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Clinico-Etiological Profile of Headache in Patients Presenting to Ophthalmic OPD in Tertiary Care Hospital

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Abstract:

- ***Background*:**
  Headache is a common presenting symptom in ophthalmic outpatient departments, with various ocular and non-ocular aetiologies.

- ***Aim*:**
  To evaluate the common ocular and non-ocular causes of headaches in patients presenting to the ophthalmic outpatient department in Puducherry

- ***Methods*:**
  A cross-sectional observational study was conducted from October 2023 to January 2024. Consecutive patients with headaches underwent comprehensive evaluation, including detailed history, refraction, intraocular pressure measurement, slit-lamp examination, and fundus examination.

- ***Results*:**
  Of 101 patients evaluated, 74 (73.2%) were female and 27 (26.8%) were male. The etiological distribution was: primary headache (30.0%), refractive error (26.7%), computer vision syndrome (14.0%), medical causes (11.0%), anterior segment abnormalities (5.0%), glaucoma (4.0%), dry eye (1.0%), posterior segment abnormalities (1.0%), and posture-related causes (1.0%).

- ***Conclusion*:**
  Primary headache was the most common diagnosis, followed by refractive error. Early detection through comprehensive ophthalmic examination is crucial for appropriate management and referral.

Keywords: *Headache, Ocular Causes, Refractive Error, Computer Vision Syndrome, Primary Headache, Astigmatism, Medical Causes.*

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I. INTRODUCTION

Headache represents a common symptom of modern lifestyle, particularly affecting middle-aged individuals worldwide (1). One of the most frequent non-specific symptoms encountered in ophthalmic practice is headache and it mainly affects the productivity and quality of life. The aetiology of headaches can be broadly classified as primary or secondary. Primary headaches occur independently of underlying diseases, whereas secondary headaches are associated with specific pathologies. (2) Among secondary headaches, ocular causes represent a significant proportion. Due to the intimate relationship between visual function and headache, ophthalmologists often serve as the first-line physicians for patients presenting with headaches and associated visual disturbances (3,4) Various ocular conditions can precipitate headache including Acute glaucoma, Uveitis, Optic neuritis, Refractive errors, Accommodative and vergence deficiencies, Herpes Zoster ophthalmicus, Painful third nerve palsy, cavernous sinus thrombosis, Papilledema, Scleritis, Orbital wall fractures with extraocular muscle impingement.(5)Papilledema warrants particular attention as it may indicate increased intracranial pressure requiring urgent neuroimaging. The associated headache, though not

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necessarily severe, typically presents upon awakening and may be accompanied by vomiting. Chronic papilledema can lead to permanent vision loss if left untreated. (11) According to The International Classification of Headache Disorders, 3rd Edition (ICHD-3), four primary categories of ophthalmologic headache are 1. Migraine, 2. Tension type headache, 3. Trigeminal autonomic cephalalgias (TACs), 4. Other primary headache disorders like Primary cough headache and primary exercise headache (6).

Many cases of headaches with an ophthalmic origin, particularly those related to refractive errors, initially present to neurologists, potentially leading to unnecessary investigations. This highlights the need for early ophthalmological consultation which can lead to accurate diagnosis and management. This study aimed to determine the clinical-etiological profile of headaches in patients presenting to ophthalmology outpatient clinics in a tertiary eye hospital in Puducherry..

II. MATERIALS AND METHODS

This cross-sectional observational study was conducted from February 2024 to May 2024 at a tertiary eye care hospital in Puducherry. The study received approval from the institutional ethics committee and was conducted in accordance with Declaration of Helsinki. The study included patients presenting with complaints of headache and those referred from other specialities for ophthalmic evaluation of headaches. Written informed consent was obtained from all participants. All patients underwent detailed clinical history recording including Onset, Location, Duration, Severity of headache and Associated features. Additional history regarding previous head injury, surgery, addiction, systemic illness, and current medications was documented. Comprehensive ocular examination included Best-corrected visual acuity using the Snellen chart, Refraction (auto refractometer followed by manual acceptance), non-contact tonometry, Detailed slit-lamp examination, Fundoscopy using a 90D lens.

Data were entered into Microsoft Excel and analysed using IBM SPSS version 22. Descriptive statistics, including frequencies and percentages, were calculated for demographic and clinical parameters.

III. RESULTS

A total of 101 participants were included, of which 74 were female and 27 were male. A maximum number of patients were in the age group of 21-40 years. Under 20, there were 25 (24.7%) people and 21 -40 age group, 60 (59.4%) people participated. (Table 1)

We had 51.48% presenting with ocular causes and 48.5% presenting with non-ocular causes. (Table 2)

The most common ophthalmic cause of headache was refractive error (26.7%) followed by computer vision syndrome (13.8%) and then anterior segment abnormalities (4.9%), other less common causes like glaucoma, Dry eye, posterior segment abnormalities (Table 3). The most common refractive error was astigmatism (15.8%) followed by hypermetropia (4.95%) and then myopia (5.94%).

Among the non-ocular causes, 29.7% had primary headache followed by medical causes (10.8%). (Table 4)

Table 1: Demographic Profile of the Study Participants

AGE	FEMALE	MALE	TOTAL	PERCENTAGE
Under 20	16	9	25	24.7%
21-40	48	12	60	59.4%
41 and above	10	6	16	15.8%
Total	74	27	101	100%

Table 2: Distribution of Subjects According to Etiological Factors of Headache

CAUSES	FREQUENCY	PERCENTAGES
Ocular	52	51.48%
Non-ocular	49	48.5%

Table 3: Distribution of Subjects According to Ocular Causes of Headache

OCULAR CAUSES OF HEADACHE	NO OF CASES	PERCENTAGE
Refractive error	27	26.7%
Dry eye	1	0.9%
Glaucoma	4	3.9%
Computer vision syndrome	14	13.8%
Anterior segment abnormalities	5	4.9%
Posterior segment abnormalities	1	0.9%
Total	52	51.48%

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Table 4: Distribution of Subjects According to Non-Ocular Causes of Headache

NON-OCULAR CAUSES OF HEADACHE	NO OF CASES	PERCENTAGE
Primary headache	30	29.7%
Posture related	1	0.9%
Medical causes	11	10.8%
ENT causes	3	2.9%
Addiction	1	0.9%
Psychiatric	3	2.9%
Total	49	48.51%

IV. DISCUSSION

This study provides important insights into the distribution of headache aetiologies in patients presenting to ophthalmic outpatient services. In our study the predominant age group affected was 21-40 years (59.4%), consistent with a study by Dhir (7) and Ahmed and Zuberi (8) which reported the maximum incidence in the age group 20-30 years and 15-20 years, respectively. This age distribution may reflect increased stress related to education, career, and family responsibilities.

In our study, we noted a marked female predominance (73.2%) comparative to males. Similar observations were seen in a study by Jain S et al. and Marasini et al. where female preponderance (56%) was noted, which may be attributed this gender disparity to psychological and emotional stress factors. (9,10)

We had headache patients with Ocular causes (51.48%) which was more than non-ocular causes. This finding supports previous research by Uzma Fasih et al. who reported ocular causes as three times more prevalent than non-ocular causes in their study population. (11)

Majority of our patients with ocular causes had refractive error as the cause of headache (26.7%), among which astigmatism contributed to the maximum. Two other studies, one by Shashi Jain et al. and other by Marsini et al. have reported astigmatism as the most common refractive error causing headache. (9,10) Thay reported astigmatism in 42.37% and 63.63% of patients respectively.

In this study the second most common ocular cause of headache after refractive error is computer vision syndrome. According to study done by Hamdani D et al., (12) computer vision syndrome was relatively high (61.9%), and the most common symptom of computer vision syndrome is headache (52.2%). Another study by Simanta Roy et, al, (13). reported a higher prevalence of 68.16% with computer vision syndrome and the most common symptom was headache (42.4%). These headaches are most likely the result of a combination of factors, including visual fatigue, long-term shifting and accommodating, and long-term muscle stress.

Among the non-ophthalmic causes, in our study the most common type of headache is primary headache (29.7%) similar to Queiroz et al. who reported the prevalence of primary headache in the general population as 37.2% and the rest had secondary causes. (14)

In our study medical causes due to headache was (10.8%) and was the second most cause of non-ocular type of headache similar to a study done by Inchara N et al which reported 37% had headache due to medical conditions. (15) The medical causes associated with headache include hypertension, thyroid disease, and gastrointestinal diseases. Studies have shown that gastrointestinal diseases are an important cause headache (16).

Limitation of study is that single centric study design may limit generalizability, relatively short study duration. This study validates the importance of comprehensive ophthalmic evaluation in headache patients and can guide the development of referral protocols.

V. CONCLUSION

Headaches frequently have an ophthalmic component, emphasizing the crucial role of ophthalmologists in diagnosis and management. A thorough history and comprehensive ocular examination are essential for accurate diagnosis. The study highlights the importance of a multi-disciplinary approach to headache management, meticulous history-taking, comprehensive ophthalmic examination, and early detection and intervention.

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Conflict of interest: NIL

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