

Prevalence of occludable angles in Hypermetropes

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Abstract

Visual impairment is a global public health problem and angle closure is the leading cause of irreversible blindness worldwide. The impairment in the functioning of eye resulted in visual disturbances and most of the eye problems generally leads to blurred vision or the severe alteration in the eye functioning resulted in blindness. This prospective observational study was conducted in the department of Ophthalmology at Acharya Shri Chander College of Medical Sciences and Hospital, Jammu, during the period July 2021 to December 2021 after obtaining approval from the institute ethical committee included a total of 100 eyes of 50 clinically diagnosed patients with hypermetropia attending the Eye Outpatient Department. A detailed history was collected, ocular examination was done, visual acuity was recorded, refraction was done, applanation tonometry and gonioscopy was performed for all the eyes. The study findings revealed that overall prevalence of the occludable angle was 42%. This study concluded that

the early detection of occludable angle, early treatment and further follow up can reduce or prevent the disease progression and can limit the visual impairments.

Keywords: Occludable angle, Hypermetropia, Visual impairment, Angle closure and Eyedisorders.

Introduction

The eye disorders are very common among all ages now these days ranging from childhood to old age. The impairment in the functioning of eye resulted in visual disturbances and most of the eye problems generally leads to blurred vision or the severe alteration in the eye functioning resulted in blindness. Some examples of major eye problems are refractive errors, glaucoma, cataract, retinal disorders, conjunctivitis, etc. which can leads to permanent loss of vision.¹

Visual impairment is a global public health problem and angle closure is the leading cause of irreversible blindness worldwide.²

Where the iris meets the cornea and sclera is known as the “angle” in the eye. Trabecular meshwork is the

drainage system of the eye is located at angle. The contact between trabecular meshwork and iris is a risk factor of the development of angle closure glaucoma. The occludable angle with no other ocular abnormalities helps in early detection of the disease.³

Hypermetropia/ hyperopia/ far sightedness is the common vision condition in which patient is not able to see nearby objects (blurry vision) but the patient is able to see better far away objects. This refractive status is usually associated with small eye ball (short axial) length which in turn associated with narrow angle and if not detected likely to progress to angle closure glaucoma causing pain, blurring of vision and red eye.

Thus this prospective observational study was conducted to determine the prevalence of occludable angles in hypermetropes.

Material and methods

This prospective observational study was conducted in the department of Ophthalmology at Acharya Shri Chander College of Medical Sciences and Hospital, Jammu, during the period July 2021 to December 2021 after obtaining approval from the institute ethical committee.

A total of 100 eyes of 50 clinically diagnosed patients with hypermetropia attending the Eye Outpatient Department were involved after obtaining the informed consent from all the patients.

Inclusion Criteria

- The patients presenting in OPD with hypermetropia.
- Patients who were willing to participate in the study.
- Age group > 25 years.

Exclusion Criteria

- History of ocular trauma.

- Patients with other ocular co-morbidities.

A detailed history was collected, ocular examination was done, visual acuity was recorded, refraction was done, applanation tonometry and gonioscopy was performed for all the eyes. Angle was graded by shaffers method of angle grading. The demographic variables age and gender of the patient were recorded.

During the study each patient was closely monitored and further followed. The collected data was organized, tabulated, analyzed and interpreted in both descriptive and inferential statistics i.e. frequency and percentage distribution, mean by using statistical package for social science software (SPSS), version 21. Categorical variables were expressed as number and percentage.

Observation and results

This prospective observational study included the total 100 eyes of 50 patients.

Table 1: Age & Gender

Agegroup	Female (33)		Male (17)		Total	
	Patients	Eyes	Patients	Eyes	Patients	Eyes
25-34	5	10	1	2	6	12
35-44	4	8	3	6	7	14
45-54	13	26	6	12	19	38
55-64	8	16	3	6	11	22
>65	3	6	4	8	7	14

Table 1 depicted the distribution of patients according to the age and gender. Majority of the patients were female (66%) and male patients were 44%. Majority of the patients were in the age group of 45-54 years.

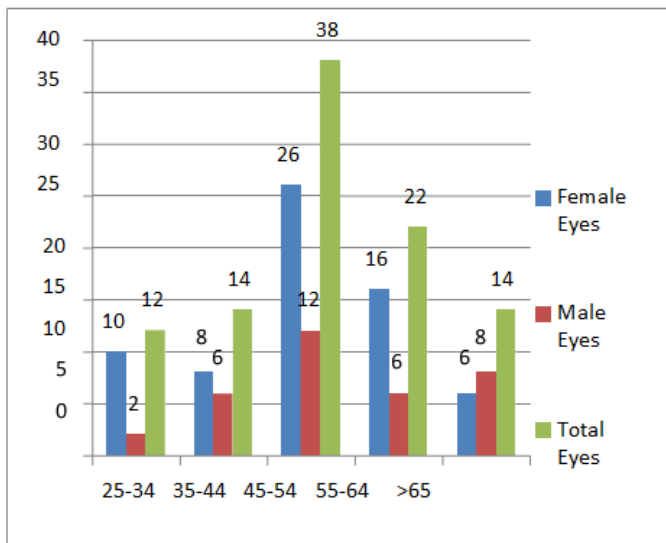


Figure 1: Age and gender

Table 2: Visual acuity

Visual acuity	Total eyes
6/4.5	0
6/6	42
6/9	12
6/12	15
6/15	13
6/20	17
6/30	1
6/60	0

Table 2, showed the visual acuity of all the eyes. Majority of the eyes 42 were 6/6 followed by 6/20 (17), 6/12 (15), 6/15 (13), 6/9 (12) and 6/30 (1).

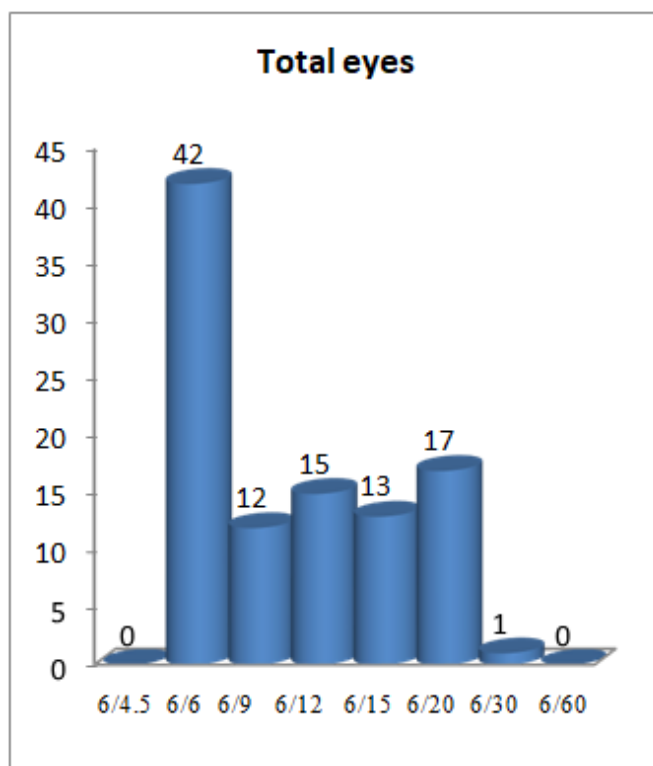


Figure 2: Visual acuity

Angle of the eyes	Total eyes
Open-angle	36
Close-angle	22
Occludable angle	42

Table 3: Angle

Table 3 represented that 42 eyes had occludable angle, followed by open angle (36) and close angle (22).

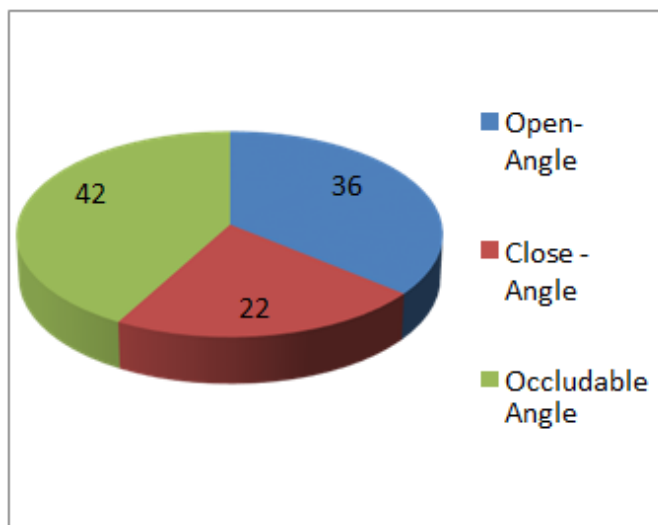


Figure 3: Angle

It was observed that the overall prevalence of occludable angle in 100 hypermetropes eyes was 42%.

Discussion

In this study the 50 patients (100 eyes) diagnosed with hypermetropia were selected with the aim to determine the prevalence of occludable angle. Data was collected analyzed and discussed with previous literature. The present study observed that majority of the patients were female (66%) and male patients were 44%. Majority of the patients were in the age group of 45-54 years. In similar study conducted by Rao Subba AV, et al. (2016), found 46% patients in the age group between 40-50, 36% of patients were in the age group between 51-60 (36%). 14% patients were in the age group between 61-70 and only 4% of patients in the age group between 71-805 In another study conducted by Sundeep, et al. (2013) reported that the majority of the patients were in the age group of 41-50 years and the majority of the participants were females (60%) and males were 40%.⁶ In the present study visual acuity was measured and findings revealed that majority of the eyes 42 were 6/6 followed by 6/20 (17), 6/12 (15), 6/15 (13), 6/9 (12) and 6/30 (1). In similar study conducted by C.C. Loh, et al. (2021), observed that 68.7% of eyes

had at least good-to-mild visual impairment (6/12–6/18), 17.5% eyes had moderate to severe impaired visual acuity (6/18–3/60) and 13.8% eyes were blind (vision worse than 3/60).⁷ In another study conducted by Sundeep, et al. (2013) reported that the 80 eyes were 6/6 followed by 6/18 and 6/24 (5 each respectively), 6/9 and 6/36 (3 each respectively), 6/12 (2), PL+ and PL- (1 each respectively).⁶

The present study revealed that 42 eyes had occludable angle, followed by open angle (36) and close angle (22). The overall prevalence of occludable angle in 100 hypermetropes eyes was 42%. In similar study conducted by PH Alsirk, et al (1986) showed the prevalence of occludable angle was 54.6%.⁸ In another study conducted by N Nguyen, et al. reported that the prevalence of occludable angle was 47.8%.⁹ Similarly Sundeep, et al. (2013) reported that the prevalence of occludable angle was 38%.⁶ In the study conducted by Subba AV, et al. (2016), found that the prevalence of occludable angle was 18%.

Conclusion

This prospective observational study concluded that the overall prevalence of occludable angle was 42%. Thus, the early detection of occludable angle, early treatment and further follow up can reduce or prevent progression of angle closure and development of angle closure glaucoma.

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