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To Evaluate the Prescribing Pattern of Different Types of Chronic Headache In a Tertiary Care Hospital

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ABSTRACT

To Evaluate the Prescribing Pattern of different types of Chronic Headache in a tertiary Care Hospital. 63 patients were the subjects in Medicine Department of a Multispecialty Hospital, in Greater Noida. It was a duly approved, prospective study, in patients on chronic Headache therapy, conducted by competent professionals. The data was obtained from physicians' prescribing records and patients by individual interviews using the structured proformas as per World Health Organization guidelines. In 63 patients, suffering from different types of headache were evaluated**.** Among the 63 patients suffering from headache 17(26.98%) were males and 46(73.01%) were females, indicating 3:1 (Female: male) prevalence ratio of headache. Out of 63 patients of chronic headache, age range of 31-40 years had the maximum number 22(34.92%) of patients, followed by 21(33.33%) in age range of 21-30 year. Among the 63 patients suffering from headache Out of 31 patients diagnosed of migraine headache 23(74.19%) were females and 8(25.86%) were males, indicating prevalence of migraine 3 times more in females than in male. NSAIDs (100%) were the most prescribed abortive treatment followed by ergotamine 22(34.92%) and prochlorperazine 22 (34.92%). Among the opoid analgesics caffeine 22(34.92%) was mostly prescribed followed by tramadol 13(20.63%). Sumatriptan 9(14.28%) was less prescribed. The prospective study demonstrated that the incidence migraine headache was found to be higher in female patients. NSAIDs were the most prescribed abortive treatment followed by ergotamine 22(34.92%) and prochlorperazine22 (34.92%) Among the opoid analgesics caffeine was mostly prescribed followed by tramadol.

Keywords: Prospective, Headache, NSAID, Migraine

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INTRODUCTION

According to the World Health Organization, disability and functioning are relevant parameters for monitoring the health of nations, and migraine is in the top 20 causes of disability worldwide. The burden of migraine on individuals and on society as a whole is even greater if we consider that migraine has a peak of prevalence at the age of an individual's greatest productivity.[1]Several studies have been conducted on headache frequency in young adults. A study conducted in Norway of adolescents between 12 and 19 years old found that 69.4% of boys and 84.2% of girls had experienced headaches within the past year and that over 29% reported recurrent headaches.[2] Present knowledge informs us meanwhile that migraine affects 11 % of adults worldwide,[3]with a three-time higher rate in women, which is hormonally-driven. Migraine is less common in children and in the elderly. Extrapolation from figures for migraine prevalence and attack incidence suggests that 3,000 migraine attacks occur every day for each million of the general population. [4]Above all, headache disorders are disabling: worldwide, migraine on its own is the cause of 1.3 % of all years of life lost to disability (YLDs). [5]This is a disorder that almost certainly has a genetic basis, but environmental factors play a significant role in how it affects those who have it. Usually starting at puberty, migraine is recurrent in many cases throughout life. Adults with migraine describe episodic disabling attacks in which headache and nausea are the most characteristic features; others are vomiting and / or dislike or intolerance of normal levels of light and sound. Headache is typically moderate or severe in intensity, one-sided and / or pulsating, and aggravated by routine physical activity; it lasts for hours up to 2 – 3 days. Attack frequency is, on average, once or twice a month but can be anywhere between once a year and once a week, often subject to lifestyle and environmental factors that suggest people with migraine react adversely to changes in routine .[6]In general, migraine may be understood as the complex interaction of vasoconstriction and then vasodilatation in response to neurotransmitter release and subsequent effects on ion channels.[7] Occipital vasoconstriction to a variety of reported "triggers" is thought to be the inciting event; platelets aggregate with lymphocytes and leukocytes in an inflammatory "cascade," resulting in a release of serotonin and glutamate, which may increase pain sensitivity of the arterial wall. This response then causes irritation of the cranial nerves that lie in close proximity, especially to the temporal artery structures such as the temporomandibular branch of the trigeminal nerve. In basilar artery migraine and ophthalmologic migraine, anatomic relationships may particularly predispose these areas of the brain to the described phenomena in some patients. Once vasoconstriction in an area of the brain occurs, the sympathetic nervous system responds and

compensatory vasodilatation occurs in neighbouring areas of the meningeal circulation. This increase in blood flow is what is responsible for the "throbbing" of the migraine headache. Conversely, the initial vasoconstriction may be associated with depression of cortical blood flow and decreased normal neurotransmitter activity, resulting in an aura. Drug utilization evaluation is a onetime study to evaluate appropriateness of drug therapy. The intention is to recognize whether current patterns of prescribing, dispensing and use of drug therapy are reliable with criteria and standards. These criteria and standards demonstrate the drug therapy is effective, safe, appropriate, and cost effective and support optimal patient outcome.[8]The main aim of drug utilization studies are to evaluate the factors related to the prescribing, dispensing, administration and consumption of medicines , and its associated events (either beneficial or adverse). Drug utilization studies defined by the World Health Organization (WHO) as the marketing, distribution, prescription and use of drugs in a society, considering its consequences, either medical, social, and economic.[9] Drug Utilization Studies began in the early 60's basically with market-only purposes, then for evaluating the quality of medical prescription so that rational use of drugs could be promoted and patterns of use of specific drugs could be compared. Presently drug utilization studies are an evolving area. Their scope is to evaluate the present state and future trends of drug usage, to estimate disease prevalence, drug expenditures, appropriateness of prescriptions and adherence to evidence-based recommendations. The increasing importance of drug utilization studies as a valuable investigation resource in pharmaco-epidemiology has been linking it with other health related areas, such as public health, pharmaco vigilance, pharmaco-economics, eco-pharmaco-vigilance or pharmacogenetics. Our view of the global burden attributable to headache disorders is incomplete, whilst our knowledge of health-care resource allocation to headache is scant. This project complementary to formal epidemiological studies is part of defining the problem to be addressed. The purposes are to create awareness and, more importantly, to inform policy so that solutions can be proposed on the basis of knowledge. The ultimate goal of this study was to determine whether the Prescribing Pattern, prevalence and quality of headache in the Indian scenario warrants further studies and attention by health policy makers.

MATERIALS AND METHODS

Present Pharmacovigilance study was a duly approved by Ram-Eesh Institute of Vocational and Technical Education .Review Board, dated 08th December 2013. It was an open, non-comparative, 4-month study, January to April 2013, conducted at a Multispecialty Teaching Hospital in G. Noida. Suitably qualified and competent professionals were involved in conducting the study.

Inclusion criteria - all patients with chronic Headache, irrespective of age and sex; and Exclusion criteria - patients mentally retarded, unable to comply, refusing the consent; was observed for selection of the 63 patients. Informed Consent was signed by the selected patients. The data was obtained from physicians' prescribing records and patients by individual interviews using the proformas for; informed Consent, Structured Questionnaire, as per World Health Organization guidelines[10]. The data were evaluated for statistical significance by applying Student's test.

RESULTS AND DISCUSSION

During the period of four months (January 2012 to April 2012) of my study, a total of 63 patients suffering from different types of headache were evaluated in the Multispecialty Teaching Hospital in G. Noida. Among the 63 patients suffering from headache 31(49.20%) patients were diagnosed under migraine headache, 15(23.80%) tension-Type headache and remaining 17(26.98%) were of mixed headache that is migraine + tension (Table 1). Among the 63 patients suffering from headache 17(26.98%) were males and 46(73.01%) were females, indicating 3:1 (Female: male) prevalence ratio of headache (Table 2). Out of 31 patients diagnosed of migraine headache 23(74.19%) were females and 8(25.86%) were males, indicating prevalence of migraine 3 times more in females than in male (Table 2). Out of 17 patients diagnosed of migraine + tension (mixed) headache 15(88.23%) were females and 2(11.76%) were males, indicating prevalence of mixed headache 7 times more in females than in male (Table 2). As age is an important parameter to be considered in chronic headache, the observations were categorized in three parts to cover all aspects. Out of 63 patients of chronic headache, age range of 31-40 years had the maximum number 22(34.92%) of patients, followed by 21(33.33%) in age range of 21-30 years. The Bell shaped graph clearly depicts that chronic Headache can cause substantial level of disability in the reproductive age that is the age range of 20-40 years (Table 3). Out of 17 patients of migraine + tension headache (mixed headache), 6 (35.92%) were female and 1 (5.88%) male with aura, and 9 (52.94%) were female and 1 (5.88%) male without aura. This accounted for total no. of patients without aura as 10(58.82%) and with aura as 7(41.12%) (Table 4, Graph 1).Out of 31 patients of migraine 3 (9.67%) were female and only 1 (3.2%) male with aura, and 20 (64.51%) female and 7 (22.58%) male were without Aura. This accounted for total no. of patients without aura as 27(87.09%) and with aura as 4(12.9%) (Table 4, Graph 1). Frequency/episodes of headache is the measure of chronicity of headache. In our study out of 63 patients 45(71.43%) experienced headache every week (Table 5, Graph 2). 11(17.46%) patients experienced 2-3 episodes of headache per month, while 6 (9.52%) and 1(1.58%) experienced 1/month and 1-2/3 month

respectively (Table 5, Graph 2). Tension was observed to be the most prevalent triggering factor in all types of patients of headache. Out 63 patients 53(84.13%) reported tension and stress as triggering factor. Intense light and noise as triggering factors were also markedly reported by 44(69.84%) and 45(71.42%) patients respectively (Table 6).Two patterns were observed in the prescriptions namely abortive/acute treatment and other was prophylactic treatment. The abortive/acute treatment included NSAIDs, ergotamine, triptans (sumatriptan), prochlorperazine, opoid analgesics. NSAIDs (100%) were the most prescribed abortive treatment followed by ergotamine 22(34.92%) and prochlorperazine 22 (34.92%). Among the opoid analgesics caffeine 22(34.92%) was mostly prescribed followed by tramadol 13(20.63%). Sumatriptan 9(14.28%) was less prescribed.Among the six commonly used NSAIDs, paracetamol 34(53.96%) was the most prescribed NSAID, followed by aceclofenac 20(31.74%), nimesulide 13(20.63%), naproxen 10(15.87%), and least prescribed etoricoxib and ketorolac 8(12.69%) each.(Graph 3)The prophylactic treatment included TCAs (amitriptyline and dothiepin), beta-blockers (propranolol and metoprolol), CCB (flunarizine), anticonvulsant (valproic acid) and SSRI (escetalopram and paroxetine).Propranolol 33(52.38%) was most prescribed prophylactic treatment, followed by flunarizine 29(46.03%). Amitriptyline and dothiepin were prescribed to 18(28.57%) and 11(17.46%) patients respectively. Some less frequently prescribed drugs in prophylactic treatments were escetalopram 10(15.87%), valproic acid 9(14.28%), and paroxetine 7(11.12%).(Table 7)

Table: 1 Total number of patients of different types headache

Types of headache	No. of patients	Percentage (%) Calculated from total of 63 patients
Migraine	31	49.20
Tension	15	23.80
Migraine+tension	17	26.98
Total	63	

Table: 2 Gender distribution among patients of different types of headache

Gender	Migraine % Calculated from total of 31 patients	Tension % Calculated from total of 15 patients	Migraine+ tension % Calculated from total of 17 patients	Total patients of headache % Calculated from total of 63 patients
Male	8 (25.86%)	7 (46.66%)	2 (11.76%)	17 (26.98%)
Female	23 (74.19%)	8 (53.33%)	15 (88.23%)	46 (73.01%)
Total	31	15	17	63

Table: 3 Age distribution 1

Age Range	Migraine Headache % Calculated from total of 31 patients		Tension Headache % Calculated from total of 15 patients		Migraine + Tension % Calculated from total of 17 patients		Total % Calculated from total of 63 patients
	Female	Male	Female	Male	Female	Male	
10 –20	7(22.58%)	2(6.45%)	1(6.6%)	0	1(5.88%)	0	11(17.46%)
21 –30	7(22.58%)	4(12.90%)	2(13.3%)	1(6.66%)	7(11.11%)	0	21(33.33%)
31 –40	7(22.58%)	2(6.45%)	3(20%)	4(26.66%)	5(7.93%)	1(5.88%)	22(34.92%)
41 –50	1(3.23%)	0	0	2(13.33%)	2(3.17%)	1(5.88%)	6(9.52%)
51 –60	1(3.23%)	0	1(6.6%)	0	0	0	2(3.17%)
61 –70	0	0	1(6.6%)	0	0	0	1(1.58%)

Table: 3 Age distribution 2

Age Range	Migraine Headache		Tension Headache		Migraine + Tension	
	Female	Male	Female	Male	Female	Male
10 – 20	7 (30.43%)	2 (25%)	1(12.5%)	0	1(6.66%)	0
21 – 30	7 (30.43%)	4 (50%)	2(25%)	1(14.28%)	7(46.66%)	0
31 – 40	7 (30.43%)	2(25%)	3(37.5%)	4(57.14%)	5(33.33%)	1(50%)
41 – 50	1(4.34%)	0	0	2(28.57%)	2(13.33%)	1(50%)
51 – 60	1(4.34%)	0	1(12.5%)	0	0	0
61 – 70	0	0	1(12.5%)	0	0	0
Total	23	8	8	7	15	2

% Calculated from total no. of male/female patients in each type of headache.

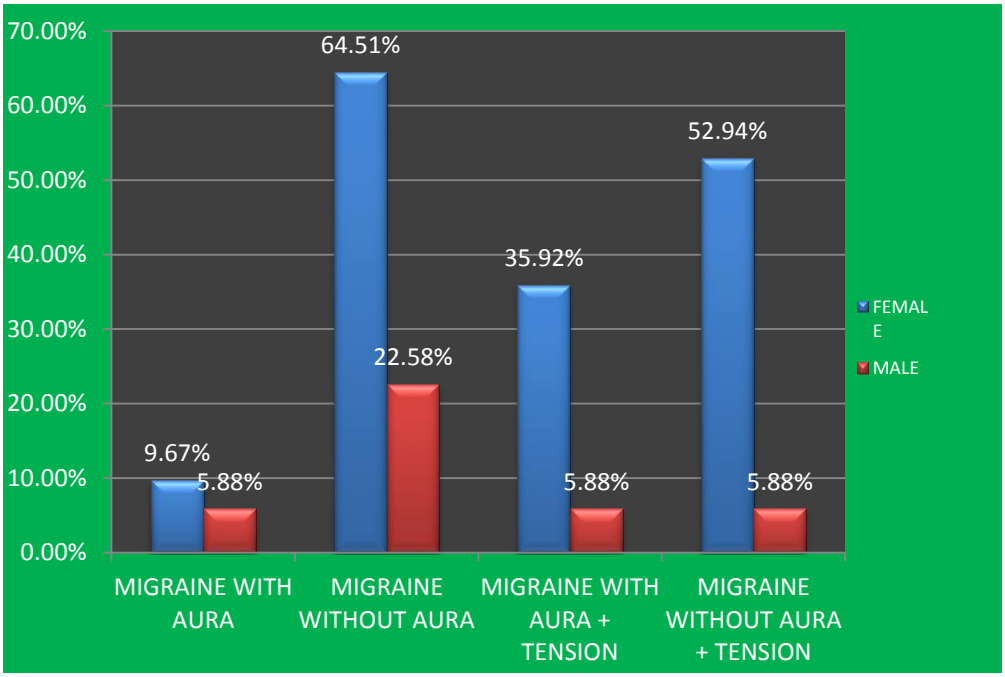
Table: 3 Age distribution 3

Age Range	Migraine Headache		Tension Headache		Migraine + Tension	
	Female	Male	Female	Male	Female	Male
10 – 20	7(11.11%)	2(3.17%)	1(1.5%)	0	1(1.5%)	0
21 – 30	7(11.11%)	4(6.34%)	2(3.17%)	1(1.5%)	7(11.11%)	0
31 – 40	7(11.11%)	2(3.17%)	3(37.5%)	4(6.34%)	5(7.93%)	1(1.5%)
41 – 50	1(1.5%)	0	0	2(3.17%)	2(3.17%)	1(1.5%)
51 – 60	1(1.5%)	0	1(1.5%)	0	0	0
61 – 70	0	0	1(1.5%)	0	0	0

% Calculated from total no. 63 patients of headache.

Table: 4 Classifications on the basis of aura

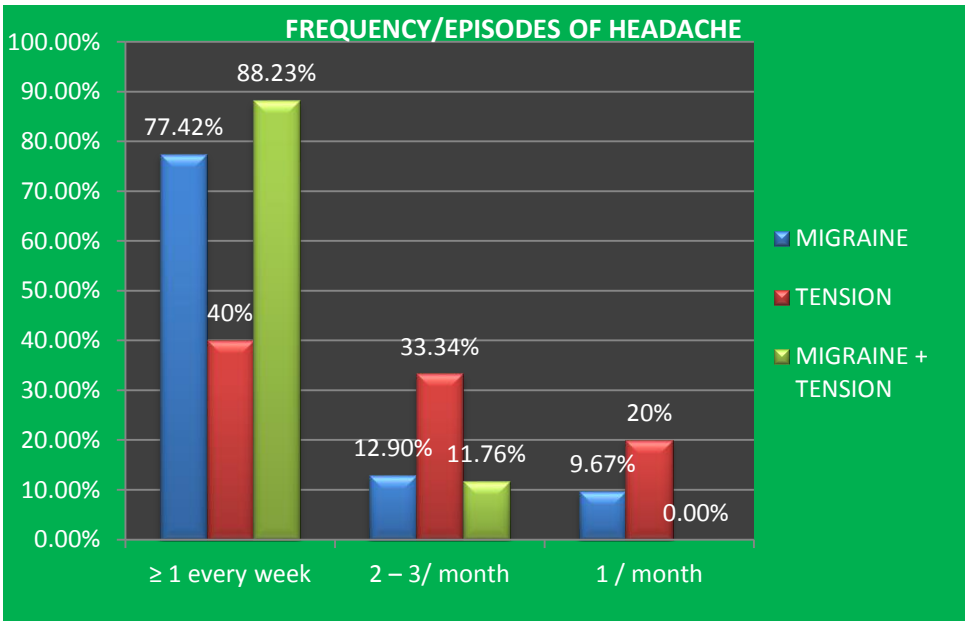
Gender	Migraine(with aura) % Calculated from total of 31 patients	Migraine (Without Aura) % Calculated from total of 31 patients	Migraine (with aura)+ Tension % Calculated from total of 17 patients	Migraine (without aura) +Tension % Calculated from total of 17 patients
Female	3 (9.67%)	20 (64.51%)	6 (35.92%)	9 (52.94%)
Male	1 (3.2%)	7 (22.58%)	1 (5.88%)	1 (5.88%)
Total	4 (12.9%)	27 (87.09%)	7 (41.12%)	10 (58.82%)



Graph: 1 Classification based on aura

Table: 5 Frequency/Episodes of headache

Frequency/episodes of headache	Migraine% Calculated from total of 31 patients	Tension% Calculated from total of 15 patients	Migraine + Tension% Calculated from total of 17 patients	Total% Calculated from total of 63 patients
≥ 1 every week	24(77.42%)	6(40%)	15(88.23%)	45(71.43%)
2 – 3/ month	4(12.90%)	5(33.34%)	2(11.76%)	11(17.46%)
1 / month	39.67%)	3(20%)	0	6(9.52%)
1 – 2/ 3 months	0	1(6.67%)	0	1(1.58%)



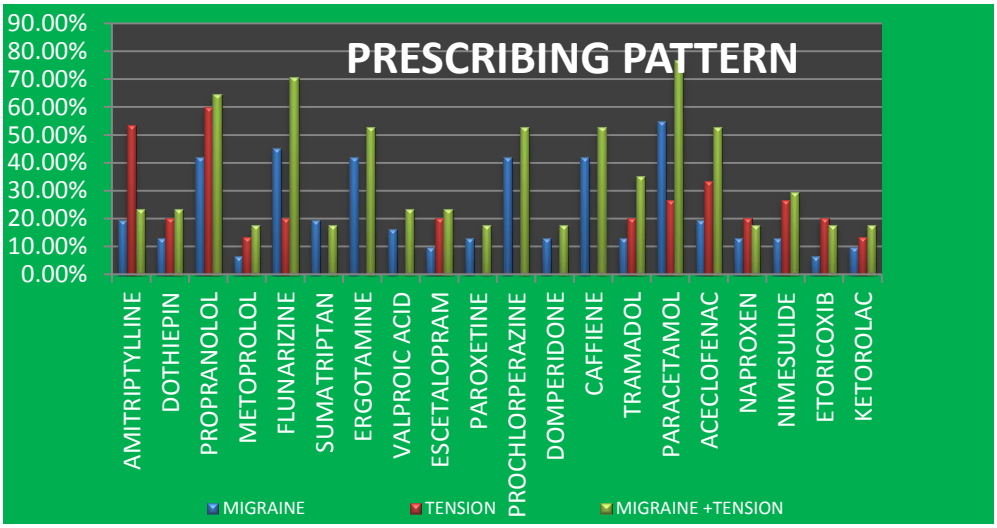
Graph: 2 Frequency/episodes of headache

Table: 6 Triggering factors

Triggering factors	Migraine% Calculated from total of 31 patients	Tension% Calculated from total of 15 patients	Migraine + Tension% Calculated from total of 17 patients	Total% Calculated from total of 63 patients
Tension	23 (74.19%)	13 (86.67%)	17 (100%)	53 (84.13%)
Light	25 (80.64%)	4 (26.67%)	15 (88.23%)	44 (69.84%)
Noise	23 (74.19%)	7 (46.67%)	15 (88.23%)	45 (71.42%)
Intense smell	8 (25.80%)	2 (13.33%)	3 (17.64%)	13 (20.63%)
Menstrual pain	3 (9.67%)	0	1 (5.83%)	4 (6.34%)
Weather changes	5 (16.12%)	0	3 (17.64%)	8 (12.69%)
Entering certain place	3 (9.67%)	0	2 (11.76%)	5 (7.93%)
Changes in mood	7 (22.58%)	0	4 (23.52%)	11 (17.46%)
Lack of caffien	9 (29.03%)	3 (20%)	5 (29.42%)	17 (26.98%)
Lack of nicotine	2 (6.45%)	3 (20%)	4 (23.52%)	9 (14.28%)
Watching t.v for long	3 (9.67%)	2 (13.33%)	2 (11.76%)	7 (11.12%)
Working on computer	3 (9.67%)	4 (26.67%)	3 (17.64%)	10 (15.87%)
Allergies /sinus pain	2 (6.45%)	0	2 (11.76%)	4 (6.34%)
Certain food	2 (6.45%)	0	2 (11.76%)	4 (6.34%)
Missed meals	1 (3.22%)	0	0	1 (1.58%)

Table: 7 Drugs prescribed as prophylactic treatment for different types headache

Class	Drug	Migraine% Calculated from total of 31 patients	Tension% Calculated from total of 15 patients	Migraine + Tension% Calculated from total of 17 patients	Total% Calculated from total of 63 patients
Tricyclic antidepressant	Amitriptyline	6(19.35%)	8(53.33%)	4(23.52%)	18(28.57%)
	Dothiepin	4(12.90%)	3(20%)	4(23.52%)	11(17.46%)
Beta blocker	Propranolol	13(41.93%)	9(60%)	11(64.70%)	33(52.38%)
	Metoprolol	2(6.45%)	2(13.33%)	3(17.64%)	7(11.11%)
Calcium channel blocker	Flunarizine	14(45.16%)	3(20%)	12(70.58%)	29(46.03%)
Anticonvulsant	Valproic acid	5(16.12%)	0	4(23.52%)	9(14.28%)
SSRI (antidepressant)	Escitalopram	3(9.67%)	3(20%)	4(23.52%)	10(15.87%)
	Paroxetine	4(12.90%)	0	3(17.64%)	7(11.11%)



Graph: 3 prescribing pattern in different types of headache

To our knowledge, considering prescription drugs this is the first study providing comprehensive information on the prevalence chronic headache. Among the 63 patients suffering from headache 17(26.98%) were males and 46(73.01%) were females, indicating 3:1 (Female: male) prevalence ratio of headache. Similar observations have been reported in few of the studies.[1] A previous study had already showed that the percentage of headache was higher in females compared to males.[2] Out of 63 patients of chronic headache, age range of 31-40 years had the maximum number 22(34.92%) of patients, followed by 21(33.33%) in age range of 21-30 years. Similar observations have been reported in previous study.[1] Frequency/episodes of headache is the measure of chronicity of headache. In our study out of 63 patients 45(71.43%) experienced headache every week. 11(17.46%) patients experienced 2-3 episodes of headache per month, while 6 (9.52%) and 1(1.58%) experienced 1/month and 1-2/3 month respectively. Similar observations have been reported in previous study.[4] our study reported Tension was observed to be the most prevalent triggering factor in all types of patients of headache. Similar observations have been reported in previous study.[11] Two patterns were observed in the prescriptions namely abortive/acute treatment and other was prophylactic treatment. The abortive/acute treatment included NSAIDs, ergotamine, triptans (sumatriptan), prochlorperazine, opoid analgesics. NSAIDs (100%) were the most prescribed abortive treatment followed by ergotamine 22(34.92%) and prochlorperazine 22 (34.92%). Among the opoid analgesics caffeine 22(34.92%) was mostly prescribed followed by tramadol 13(20.63%). Sumatriptan 9(14.28%) was less prescribed. This is in confirmation with an earlier report.[12, 13] among the six commonly used NSAIDs, paracetamol 34(53.96%) was the most prescribed NSAID, followed by aceclofenac 20(31.74%), nimesulide 13(20.63%), naproxen 10(15.87%), and least prescribed Etoricoxib and ketorolac 8(12.69%) each. This is in confirmation

with an earlier report.[14] Propranolol 33(52.38%) was most prescribed prophylactic treatment, followed by flunarizine 29(46.03%). Similar studies also showed that propranolol was most prescribed as prophylactic drug.[15]

CONCLUSION

The prime objective of this study to improve drug utilization pattern in patients with chronic headache in a hospital setting. Also to measure demographics and educate them about life style, diets, alcohol intake, Smoking, etc. The following are the major findings of this study:Patients suffering from headache were males and were females, indicating 3:1 (Female: male) prevalence ratio of headache. Chronic headache, age range of 31-40 years had the maximum number of patients, followed by age range of 21-30 years. Patients experienced 2-3 episodes of headache per month. Tension was observed to be the most prevalent triggering factor in all types of patients of headache. NSAIDs were the most prescribed abortive treatment followed by ergotamine 2.Propranolol was most prescribed prophylactic treatment, followed by flunarizine. The limitation of the present study is the small sample size, and short duration of study.

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