Original article:

Prevalence of glaucoma in patients undergoing cataract surgery in rural set up in nagaur district of Rajasthan

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ABSTRACT:

PURPOSE: To determine the prevalence and types of glaucoma in rural patients posted for cataract surgery under eye camps.

BACKGROUND: Glaucoma is the second leading cause of blindness in the adult population in India. The global prevalence of glaucoma for population aged 40 to 80 years is estimated to be 3.5% and the projected number of people with glaucoma worldwide will increase to 111.8 million in 2040. This creates a need for early diagnosis and prompt management of glaucomas especially in the underprivileged rural areas that lack awareness and facilities.

METHODOLOGY: A cross-sectional study was conducted at a regional ophthalmic center for all the patients posted for cataract surgery under eye camps. Study was carried out for duration of six months and included 700 patients. The patients underwent detailed workup to detect the presence of glaucomas and were treated accordingly if the disease was detected.

RESULTS: The overall prevalence of glaucoma in our study population was 2.14%. Amongst them, 0.78% had primary open angle glaucoma, 0.14% had primary angle closure glaucoma and 1.21% of them had pseudoexfoliative glaucoma. The prevalence of glaucomas increased with increasing age.

CONCLUSION: With increasing life expectancy the number of glaucoma patients is constantly growing large in our country. Early case detection rate is of utmost importance to reduce the disease burden in the rural population where awareness in terms of routine eye screening is very low.

 KEYWORDS: Glaucoma, prevalence, primary open angle glaucoma, primary angle closure glaucoma, pseudoexfoliative glaucoma.

INTRODUCTION:

Glaucoma is the second leading cause of blindness in the adult population in India.[1,2] The World Health Organization has estimated that India has a 1% prevalence of blindness.[3] Of the estimated 8.9 million blind people in India, 12.8% are due to glaucoma.[4] Also, more than 3 million people in the world are blind due to glaucoma.[5] The National Blindness survey 2001 showed that glaucoma is the third major cause of blindness in India and responsible for 5.9% of blindness (VA <6/60)[6] .

The high rates of blindness in India can be explained by the large proportion of undiagnosed disease. The Arvind comprehensive eye survey (ACES)[7] reported that 50% of those with glaucoma had undergone an eye examination by an ophthalmologist previously. In this group 80% of the patients were still undetected at the time of the survey. This highlights the low case detection rates in the ophthalmic community in India.

METHODOLOGY:

The study was conducted on all the patients posted for cataract surgery under eye camps. Study was

939

carried out for duration of 6 months and included 700 patients. Written informed consent was obtained from all the camp patients posted for cataract surgery. Detailed history was elicited regarding the medical and ophthalmic complaints. Visual acuity and refraction were performed by trained optometrists. A comprehensive ocular examination was performed including slit lamp biomicroscopy, applanation tonometry, gonioscopy, central corneal thickness, indirect ophthalmoscopy.Visual field testing was done by automated perimetry using Humphrey Field Analyser (30-2 program), when visual acuity was 1meter or more.Gonioscopy was performed in a routine manner using the Zeiss four mirror gonioscopy lens. Occludability was assessed using dim ambient and slit lamp illumination with the patient looking in primary gaze. Care was taken to ensure that the slit beam did not encroach upon the pupillary area during this phase. The slit beam height and illumination were increased and the patient instructed to look in the direction of the mirror and the angle was manipulated open to look for synechiae, Shaffer's grading was used to grade the angles.

Glaucoma was diagnosed as per International Society of Geographical and Epidemiological Ophthalmology (ISGEO) classification, in which cases are diagnosed on the grounds of both structural and functional evidence of glaucomatous optic neuropathy.8

The diagnostic criteria as per ISGEO in cross sectional surveys were as follows: Category 1 diagnosis (structural and functional evidence): Eyes with a CDR or CDR asymmetry >97.5th percentile for the normal population, or a neuroretinal rim width reduced to <0.1 CDR (between 11 to 1 o'clock or 5 to 7 o'clock) that also showed a definite visual field defect consistent with glaucoma.

Category 2 diagnosis (advanced structural damage with unproved field loss): If the subject could not satisfactorily complete visual field testing but had a CDR or CDR asymmetry > 99.5th percentile for the normal population, glaucoma was diagnosed solely on the structural evidence. In diagnosing category 1 or 2 glaucoma, there should be no alternative explanation for CDR findings (dysplastic disc or marked anisometropia) or the visual field defect (retinal vascular disease, macular degeneration, or cerebrovascular disease)

Category 3 diagnosis (Optic disc not seen. Field test impossible): If it is not possible to examine the optic disc, glaucoma is diagnosed if: (A) The visual acuity < 3/60 and the IOP > 99.5th percentile, or (B) The visual acuity < 3/60 and the eye shows evidence of glaucoma filtering surgery, or medical records were available confirming glaucomatous visual morbidity

RESULTS:

A total of 700 patients were included in the study. All patients in the study were above 40yrs of age with the mean age being 56years. 60% were males and 40% were females. Out of 700 patients, 15 patients (2.14%) of the patients selected for cataract surgery had glaucoma. Among them 5 patients (0.78%) had primary open angle glaucoma (POAG), 1 patients (0.14%) had primary angle closure glaucoma (PACG), 9 patients (1.21%) had a pseudoexfoliative (PXF) glaucoma.

Of the glaucoma patients, 10 of them were males while 5 were females. (Table 2) Prevalence of glaucoma increased with age. In the age group of 40 to 49 years, none of the patients had glaucoma. In the age group of 60 to 69 years, 7 patients had glaucoma. (Figure 4) The mean IOP among the normal subjects in the study population was 15.0 mmHg and that among the glaucoma patients was 29.1 mmHg. The

mean vertical cup to disc ratio (VCDR) among the normal subjects in the study population was 0.3 while that among the glaucoma patients was 0.7. The mean central corneal thickness (CCT) in the normal study group was 543 microns while that in the patients with POAG was 526 microns

DISCUSSION:

Glaucoma is included as one of the priorities among the avoidable causes of blindness in the country under Vision 2020: Right to Sight program in India. Elimination of glaucoma blindness is feasible only when adequate measures will be taken at all levels of services from the primary level to advanced tertiary level. The prevalence of glaucoma in our study population was 2.0%. The prevalence increased with the increase in age. This fact was also noted in a prevalence study carried in the state of Andhra Pradesh.9 The Chennai Glaucoma Study estimated a prevalence of 3.5% glaucoma in the urban10 and 1.62% in rural south Indian population.1 The Vellore eye survey11 reported a prevalence of 0.41% for POAG in the 30 to 60 year age group. The global prevalence of glaucoma for population aged 40 to 80 years is estimated to be 3.54% and number of people with glaucoma worldwide will increase to 111.8 million in 2040.(12)

Prevalence of POAG was 0.76%, PACG was 0.13% and pseudoexfoliative glaucoma was 1.19%. Pseudoexfoliative glaucoma was thus the commonest type of glaucoma in our study population. In other studies, pseudoexfoliation was commonly associated with ocular hypertension. 4.22% of those with pseudoexfoliation in the (Aravind Comprehensive Eye Survey) ACES13 and 9.33% of those with pseudoexfoliation in the Chennai Glaucoma Study (CGS, Rural) were ocular hypertensives.14

CONCLUSION:

With increasing life expectancy the number of glaucoma patients is constantly growing large in our country. Early case detection rate is of utmost importance to reduce the disease burden in the rural population where awareness in terms of routine eye screening is very low. More of such prevalence studies should be carried out in various parts of the country at same time to estimate the overall disease burden on the country and relevant policies should be built to deal with it.

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