

A PROSPECTIVE STUDY TO EVALUATE THE OCULAR CAUSES OF HEADACHE AMONGST PATIENTS, ATTENDING TO OPHTHALMOLOGY OUTPATIENT DEPARTMENT WITH HEADACHE

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Abstract

Background: Headache is a common symptom with multiple etiology. Headache due to underlying ophthalmic source is well understood. To evaluate the ocular causes of headache amongst patients, attending to ophthalmology outpatient department with headache. **Materials and Methods:** All subjects reporting to the ophthalmology OPD for headache, were evaluated clinically for the ophthalmic cause of headache. A total of 360 subjects were enrolled. The enrolled subjects were further subjected to detailed ophthalmic examination like visual acuity, refraction, slit-lamp examination, fundoscopy, and retinoscopy and refractive corrections, if required. **Result:** Of the total reported cases, 30-40 % subjects had ophthalmic cause of headache. Maximum number of subjects (n=168) were in the age group 16-30 years. The incidence was almost double amongst females. Occupation wise, students were most affected followed by house wife and farmer. Chronic headache was the most common type. The number of patients requiring final correction of < 1 D (less than 1 diopter) was highest. **Conclusion:** It is utmost important to give emphasis on thorough examination and timely referral of the patient with headache to an appropriate specialist.

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INTRODUCTION

Headache is a foremost reason of illness globally.^[1] One of the common symptom for which a patient search for medical advice is headache, and is one of the major reason for more debility than any other neurological disorder. This affects the productivity and poses hinder in carrier progression and therefore it has a remarkable psycho-social impact. Although it is a common symptom, most often these are undiagnosed and inadequately addressed. Headache is associated with multifactorial source. There is a long list for the differential diagnosis of headache, and probably the longest amongst all the diseases.^[2] The causes of headache may range from simple to complex and from benign to malignant. A systemic clinical examination methodology is mandatory to reach the final diagnosis and to deliver an appropriate treatment. Sometimes headache poses medical emergency, and calls for an ophthalmologist as the forefront consultant for their diagnosis and management. A combined timely decision and well-timed referral holds prime in the management of headaches, especially in cases of emergencies.^[3] A majority of headaches may be

diagnosed on the basis of presentation, but it is utmost important to take a detailed history. During treatment of headache, the probability of ophthalmic reason for headache must always be kept in the back of mind. Since, there is a close association between headaches and the eyes, the role of ophthalmologist may warned to be of utmost importance to establish a correct diagnosis and formulate the treatment of headache. The management of headache is often rewarding, but is not always easy. The contribution of an ophthalmologist is outstanding, in patient evaluation and diagnosis of the source of headache. The ophthalmologist not only diagnoses the etiology of headache but also cures by suitable treatment, especially in cases of headache due to refractive problem error or any underlying eye disease. The ophthalmologist may also give a valuable information to the neurologist, in cases of a central nervous system disease.

The current study was designed to evaluate the ocular causes of headache amongst patients, attending to ophthalmology outpatient department with headache.

MATERIALS AND METHODS

Study Design: This was a prospective, cross sectional study, conducted in the Department of Ophthalmology, at Sri Krishna Medical College and Hospital, Muzaffarpur. The study was approved by the institutional research and ethical committee. The study was conducted over a period of 25 month from May 2020 to May 2022. All the participating subjects were explained about the study at the time of enrollment. An informed and written consent was obtained from the participating subjects prior to the commencement of study.

Study Sample: The patients who presented with headache to the Department of Ophthalmology were examined and those with ocular causes were enrolled for the study. A total of 360 subjects fulfilling the inclusion criteria were included in this study.

Inclusion Criteria

1. All patients presenting with headache to our department.

Exclusion Criteria

1. Patients with non-ocular causes.
2. Severely ill and debilitated patients.
3. Pregnancy & lactation.

Clinical Examination: All enrolled subjects, were evaluated clinically. Visual acuity was assessed from 6 meter distance, using Snellen's chart or E chart. Then slit lamp examination was done for all the patients.

Further, readings were taken using auto-refractometer and patients were administered with dilator eye drops, for fundus examination. This was followed by wet retinoscopy. Intra ocular pressure measurement and gonioscopic examination, was done for the selected subjects, based on the finding

of fundus examination. Patients were asked to revisit 3 days after post mydriatic testing and correction was given.

The data collected was entered in Microsoft excel spread sheet. The data was analyzed by using SPSS statistical software version 20.

RESULTS

The Present study, evaluated the ocular cause of headache in the subjects attending ophthalmology OPD, for the complaint of headache. About 100 cases reported per month to our department for headache. Of these patients, the subjects having actually diagnosed for ophthalmic cause was 30-40 %.

Of the 360 patients diagnosed for ophthalmic causes for headache, 30 subjects were below the age of 15 years, 168 subjects were in the age group 16-30 years, 104 subjects were in the age range 31-45 and 58 subjects were above the age 45 years. [Table-1] Though both the genders were affected by the ocular cause of headache, but the incidence was almost double amongst females. [Table 2] the number of males and females were 110 and 250 respectively. While evaluating the occupation, it was evident that it was highest amongst students, followed by house wife and farmer. [Table 3]

Chronic headache was the most common type, followed by sub-acute type and acute type. [Table 4] The number of patients requiring final correction of < 1 D (less than 1 diopter) was highest, compared to subjects requiring higher diopter for correction. [Table 5]

The subjects were diagnosed to have various ophthalmic causes. Astigmatism was the commonest ophthalmic cause of headache, followed by hypermetropia, presbyopia and others. Refractive error was the commonest ophthalmic cause of headache in astigmatism. [Table 6]

Table1: Age wise Distribution of the subjects.

		Frequency
Age range	<=15 years	30
	16 – 30	168
	31 – 45	104
	>45 years	58

Table 2: Gender wise Distribution of the subjects.

		Frequency
Gender	Male	110
	Female	250

Table 3: Profile wise Distribution of the subjects.

		Frequency
Profile	Students	134
	Housewife	126
	Farmer	42
	Clerk, Tailor	12
	Technical Personnel	12
	Others	34

Table 4: Distribution of subjects according to characteristics of headache.

		Frequency
Duration of Head ache	Acute	38
	Sub-acute	52
	Chronic	230
Region of Headache	Frontal	238
	Occipital	40
	Combined	82

Table 5: Distribution of subjects according to Final Correction

		Frequency
Final Correction	O D	20
	< 1 D	236
	1.25 - 2 D	42
	> 2 D	22

Table 6: Distribution of subjects according to Ophthalmic causes of headache

		Frequency
Etiology	Astigmatism	164
	Hypermetropia	132
	Presbyopia	86
	Others	56
Astigmatism type	Mixed	18
	Myopia	2
	Simple Myopic	66
	Compound Myopic	16
	Simple Hypermetropic	8
	Mixed	74

DISCUSSION

Though headache is one of the common reason for seeking medical advice, it has a vital effect on public as well as personal wellbeing. Although the management of headache is not so easy all the times but is frequently rewarding. Ophthalmologist has an outstanding role in diagnosis and management of a patient with headache. The ophthalmologist not just diagnoses the etiology of headache but also treats by suitable treatment, especially in cases of headache due to refractive errors or any other eye disease.

Our study, found the percentage of ophthalmic causes of headache in the range of 30-40 %. In the study of, Shashi Jain it was found in 36% patients.^[4]

The population evaluated in our study showed that, the age group of 16 – 30 years had maximum incidence of headache (n=168). Whereas, the incidence for headache was found to be 104 in 31 – 45years age group. The study of Shashi Jain 4 found that maximum incidence of headache was in the age range of 15 – 30 years, A Similar findings for maximum incidence of headache was reported by Dhir in the age range of 20–30 years and Ahmed and Zuberi in the age range of 15–20 years.^[5,6]

The causes of headache may be multifactorial, and may also be age dependent, emotional factors, career pressures, educational factor, family conflicts and psychological stress are some of the common reason in a particular age group. The incidence of headache was higher in females (n=250) compared to males (n=110) in all age groups, in our study. A similar finding for female predominance was reported by Shashi Jain (56.5%), Lanchner (58.3%), Donahue (56%), and Dhir (57%).^[4,5,6,7,8] Marasini et

al. also observed a similar trend for higher incidence of headache amongst females.^[9] Emotional instability, hormonal variation and psychological stress may be the contributing factor for higher incidence of headache in females.

In our study, the ophthalmic cause for headache was found mainly in students (n=134) and housewives (n=126). The study report of Shashi Jain and Brown and Kronfeld also shows a similar trend with students having headache 52% and 60% respectively.^[4,10] The most possible cause for headache in these categories could be carrier and performance related pressure.^[9]

Our study also observed chronic headache to be more common and found in (n=230) cases.

Our study report also revealed that, frontal headache was most common, and seen in about 238 cases. Similarly, Shashi Jain in their study found that 67.7% patients had anterior site headache, in their study. Whereas, the frontal headache was in 49% cases in the study report of Marisani et al.^[9]

In our study, the incidence of headache was maximum in refractive errors, followed by presbyopia, other causes had least incidence. Shashi Jain in their study observed similar findings.^[4] The study reports of Uzma 11 also revealed that 14.78% of presbyopics having headache.

Kaimbo in their study reported 12% patients with anterior segment disease and associated headache.^[12] This finding was similar to the present study.

Headache may also be caused by inflammatory eye disease, an acute rise in intra ocular pressure or pain in the eye. An acute increase in the intra ocular pressure may cause pain in the eye, where as an eye with similarly increased IOP pressure of gradual

onset may remain asymptomatic. The most common form of painful glaucoma is acute angle-closure glaucoma and some types of secondary glaucoma. The glaucoma induced by lens may also cause acute pain.^[2,13]

Muscle imbalance may hold a primary role in causing headache. Extraocular muscles maintain binocularity and parallelism, by controlling influence of fusion. Extraocular musculature is strained in cases of muscle imbalance, leading to headache.^[14] Uzmafasih reported Papilledema in very few cases.^[11] Urgent neuroimaging is often required in cases of Papilledema to rule out underlying causes.^[15]

Astigmatism was the commonest refractive error in our study, which occurred in 164 cases, this was followed by hypermetropia in 132 cases. Astigmatism was also reported to be the most common refractive error, followed by hypermetropia in the study of Shashi Jain.^[4] Ahmed and Zuberi also found astigmatism in majority of patients with headache.^[16] The study report of Marasini also revealed astigmatism was seen in a large number of subjects, trailed by hypermetropia and myopia cases. 9 A similar trend was reported by Patwardhan and Sharma.^[17]

In the present study study, there were 236 patients who required refractive correction of less than 1 Dioptre and 42 patients required refractive correction of 1.25 to 2 Dioptre. Similar findings were informed by Shashi Jain, Griffith. 4,18 Cogan also found that small refractive errors, causes headache.^[19]

In the present study mixed type of astigmatism was more prevalent. Akinci also reported a comparatively higher prevalence of headache in compound and mixed astigmatism.^[20]

CONCLUSION

Ocular problems are amongst the frequent causes of headache. Therefore, ophthalmic causes as an etiology for headache should be not be ignored. Subjects with headache must be investigated for ophthalmic disorders especially in cases of refractive errors. So, it is utmost important to give emphasis on thorough examination and timely referral of the patient with headache to an appropriate specialist.

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