Other Socio demographic Factors”¹⁴. The aim of the study was to describe the magnitude and distribution of the public health problem posed by migraine in the United States by examining migraine prevalence, attack frequency, and attack-related disability by gender, age, race, household income, geographic region, and urban versus rural residence. A self-administered questionnaire was sent to a sample of 15000 households. A designated member of each household initially responded to the questionnaire. Each household member with severe headache was asked to respond to detailed questions about symptoms, frequency, and severity of headaches. 20468 subjects (63.4% response rate) between 12 and 80 years of age responded to the survey. Respondents and non-respondents did not differ by gender, household income, region of the country, or urban vs rural status. Whites and the elderly were more likely to respond. Migraine headache cases were identified on the basis of reported symptoms using established diagnostic criteria. 17.6% of females and 5.7% of males were found to have one or more migraine headaches per year. The prevalence of migraine varied considerably by age and was highest in both men and women between the ages of 35 to 45 years. Migraine prevalence was strongly associated with household income; prevalence in the lowest income group ($< \$10,000$) was more than 60% higher than in the two highest income groups ($\geq \$30,000$). The proportion of migraine sufferers who experienced moderate to severe disability was not related to gender, age, income, urban vs. rural residence, or region of the country. In contrast, the frequency of headaches was lower in higher-income groups. Attack frequency was inversely related to disability. In the end of the study they concluded that of the U.S population 8.7 million females and 2.6 million males suffer from migraine headache with moderate to severe disability. Of these, 3.4 million females and 1.1 million males experience one or more attacks per month. Females between ages 30 to 49 years from lower-income households are at especially high risk of having migraines and are more likely than other groups to use emergency care services for their acute condition

CONCLUSION

Physician must communicate with patients while planning for drug therapy. Patient education is necessary for achieving medication adherence and alleviating the disease conditions. Physicians must be aware of different drugs, doses, side effects used for primary headache treatment. Treatment should be given only after studying patient's details. Prophylactic drug therapy seems to be effective in primary headache treatment. Although drug utilization studies of primary headache syndrome were done in past decades, more and more such studies are needed to update the knowledge of

different pattern of drug used for primary headache syndrome. Pharmacists play a pivot role in drug utilization studies. The studies are necessary in health care system to implement standard treatment guidelines as they may improve quality of life of patients as well as clinical practice of physicians.

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REFERENCES

1. Sjoqvist F, Birkett D.; Drug Utilization. In: Introduction to Drug Utilization Research. (WHO booklet) New York: WHO office of publications; 2003. P.76-84.
2. Goadsby PJ, Raskin, Fauci AS, Kasper DL, Hauser SL, Jameson J, Loscalzo J. NH Headache; Chapter 14. In: Longo DL eds. Harrison's Principles of Internal Medicine, 18e. New York, NY: McGraw-Hill; 2012.
3. Cecilia B Young –Headache John Hopkins; Medicine Centre". <http://www.hopkinsmedicine.org> (3 January 2012).
4. Eric .T. Herfindal, David .J. Quan, Dick .R.Gourley; Textbook of Therapeutics Drug and Disease Management 8th Helms; 1166.
5. Subranshu Sekhar Jena, Monalisa Jena, Mrutunjay Dash³, Swati Mishra, Ishwar Chandra Behera; Migraine:Pattern of Prescription & Adverse Drug Reaction Profile in A Tertiary Care Teaching Hospital Journal of Pharmarmaceutical Science & Research. Vol. 7(3), 2015, 11.1-116.
6. Dozza AL, Krymchantowski AV. ; Adherence to migraine treatment does not depend on the number of prescribed medications Journal of Arq. Neuropsiquiatr. 2013 Mar; 71(3):171-3.
7. Ting-Bin Chen Yung-Tai Chen, Jong-Ling Fuh, Chao-Hsiun Tang And Shuu-Jiun Wan; Treatment Adherence Among New Triptan Users : A Two Year Cohort Study In Taiwan The Journal of Headache and Pain 2014, 15:48.
8. Aubrey Mannack ,Richard Lipton, Daniel Seranno, Dawn Buse, Kristiana Fanning, Michael Reed; Sociodemographic, Disability, and Employment Differences Between Persons With Chronic and Episodic Migraine Journal Of American Academy Of Neurology 2014 vol. 82.
9. Samaneh Aalami, Haran Mansoureh Togh, Soodeh Razeghi Jahromi; Cardiovascular Ris factors and Migraine without Aura; A Case Control Study Iranian Journal Of Neurology 2013; 12(3):98-101.
10. Hameed Malik.A., Parvaiz A. Shah, Yawar Yaseen; Prevalence Of Headache In School Going Children In Kashmir Valley Annals Indian Academy o f Neurology 2012;15:100-103.
11. Espen Saxhaug Kristoffersen, Ragnhild Berling Grande • Kjersti Aaseth , Christofer Lundqvist, Michael Bjørn Russell; Management Of Primary Chronic Daily Headache in the general population; the Arkeshus study of chronic headache Journal of Headache and Pain (2012) 13:113–120.
12. Alessandro Panconesi, Eleonora Pavone, Franca ,Vacca Monica Vaiani , Roberto Banfi; Triptans in Italian Population Drug Utilization Study & a Literature Review Journal of Headache and Pain (2008) 9:71–76.

13. Charly Gaul, Christina van Doorn, Günther Fritsche; Clinical outcome of a headache-specific multidisciplinary treatment program and adherence to treatment recommendations in a tertiary headache centre: an observational study journal of headache and pain 2011;12(4):475-483.
14. Hatim Attar.S. , Srinath Chandramani; Impact of physicians empathy on migraine disability and migraineur compliance Annals Indian Academy Of Neurology2012;15(1):89-94.

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