RESEARCH ARTICLE

Pattern and Distribution of Ocular Morbidity in Patients Visiting the Field Practice Area of Tertiary Care Hospital of North India.

*Dr. Sonia Puri[1], Dr. Munish Ashat[2], Sandeep singh sarpal[3], Dr. Tarundeep Kaur[4], Akshay Kumar[5]

[1]Assist. Prof (MBBS, MD, PGDHHM), Department of Community Medicine, Govt. Medical College and Hospital Sec 32, Chandigarh, India

[2]Intern (MBBS), Govt Medical College and Hospital Sec 32, Chandigarh, India

[3]MD. Department of Community Medicine, Govt. Medical College and Hospital Sec 32, Chandigarh, India

[4]MBBS. Rural Medical Officer, Lalpur, Ropar, India

[5]MD. Department of community medicine, Govt. Medical College and Hospital Sec 32, Chandigarh, India

ABSTRACT:

OBJECTIVES: To determine the prevalence of common ocular morbidities and their demographic correlates.

STUDY DESIGN AND SETTING: Descriptive cross sectional study done in field practice area of Government Medical College and Hospital, Chandigarh

STUDY PERIOD: Mar 2011-April 2012

RESULTS: 1088 study subjects comprised the sample. The most common ocular morbidity was found to be Refractive error with a prevalence of 25.5 %. It was most prevalent in the age group of 5-20 years (37.5 %) followed by the age group 41-50 years (36.5 %).Results were significant between urban and slum population (p= 0.0081). Cataract was found to be the second most common ocular morbidity with a prevalence of 19.3% (210). Majority of patients were of age 51-70 years. No significant relationship was found between urban and slum population regarding prevalence of cataract (p= 0.5663).Allergic conjunctivitis cases figured to 14.7%. and significant co-relation between urban and slum population suffering from allergic conjunctivitis was found (p= 0.0001). Conjunctival degenerations like Pterygium and pinguecula was found in 11.9 %, Aphakia/pseudoaphakia in 3.6 % and Posterior segment diseases like Diabetic and hypertensive retinopathy in 2.94%.

CONCLUSION: This study shows the recent prevalence of most common ocular morbidities which include refractive error, cataract and post segment disease.

KEY WORDS: ocular morbidity, refractive error, North India

INTRODUCTION:

About 285 million people are visually impaired worldwide. 39 million are blind and 246 million have low vision. 80% of all visual impairment can be prevented, treated or cured and about 90% of the world's visually impaired people live in developing countries[1].

Blindness, with its social and economic consequences, represents a significant public health problem in many parts of the world.

The principal causes and prevailing epidemiology of blindness and visual disability are quite distinct in developed as compared to developing countries. A WHO model on economic and social impact of blindness has predicted the prevalence of blindness and low vision in India to be around 1.37 % in the year 2020, which considering the fact that projected population of India by 2020 is 1312 million amounts to about 18 million people with blindness/low vision [2].

Estimated financial loss from this amounts to 2,538 and 3,005 million dollar of annual GDP loss from blindness and low vision respectively.

Cataract is one of the leading causes of blindness/low vision responsible for 62.4% of bilateral blindness in developing countries. Prevalence of cataract blindness was found to be 5.3% in India with 3.8 million people becoming blind from cataract each year [3].

In many parts of the world refractive errors would become the second largest cause of treatable blindness after cataract, if the blindness were defined on the basis of 'presenting' distance visual acuity[4]

Glaucoma is now the second leading cause of blindness globally, after cataract. In the most affected countries of Africa and Asia, the prevalence of blindness from glaucoma may be as high as 1.1 per cent, with an additional 5 per cent of the population visually disabled[5].

Population based cross-sectional surveys depicting the magnitude of ocular diseases among the population in India are scanty. A proper understanding of the magnitude and pattern of ocular diseases along with the factors associated with their occurrence in the community would help in planning for eye care services. This would cater to

Corresponding author: Dr. Sonia Puri

the specific needs depending upon the disease prevalence and epidemiological distribution.

The present study attempts to determine the prevalence and pattern of common ocular morbidities (cataract, refractive errors, glaucoma, and corneal opacities) in the study population.

METHODOLOGY:

This descriptive cross sectional study was done in urban field practice area of Department Of Community Medicine of GMCH-32. The urban Health Center was established in 2000 and since then has been providing services to the health needs of people of catering area. The center is covering a population of about 16,000-20,000. The eye clinic was enunciated in Oct 2008. And since then has been actively rendering basic ophthalmological as well as referral services.

The eye clinic is run every fortnightly. The optometrist, junior resident and a senior faculty of ophthalmology come from GMCH for the clinic. Study sample comprised of all the patients who came to eye clinic from Mar 2011-April2012. A total of 1566 patients visited the center. Out of this 1088 had visual problems. Hence, 1088 constituted the sample size of the study. Pretested preformed questionnaire was the study instrument so used for collecting information, which comprised of detailed history and evaluation of the patients.

Visual acuity was evaluated using the Snellen's chart for the literates and illiterate E chart for the illiterates. Torchlight was used to examine young children. Anterior segment was examined with torchlight and magnifying loupe if and where necessary. Direct ophthalmoscope was used for examination of fundus. A fundus evaluation under mydriasis was done in relevant cases. Difficult cases which required examination under the slit lamp were referred to GMCH-32 for further evaluation and management. Such cases were not included in the study. Data was collected, compiled and analyzed using SPSS version 11.

RESULTS:

A total of 1088 patients were examined from all age groups, out of which maximum number of patients were in age group 11-20yrs, 18% (198) followed by in age group 31-40yrs, 17% (186).Patients in elderly age group constituted about 8.7% (188). Majority of patients were from urban area, 64.5% (3512) followed by 23.7% (258) from rural and slum area 11.8% (128).The number of males, 62.5% (680) were more than female subjects 37.5% (408).

Table 1: Sociodemographic Profile of Patients (N=1088)

Age	No.	%
5-10yrs	98	9
11-20yrs	198	18
21-30yrs	168	15.5
31-40yrs	186	17
41-50yrs	162	15
51-60yrs	116	10.7
61-70yrs	94	8.7
71-80yrs	46	4.2
81-90yrs	20	1.8
Area		
Urban	702	64.5
Rural	258	23.7
Slum	128	11.8
Gender		
Male	680	62.5
Female	408	37.5
Literacy		
Illiterate	258	23.7
Primary	92	8.4
Middle	130	11.9
Sec	198	18.2
Higher Sec	164	15.1
Graduate	134	12.3
Post Graduate	112	10.3
Total	1088	100

Most common cause of ocular morbidity among all age groups was refractive error (presbyopia/ amblyopia) in 25.5 % (278) subjects. Among these 46.04 % (128) were from urban area, 33.8 % (94) from rural and 20.14% (56) from slum area. It was most prevalent in the age group of 5-20 yrs (37.5 %) followed by the age group 41-50 yrs (36.5 %). In slums refractive error was found to be maximum in age group of 5-20 years, 50 % (24).In the age group of 21-40 years and among ≥ 41 years refractive error was found to be 25 % (14) and 32.14 % (18) respectively. Refraction was not performed on subjects >15 years of age who had distance and near visual acuity of 20/20 or better and who were not using optical correction because they were considered as not having refractive error. Chi-square with Yart's correction showed no significant relation of prevalence of refractive error in urban and rural area (p= 0.0501). But results were significant between urban and slum population (p= 0.0081) Cataract was found to be the second most common ocular morbidity with a prevalence of 19.3% (210). Majority of patients were of age 51-70yrs. In most patients, presentation was age related. Other causes leading to cataract were not found in patients.

Among urban population the prevalence of cataract was 26.8% (54), whereas in rural and slum areas it was 35.7% (76) and 38.01% (80) respectively. Subjects with aphakia/ pseudophakia were 3.6 % (40). No significant relation was observed using Chi-square test between urban and rural population for prevalence of cataract (p= 0.4789).Similarly no significant relation was found between urban and slum population (p= 0.5663).

Allergic conjunctivitis cases figured to 14.7% (160). It was most prevalent in the age group 31-40yrs. Among the patients suffering from it, majority were from slums 48.75 % (78) followed by those from rural 35 % (56) and 16.25 % (26) from urban area respectively. Significant relation between urban and rural population prevalence of allergic conjunctivitis (p= 0.0112) was found by using Chi-square. Similarly significant relation between urban and slum population suffering from allergic conjunctivitis was found (p= 0.0001).

Squint was found prevalent in younger age group. Children up to 10 yrs had maximum 1.83 % (20) reporting of squint. Conjunctival degenerations like Pterygium and pinguecula was found in 11.9 % (130), Aphakia/pseudoaphakia in 3.6 %(40) and Posterior segment diseases like Diabetic and hypertensive retinopathy in 2.94% (32). Trauma related conditions were mainly foreign bodies, subconjunctival hemorrhage 5.33 % (18) and lid entropion in 0.36 % (4). Staphyloma and conjunctival xerosis was each 0.18 % prevalent. It was observed that refractive errors and conjunctivitis were seen more in the younger age groups, whereas cataract and posterior segment diseases were seen in the older age groups.

TABLE 2: Pattern of eye disease in Patients (N= 1088)

Variable	No.	%
Refractive error/presbyopia/amblyopia	27	25.
Cataract	21	19.
Allergic conjunctivitis	16	14.
Glaucoma	10	0.9
Aphakia/pseudoaphakia	40	3.6
Diabetic/hypertensive retinopathy	32	2.9
Pterygium/pinguecula/Meibomitis/Blephrit	13	11.
Corneal insufficiency	24	2.2
Squint	20	1.8
Lid entropion	4	0.3
Sub conjunctival hemorrhage	18	5.3
Stye	10	9.5
Dry eye	10	0.9
Staphyloma	2	0.1
Conjunctival xerosis	2	0.1

DISCUSSION:

The present study showed that most common cause of ocular morbidity among all age groups was refractive error (presbyopia/ amblyopia) accounting to 25.5 % (278) subjects. In urban area, out of 64 respondents, 24 were of age group ≤ 5-20 yrs (37.5 %). We have reported refractive error under cycloplegia for subject's ≤ 20 years of age. As expected, in refraction under cycloplegia, hyperopia dominated in those ≤20 years of age, with a prevalence of 37.5 %. Refractive error in the age group of 31-40 years and in subjects with age ≥ 41 years was 25% and 37.5 % respectively. The findings of other studies that have included younger age groups have also shown that prevalence of refractive error increases with age[4, 5]. But the results of the study conducted in rural area of Andhra Pradesh were in contrast to our findings. They found that refractive error was responsible for 12.5% of the blindness and 59.4% of the moderate visual impairment. Similarly, [6] Nangia et al observed a high prevalence of refractive error among males (52.65%) and females (54.9%) above 60 years.

The decrease in the prevalence of refractive error in our study as compared to the study conducted in central India could be accounted to easy accessibility to first referral system in Chandigarh. From a public health perspective, vision screening is an appropriate strategy to reduce vision impairment. Most of this impairment is caused by refractive error, for which treatment is simple, effective, and inexpensive.

Cataract was the second most common disease pattern with prevalence of 19.3 % so found in the study. Similar results by [7]Rizyal et al were evident in a study conducted in Bhaktapur, Nepal.

But the prevalence of cataract in a study conducted by [8]vashist P was observed to be 58 %. The striking contrast in prevalence of cataract may be due to the fact that our study incorporated subjects from all the age groups unlike other study where only adult /geriatric population was incorporated. A recent collaborative study showed variations in the prevalence of cataract ranging from 30.1% to 72.2% in different parts of India[9,10].
Similarly, the result of the study done by [11]Shrivastava showed cataract prevalence of 40.4 %.

Among the patients sufferings from Allergic conjunctivitis majority of subjects were from slums, 48.75 % followed by those from rural 35 % and 16.25 % from urban area. Older population studies estimate a prevalence of 15-20% of allergic conjunctivitis, but more recent studies implicate rates as high as 40%[12] . A study conducted in school children of Karachi by [13] Baig R et al in 2010 showed a prevalence of 19.2 %. As expected there were more

subjects from slum area reporting to health facilities with allergic conjunctivitis may be owing to environmental factors.

The prevalence of glaucoma was found to be 0.91 %. The diagnosis of glaucoma was confirmed by a glaucoma specialist on the basis of the clinical details and established glaucomatous visual field defect in each eye. [14]Kim et al showed the higher prevalence of glaucoma to be 3.4%.

Similarly a higher prevalence of glaucoma in Korean population so evident can be attributed to ethnical differences [15].

Among various retinal diseases, Diabetic and Hypertensive retinopathy, the prevalence was found to be 2.94 %. [16]Raman et al reported a prevalence rate of 3.5 % for diabetic retinopathy. [17]Wong et al found prevalence of hypertensive retinopathy to be 7.7 %.

Pterygium/ pinguecula prevalence was found to be 1.10 %. In contrast a recent study conducted in Spain[18] showed prevalence of pterygium to be 5.9% and of pinguecula around 47.9%.

There is very scant data on Pterygium/ pinguecula prevalence for India and what all data is available is very old. A study conducted in 1992 reported prevalence of pterygium ranging from 0.075% in Punjab to 10.42% in Maharashtra in general population[19, 20]. This is a very old database and needs to be reviewed. No recent study has been done in this regard in India.

It was observed that refractive error and conjunctivitis were seen more in the younger age groups, whereas cataract and posterior segment diseases were seen in the older age groups.

CONCLUSIONS:

The present study suggests that there is a high prevalence of cataract, refractive errors, and corneal opacity in the study population, all of which are treatable or preventable. There is, thus, a need to define the priorities for eye care services based on the current population-based data. Thus, short-term emphasis should be placed on cataract and refractive errors, and long-term emphasis should include glaucoma and corneal diseases as well. People should be educated about their causes, preventive measures, and appropriate treatment. Health education programs should target older age groups specifically and the population in general. The availability and accessibility of eye care services, particularly cataract surgery and refraction services should be increased. Affordable eye care services should be provided in addition to making these services available and accessible.

CONFLICT OF INTEREST: NONE

CONTRIBUTORSHIP STATEMENT:

Dr. Sonia Puri designed the study and was responsible for supervision of whole study. Dr. Munish helped in acquisition of data and manuscript writing. Dr. Sandeep Singh Sarpal did all the analysis and interpretation of data. Dr. Tarundeep and Dr. Akshay helped in drafting of the article.

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