

Prospective study of factors associated with migraine and tension-type headache

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ABSTRACT

Background: Migraine and tension-type headache (TTH) are the two most common types of primary headaches. In spite of the internationally accepted diagnostic criteria, it is not uncommon to face difficulties in diagnosing headache in the clinical practice. **Objectives:** To evaluate the risk factors, triggers and comorbid conditions associated with migraine and tension type headache (TTH). **Materials and Methods:** A total of 410 patients of migraine and TTH having age more than 15 years of either sex attending Neurology Department of G.R Medical College, Gwalior, from February 2016 to September 2017 were studied. Detailed information on demography, past history were recorded. **Results:** Out of 410 patients, 228 (55.60%) were having migraine and 182 (44.40%) were having TTH. Migraine (50.32%) and TTH (35.16%) were commonly seen in the age group of 20–40 years. Migraine and TTH were more common in females (50.16% and 56.59%). Most common associating factor in patients with migraine was nausea ($n = 72$) followed by vomiting ($n = 58$), phonophobia ($n = 25$), and photophobia ($n = 33$) whereas among TTH patients nausea (11.54%) followed by scalp tenderness (11.53) and giddiness (10.99%) were the most common. Most common triggers in migraine were emotional stress (25.43%) followed by fast (18.42%) and sunlight (16.22%). **Conclusion:** Migraine was a common headache affecting young age group subjects with female predominance. Migraine without aura was most common subtype. Stress was the most common triggering factors for migraine. Tension-type was mostly associated with nausea and scalp tenderness.

KEY WORDS: Headache; Emotional Stress; Migraine Without Aura; Vomiting; Nausea


INTRODUCTION

Headache is one of the most common maladies which affect humans. 76% of the women and 57% of the men report at least one significant headache per month, and more than 90% experience at least one noteworthy headache in their lifetime.^[1]

In spite of huge prevalence, more than half of the headache sufferers do not take medical interventions. Moreover, when patients suffering from headache seek the medical advice, they are wrongly diagnosed and wrongly treated. As per the World Health Organization, an average of 4–5 h of undergraduate medical training is dedicated to education on headache disorders.^[1,2]

Most of the large clinical and epidemiological studies are performed in developed countries. The evidences are limited describing the treatment recommendations or intervention which can address headache in developing countries like India where 85% of world population lives.^[2]

Hence, the present study was done to study the headache with special reference to migraine and tension-type headache (TTH).

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MATERIALS AND METHODS

A cross-sectional study was performed on 410 patients of either sex attending Neurology Department of G.R Medical College, Gwalior, from February 2016 to September 2017.

A written informed consent from all patients and Institutional Ethics Committee Approval was obtained before starting the study.

All patients of migraine and TTH having age more than 15 years coming to Neurology OPD were included. Patients with acute trauma and road traffic accident, age <15 years and headache patients presenting in the emergency department were excluded from the present study.

Detailed clinical history and clinical examination of patients were done and reported in preapproved pro forma.

Patients were evaluated on the basis of detailed clinical history, examination and further confirmed with neuroimaging (computed tomography/magnetic resonance imaging), ophthalmological examination including fundus, cerebrospinal fluid examination, and all other relevant investigations as required.

Statistical Methods

All the data were analyzed using IBM SPSS ver. 20 software. Descriptive statistical analysis has been carried out in the present study. Results on categorical measurements are presented in number (%). Frequency distribution and cross-tabulation were used to prepare tables. Microsoft Excel 2010 is used to prepare graphs.

RESULTS

Out of 410 patients, 228 (55.60%) were having migraine, and 182 (44.40%) were having TTH. Migraine was commonly seen in the age group of 20–40 years (156 [50.32%]). TTH was most common in age groups of 20–40 years (109 [35.16%]) followed by 41–60 years (43 [37.06%]). Migraine was more common in female (156 [50.16%]) compared to male ($P < 0.001$). TTH was also more common in female population (103 [56.60%]) compared to male (79 [43.40%]) ($P < 0.001$). Aura was present in 47 (82.45%) females and 10 (17.54) male. Aura was most common in patients with age group of 20–40 years (36 [63.15%]). The most common comorbid condition associated with a migraine, TTH and secondary headache was anemia (3.2%), refractory error (4.9%), and hypertension (18.5%), respectively [Tables 1 and 2 and Figure 1].

DISCUSSION

Headache disorders constitute a public health problem of enormous proportions with an impact on the person as well

Table 1: Distribution of associating factors in migraine

Associating factors	Migraine type; n=228 (%)			Total
	MWA	MA	CM	
Nausea	55 (76.39)	14 (19.44)	3 (4.16)	72 (100)
Vomiting	44 (75.86)	13 (22.41)	11 (18.97)	58 (100)
Photophobia	23 (69.67)	8 (24.24)	2 (6.06)	33 (100)
Phonophobia	19 (76)	1 (4)	5 (20)	25 (100)
Lacrimation	9 (100)	0 (0)	0 (0)	9 (100)
Giddiness	0 (0)	4 (80)	1 (20)	5
Paresthesia	3 (100)	0 (0)	0 (0)	3 (100)
Uneasiness	1 (100)	0 (0)	0 (0)	1 (100)
Lightheadedness	0 (0)	0 (0)	1 (100)	1 (100)
Nasal congestion	0 (0)	0 (0)	0 (0)	0 (0)
Nasal discharge	0 (0)	0 (0)	0 (0)	0 (0)
Scalp Tenderness	0 (0)	0 (0)	0 (0)	0 (0)
Conjunctiva congestion	0 (0)	0 (0)	0 (0)	0 (0)
Nil	0 (0)	0 (0)	0 (0)	0 (0)

Data is expressed as no of patients (%). MWA: Migraine without aura, MA: Migraine with aura, CM: Chronic migraine

Table 2: Distribution of associating factors in tension-type headache

Associating factors	Tension-type
	n=182 (%)
Nausea	21 (11.54)
Scalp Tenderness	21 (11.53)
Giddiness	20 (10.99)
Vomiting	13 (7.14)
Uneasiness	9 (4.95)
Paraesthesia	4 (2.20)
Photophobia	3 (1.65)
Lightheadedness	2 (1.09)
Pnonophobia	1 (0.54)
Nasal congestion	0 (0)
Nasal Discharge	0 (0)
Conjunctival congestion.	0 (0)
Lacrimation	0 (0)
Nil	88 (48.35)

as on the society and family. In the present study, migraine and TTHs are the most common clinical presentations among all the types of headaches.

In the present study, migraine was the most common subtype. There were 228 cases of a migraine mostly belonging to <40 years age group. Sex distribution showed clear female preponderance with 50.16% ($n = 311$) affected in the study group. These findings were in terms with previous studies such as Senthil and Gunasekaran^[3] Ashkenazi *et al.* in a similar study also found female preponderance which is in agreement to the findings of present study.^[4] The prevalence

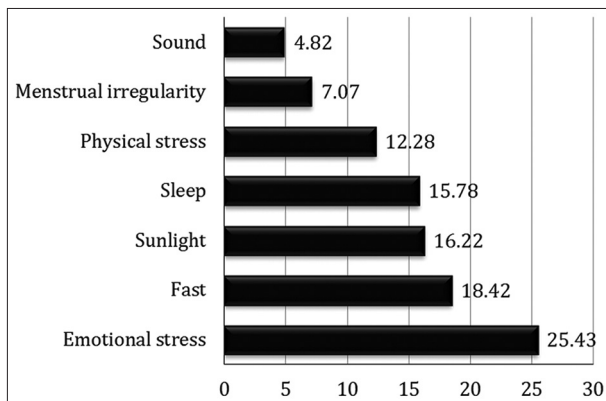


Figure 1: Triggers in migraine

of a migraine was found to be higher in the 29–44 year age group in Gidibidi *et al.*^[5] study and this finding was consistent with the findings of Köseoglu *et al.*^[6] and Gidibidi *et al.*^[5] found that females outnumbered the males in the number of cases of both migraine and TTH. Migraine showed an approximately equal distribution in childhood; but in adults, women seemed to be more affected than the men.^[7]

Aura is a premonitory event in a migraine headache. Migraine with aura (MA) was found in 82.45% ($n = 47$) females and 17.54% ($n = 10$) males. However, total cases of MA were only 25% ($n = 57$). This less incidence of MA compared to migraine without aura (MWA) was also shown in studies by Guruswamy *et al.*^[8] and Jain *et al.*^[9] MA was more common in the age group of 20–40 ($n = 36$) followed by age group between 40 and 60 ($n = 14$). In agreement to present study Law *et al.*^[10] and Landy *et al.*^[11] also reported that aura was more common in younger patients. Various symptoms are associated with migraine such as conjunctival congestion, lacrimation, nausea, and photophobia and they frequently coexisted. Most common symptoms were analyzed based on history. Among cases of MWA, nausea was most common ($n = 55$) followed by vomiting ($n = 44$), photophobia ($n = 23$), and phonophobia ($n = 19$). Among MA most common was nausea ($n = 14$) followed by vomiting ($n = 13$), photophobia ($n = 8$), and giddiness ($n = 4$). Chronic migraine (CM) had nausea ($n = 3$), phonophobia ($n = 5$) followed by photophobia ($n = 2$). Thus, nausea was most common in all forms of migraine. Phonophobia becomes increasingly significant among in CM than acute cases while vomiting and photophobia remains common among an acute migraine. This is inconsistent with the study by Guruswamy *et al.*^[8] Various environmental triggers have been proposed and have shown a consistent association with acute attacks of a migraine. Even then individual variability exists among these triggers. Based on history the most common trigger found in the study was emotional stress (25.43%) followed by fast (18.42%) and sunlight (16.22%). This indicates the therapeutic importance of counseling and yoga in the management of this type of headache. This finding is in concordance with the study done by Guruswamy *et al.* where stress, sleep

deprivation, and excessive work constitute majority.^[8] Wöber *et al.* in their reports of 120 patients showed that the most common trigger factors experienced by the patients were weather (82.5%), stress (66.7%), menstruation (51.4%), and relaxation after stress (50%). The vast majority of triggers occurred occasionally and not consistently.^[12] TTH is the most prevalent form of headache in all age groups across the globe.^[13] TTH leads to considerable disability with up to 60% of individuals reporting decreased work effectiveness, increased absenteeism, and reduced social engagement.^[14,15] In the present study, TTH was most common among the age group of 20–40 years ($n = 109$) followed by age group of 41–60 years ($n = 116$). This also showed a female predominance with 103 female cases. Similar observations were also made by Jain *et al.*^[9] and Agarwal *et al.*^[16] Majority of cases ($n = 88$) do not show any associated symptoms, unlike a migraine. Among those with symptoms most common were scalp tenderness ($n = 21$) and nausea ($n = 21$) followed by giddiness ($n = 20$) and vomiting ($n = 13$). Many cases in the study had associated comorbidities along with the headache. Common comorbidities in migraine subjects were hypertension ($n = 7$), anemia ($n = 6$), diabetics ($n = 5$), and refractory error ($n = 5$). One patient had both diabetics and hypertension while 2 had old coronary artery disease and 1 had old cerebrovascular accident. Among patients with TTH most common was a refractory error ($n = 9$) followed by anemia ($n = 6$) and hypertension ($n = 4$) among a secondary headache 5 cases were hypertensive and 1 each had diabetes, refractory error, and anemia. Paiva *et al.*^[17] and Giffin *et al.*^[18] studied 160 and 220 subjects, respectively, and reported that most common comorbid conditions associated with migraine were hypertension, diabetes and refractory errors which were similar to the present study findings.

Cross-sectional nature of the present study was the main limitation; due to that results of the present study cannot be applied to the whole population. A large randomized clinical trial is need to strengthen the present study findings.

CONCLUSION

To conclude the present study thus documents the demographical and etiological profile of a headache according to ICHD-3 classifications. Migraine headache was most common headache in the present study population affecting young age group subjects (20–40 years) with female predominance. Migraine was mainly unilateral; MWA was most common subtype. Migraine exhibited multiple triggering factors, among them stress was most common trigger; however, fasting, sunlight-exposure, menstruation, and sleep deprivation were also triggering factors. Migraine showed headache-related disability such as absenteeism and decreased the productivity of work. Tension-type was bilateral, and mostly associated with nausea and scalp tenderness. Further large clinical, as well as epidemiological

studies, must be conducted to confirm and further evaluate the better clinical and epidemiological characteristics of a headache.

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