

**Original article:**

**A cross-sectional study to assess the morbidity pattern of ocular diseases in out-patient department of ophthalmology at Bhilwara, Rajasthan**

**<sup>1</sup>Dr Rajani Gaur\* , <sup>2</sup>Dr Arun Gaur**

<sup>1</sup>Senior Specialist & Head, Department Of Ophthalmology, Mahatma Gandhi Hospital, Bhilwara. Rajasthan 311001

<sup>2</sup>Senior Specialist & Head, Department Of Medicine, Mahatma Gandhi Hospital, Bhilwara. Rajasthan 311001

Corresponding author\*

---

**ABSTRACT**

**Background:** In developing countries like India lower socioeconomic status and lack of proper eye care are responsible for increase in the number of preventable and avoidable causes of blindness as compared to developed countries of the world. One-third of India's blind population lose their eyesight before 20 years of age. Therefore, early detection and treatment of ocular morbidity is important. The best option to reduce ocular morbidity is to bring eye care services to their doorsteps in the form of outreach programs. The aim of the study was to assess the morbidity pattern of ocular disease in the region, which will show the trend of ocular morbidities in our society and help to provide basic data for planning and provision of adequate eye care services, appropriate treatment and intervention for management of these diseases.

**Methods:** This was a cross-sectional type of study conducted at District Hospital, Bhilwara. For the study, total of 200 patients who attended OPD of Ophthalmology in the duration of 1 year were included.

**Results:** Out of 200 patients majority (67%) of the patients were found to be in the age group of 30-60 years and there was no sex preponderance as ratio of male to female was found to be 1.1:1 among the patients which shows that common eye diseases are usually not sex linked but may be linked with age. Distribution of diseases treated in OPD showed that allergic conjunctivitis (51.33%) was the most common disease followed by infective conjunctivitis (21.00%) which was found to be the second most common problem.

**Conclusions:** It has been observed that allergic conjunctivitis is the most common disease due to hot and dry environment, dust and more of pollution due to marble mining in the region.

**Keywords:** Conjunctivitis, Morbidity, Ocular disease

---

**INTRODUCTION:**

Eye complaints are common in general practice and some of them, if neglected, lead to blindness. Blindness is a devastating physical condition with deep emotional and economic implication. The consequences affect not only the individual but also the family and the community. AWHO 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.<sup>2</sup> Optimum management of ocular disease has a large impact in prevention of visual loss in patients suffering from eye problems. Appropriate treatment of these patients reduces the burden of the ocular health problem.<sup>3</sup>

Establishment of an eye care delivery system for the treatment of eye diseases and prevention of blindness is linked to the existing general services and resources available.<sup>4</sup> Hence it is important to study the morbidity pattern of ocular diseases.

#### **METHODOLOGY**

This cross-sectional study has been conducted in Department of Ophthalmology, Bhilwara District Hospital, Rajasthan. An Ethical approval from Ethical Committee of the Institution was taken before carrying out the study. A total of 200 patients who attended ophthalmology OPD were taken under study in the duration of one year. The purpose and the details of study were explained to the participants and before enrolling them in the study verbal/written consent was taken. Follow-up cases and patients with diabetic retinopathy, hypertensive retinopathy, cataract, refractive errors and glaucoma were excluded from the study.

#### **RESULTS:**

##### 1. Socio-demographic variables:

Out of 200 patients majority of the patients 134 (67%) were found to be in age group of 30-60 years followed by 44 (22%) below age of 30 years. Only 22 (11%) patients were found to be of age more than 60 years. Insignificant sex preponderance was found as ratio of male to female was 1.1:1 among the patients. This shows that common eye diseases are usually not sex linked but may be linked with age. ( $\chi^2$  value= 4.478,  $p=0.107$ ) Out of a total of 104 male patients, 40 were from rural area and 64 were from urban area. Similarly, out of a total of 96 female patients, 58 (29% of 200) were from rural area and 38 (19% of 200) from urban area. Thus insignificant association was found between gender and area of living in the occurrence of ocular diseases. ( $\chi^2$

value=1.746,  $p=0.186$ ). Occupation wise distribution shows that maximum number of patients was dependents (40.0%), followed by students (24%). Thus insignificant association was found between gender and occupation in the occurrence of ocular diseases. ( $\chi^2$  value= 4.478,  $p=0.488$ )

##### 2. Distribution of morbidity pattern of ocular disease:

Distribution of diseases treated in OPD showed that allergic conjunctivitis 98(49%) was the most common disease followed by infective conjunctivitis 24 (12%) that was the second most common problem. Anterior blepharitis(12%), stye (10%), vernal conjunctivitis (6%), follicular conjunctivitis (2%), keratitis (2%), chalazion (2%), anterior uveitis (1%), corneal foreign body-associated inflammation (1%), acute meibomitis (1%) and acute dacryocystitis (1%) are some ocular diseases found less commonly. In this study, high correlation was seen between male and female population with respect to various types of ocular diseases ( $r=0.995$ ,  $p=0.001$ ).

#### **DISCUSSION**

From the study it was found that there was no sex preponderance as ratio of male to female was found to be of 1.1:1 among the patients which is similar to studies with higher proportion of male to female in southern Nigeria.<sup>5-7</sup> But it is found to be in contrast with a study from Nepal where ocular diseases were reported more in females than males.<sup>8</sup> Maximum number of patients belonged to age group of 30-60 years in OPD. These findings show that common eye diseases are usually not sex linked but may be linked with age.<sup>9</sup> Aging affects the stability of tear film which is important for

clear vision and comfort of the eyes. Tear instability causes dry eye which is prone for allergy as well as infection.<sup>2</sup> In our study allergic conjunctivitis (49%) was found to be the most common disease among distribution of diseases treated in OPD due to hot and dry environment, dust and more of pollution due to marble mining. The other studies showed infective conjunctivitis to be most common ocular disease in different regions across India.<sup>10</sup> Significant correlation was noticed in morbidity pattern of ocular disease due to gender ( $r=0.995$ ,  $p=0.001$ ). Similar results were seen in a hospital based study done by Rajkarnikar S et al where in all age groups, except above 60 years, the most common ocular disease is conjunctivitis.<sup>11</sup> Infective conjunctivitis may be caused by several groups of organisms including bacteria, Chlamydia, viruses, fungi, helminths, and protozoa. Acute bacterial conjunctivitis may be acute papillary, hyperacute purulent, or acute membranous conjunctivitis. Several studies published from SankarNethralaya, Chennai, have shown the prevalence of Chlamydia trachomatis as endemic in India.<sup>12-14</sup> Seasonal outbreaks of adenoviral conjunctivitis are known to occur in India. Microbial keratitis is a common, potentially sight-threatening ocular infection that may be caused by bacteria, fungi, viruses, or parasites. The relative frequency of different bacteria as causative agents in keratitis may vary geographically. Pneumococcal keratitis is commonly associated with chronic dacryocystitis.<sup>15</sup> Older population studies estimate

a prevalence of 15-20% of allergic conjunctivitis, but more recent studies implicate rates as high as 40%.<sup>16</sup> Both local and systemic allergic reactions may involve the eye, the conjunctiva being commonly affected. Vernal conjunctivitis is a form of allergic conjunctivitis causing disturbances of routine daily activities due to severe itching, foreign body sensation, photophobia and mucous discharge.<sup>17</sup> Males have an earlier presentation of symptoms than females and the male to female ratio decreases with age.<sup>18</sup> VKC is more common in hot and dry regions of the Indian subcontinent. It is unusual in most of North America and Western Europe.<sup>19</sup> A study conducted in school children of Karachi by Baig R et al in 2010 showed a prevalence of allergic conjunctivitis of 19.2 % which is close to the findings of this study (20.9%).<sup>20</sup>

#### **CONCLUSION:**

The pattern of the diseases observed in this study is similar to the findings from other parts of the developing world in spite of variability of methods for calculating causes. The study is thus helpful in obtaining an idea about the epidemiology of ocular diseases for proper planning and management in the hospital. Programs should be put in place following the guidelines and strategies of vision 2020 to help in reducing the burden of ocular diseases.

Funding: No funding sources

Conflict of interest: None declared

#### **REFERENCES**

1. Satoskar RS, Rege NN, Bhandarkar SD. Pharmacology and pharmacotherapeutics, Revised 23rd ed., Mumbai, India, Popular Prakashan 2013; 1(2):139-150.
2. Friek KD, Foster A. The magnitude and costs of global blindness: An increasing problem that can be alleviated. *Am J Ophthalmol.* 2003;135(4):471-6.
3. Able RS, Able AD. Ocular diseases: In Avery's drug treatment, 4th ed, Adis International. 1997:581-605.
4. Sihota R, Tandon R. Parson's Diseases of the eye, 20th ed. 2007:523,524,529.

5. Edema OT, Okojie OH. Pattern of eye diseases in Benin City, Nigeria. *Afr J Med Pract.* 1997;4:86-90.
6. Ogwurike SC. Ocular diseases at Iere local government outreach post in Kaduna State of Northern Nigeria. *WAJM.* 2007;26(1):20-3.
7. Akinsola FB, Majekodunmi AA, Obowu CB, Ekanem EE. Pattern of eye diseases in adults 16 years and above in Alimoso local government areas of Lagos State. *Nig Postgrad Med J.* 1995;2:56-61.
8. Rizyal A, Shakya S, Shrestha RK, Shrestha S. A study of ocular morbidity of patients attending a satellite clinic in Bhaktapur, Nepal. *Nepal Med Coll J.* 2010;12(2):87-9.
9. Gangwar A, Singh R, Singh S, Sharma BD. Pharmaco epidemiology of drug utilized in ophthalmic outpatients and inpatient Department of tertiary care Hospital. *J Appl Pharmaceut Sci.* 2011;1(9):135-40.
10. Prajapati VI, YadaV AK. Drug use in ophthalmology outpatient department: a prospective study at a tertiary care teaching hospital. *Indian J Pharm Pract.* 2012;5(2):44-8.
11. Rajkarnikar S, Gurung A, Bist RR, Shrestha R, Shrestha SM. Pattern of Ophthalmological diseases in the patients of Shree Birendra Hospital. *Med J Shree Birendra Hospital.* 2010;9:30-7.
12. Rao SK, Madhavan HN, Padmanabhan P, Lakshmi GS, Natarajan K, Garg D. Ocular chlamydial infections: clinicological microbiological corrections. *Cornea.* 1996;15:62-5.
13. Madhavan HN, Rao SK, Natarajan K, Sitalakshmi G, Jayanthi I, Roy S. Evaluation of laboratory tests for diagnosis of chlamydial infections in conjunctival specimens. *Indian J Med Res.* 1994;100:5-9.
14. Das S, Sharma S, Sahu SK, Nayak SS, Kar S. New antimicrobial spectrum of epidemic keratoconjunctivitis: Clinical and laboratory aspects of an outbreak. *Br J Ophthalmol.* 2008;92:861-2.
15. Aasuri MK, Reddy MK, Sharma S, Rao GN. Cooccurrence of pneumococcal keratitis and dacryocystitis. *Cornea.* 1999;18:273-6.
16. Rosario N, Bielory L. Epidemiology of allergic conjunctivitis. *Curr Opin Allergy Clin Immunol.* 2011;11(5):471-6.
17. Kosrirkvongs. Allergic conjunctivitis. *Asian Pac J Allergy Immunol.* 2001;19:237-44.
18. Bonini S, Lambiase A, Sgrulletta R, Bonini S. Allergic chronic inflammation of the ocular surface in vernal conjunctivitis. *Curr Opin Allergy Clin Immunol.* 2003;3(5):381-7.
19. Bremond-Gignac D1, Donadieu J, Leonardi A, Pouliquen P, Doan S, Chiambarretta F, et al. Prevalence of Vernal Keratoconjunctivitis: a rare disease? *Br J Ophthalmol.* 2008;92(8):1097-102.
20. Baig R, Ali AW, Ali T, Ali A, Shah MN, Sarfaraz A et al. Prevalence of allergic conjunctivitis in school children of Karachi. *J Pak Med Assoc.* 2010;60(5):371-3.