ORIGINAL ARTICLE

Epidemiological Profile of Patients Undergoing Cataract Surgery in a Tertiary Eye Care Centre

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Abstract

Background: Age related cataract is one of the commonest causes of avoidable blindness in India accounting for 66.2% of total causes. Cataract formation is influenced by many factors such as genetic, environmental, systemic and natural. ***Purpose:*** To study the epidemiological profile of patients with cataract. ***Material and Methods:*** A hospital based, cross-sectional study was carried out which included 160 patients with cataract, who attended Eye OPD between September 2019 to March 2020. Distance visual acuity was recorded with Snellen visual acuity chart. Intra-ocular pressure (IOP) was recorded with non-contact tonometer. ***Results:*** Maximum prevalence of cataract was seen in the age group of 51-60 years (34.4%) and 61-70 years (34.4%). Females were more commonly affected (50.62%) as compared to males (49.38%). Most of the patients presented with bilateral cataract (63.13%). Majority of the patients (36.25%) presented with visual acuity between 5/60 -1/60. Nuclear cataract was more common (53.13 %) than cortical cataract (46.87%). Sixty percent patients had IOP between 10-15 mm of Hg. Among the systemic risk factors, 16.25% patients had history of hypertension, 11.25% patients had history of type 2 diabetes mellitus. ***Conclusion:*** In our study, increasing age and female gender were commonly associated with cataract. Most of the patients had bilateral cataract at presentation and majority had low vision at presentation. Hypertension and type 2 diabetes mellitus were associated with cataract.

Key Words

Cataract, Blindness, Intraocular pressure, Hypertension, Diabetes Mellitus

Introduction

World Health Organization defines cataract as the clouding of lens of the eye which prevents clear vision. Although most cases of cataract are related to ageing process, occasionally children are born with the condition, or a cataract may develop after eye injuries, inflammation, and some other eye diseases (1). Age related cataract is one of the commonest causes of avoidable blindness in India. National Blindness and Visual Impairment Survey has shown that cataract is the leading cause of blindness in India, accounting for 66.2% of total causes (2).

Cataract formation is influenced by many factors such as genetic, environmental, systemic and natural (3). Lack of proper diet, diarrhoea, dehydration, prolonged Ultra-violet light exposure are some the factors linked to cataract. Cataract surgery with posterior chamber lens implantation is the treatment, which leads to improvement in quality of life, cognitive function and productivity. Most of the people in India lack access to health care facilities, amounting to increased burden of cataract related

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blindness in India (4).

A number of studies have been conducted in western world related to problem statement of cataract, but such a study is lacking in our setup. In recent times, some studies have been conducted in Asia also (5-7). Study of cataract profile gives information about age, gender distribution, laterality, intraocular pressure distribution and associated systemic diseases among cataract patients. Therefore, present study was conceptualized to the study the epidemiological profile of cataract patients.

Material and Methods

This hospital based, observational, cross-sectional study was carried out in Govt. Medical College, Jammu, a tertiary care teaching hospital, over a period of six months from September 2019 to March 2020 after taking ethical clearance from institutional ethics committee vide letter number IEC/GMC/2020/131. 160 patients with cataract, who fulfilled the following criteria were included in the study after explaining the purpose of the study. Informed consent was taken from each patient.

Patients above 40 years of age and of either gender with cataract were included in the study. Patients having congenital cataract, history of ocular trauma, glaucoma and anterior chamber and posterior chamber malformations were excluded from the study. A detailed history regarding ocular and systemic diseases was taken. Distance visual acuity was recorded with Snellen visual acuity chart. Intraocular pressure (IOP) was recorded with non-contact tonometer. A detailed slit lamp evaluation was done for evaluation of anterior segment and grading of cataract. Fundus examination was done with 90D non-contact slit lamp biomicroscopy and indirect ophthalmoscopy. All the collected data was entered in Microsoft excel and subsequently expressed as percentages.

Results

The epidemiological profile of patients is presented in *Table 1*. Maximum prevalence of cataract was seen in the age group of 51-60 years (34.4%) and 61-70 years (34.4%), followed by age group of 40-50 years (17.5%) , 71-80 years (11.8%) and more than 80 years (1.8%). Females were more commonly affected (50.62%) as compared to males (49.38%).

Most of the patients presented with bilateral cataracts (63.13%) followed by involvement of left eye (20.62%) and right eye (16.25%). Nuclear cataract was more common (53.13%) than cortical cataract (46.87%). Sixty percent patients had IOP between 10-15 mm of Hg, followed by 31.26% patients who had IOP between 16-20 mm of Hg. Only 4.37% patients had IOP above 21 mm of Hg.

Table 1: Epidemiological Profile of Patients with Cataract (n=160)

Mean Age (± SD)	60.03 ± 9.90 years	
	Number	**Percentage**
Gender		
Females	81	50.62%
Males	79	49.38%
Laterality		
Bilateral	101	63.13%
Right	26	16.25%
Left	33	20.62%
Visual Acuity		
>6/24	12	7.50%
6/36 - 6/60	46	28.75%
5/60 - 1/60	58	36.25%
<1/60	44	27.50%
Type of cataract		
Cortical	75	46.87%
Nuclear	85	53.13%
IOP distribution		
<10	7	4.37%
10-15	96	60.00%
16-20	50	31.26%
>21	7	4.37%
Systemic Risk factors		
Hypertension	26	16.25%
Diabetes	18	11.25%
Both hypertension and diabetes	18	11.25%
Hypothyroidism	3	1.87%
Joint pains	3	1.87%
Breathlessness	6	3.75%
No systemic disease	86	53.76%

Majority of the patients (36.25%) presented with visual acuity between 5/60 - 1/60 followed by 28.75% patients with a visual acuity of 6/36 - 6/60. 27.5% patients had visual acuity <1/60 and 7.5% patients presented with visual acuity of >6/24.

Among the systemic factors, 16.25% patients had history of hypertension, 11.25% patients had history of type 2 diabetes mellitus and 11.25% patients had both hypertension and diabetes. Six patients had history of breathlessness. Three patients each had history of hypothyroidism and joint pains.

Discussion

Maximum prevalence of cataract was seen in the age group of 51-60 years and 61-70 years (34.4%). Females were more commonly affected than males. Both eyes were involved in majority of the patients (63.12%). Most of the patients (36.25%) had visual acuity between 5/60 - 1/60. Nuclear cataract was more common (53.13%) than cortical cataract (46.87%). Sixty percent patients had IOP between 10-15 mm of Hg. Hypertension was most common systemic factor present in cataract patients.

Shori *et al.* (8) found maximum prevalence of cataract in the age group of 51-60 years (37%) followed by age group of 61-70 years (30%), similar to our study. In their study females were more commonly affected (59%), corroborating with our study. They found that cortical cataract was more prevalent (86%) than nuclear cataract, which is opposite to our study. Vashist *et al.* (9) noted that nuclear cataract was most common type of cataract in North India (48%) and South India (38%). They also noted that prevalence of cataract was more common in females. Both these findings correlate with our study.

Avachat *et al.* (10) found that cataract was more common in the age group of 60-80 years (55%). They noted that males were more commonly affected (61.7%) as compared to females. This is in contrast to our study, where females were more commonly affected. In their study 52.5% patients had bilateral cataract which also correlates with our study. Nirmalan *et al.* (11) found that nuclear cataract was more common as compared to cortical cataract. In their study females were more commonly affected. Xu *et al.* (12) in their study in Chinese population found that prevalence of nuclear cataract was 82%, which is much higher than our study and prevalence of cortical cataract was around 10.3%. Murthy *et al.* (13) found that nuclear cataract was the more common (56.9%) as compared to cortical cataract (21.6%). 20.6% patients had sub-capsular opacity in their study. These findings correlate with our study where nuclear cataract was more common.

Seah *et al.* (14) in their study in Singapore found that prevalence of cataract was similar in both the genders. The prevalence of nuclear cataract was 22.6%, followed by cortical cataract (23.9%), and posterior subcapsular opacity (7.0%). Aarthi *et al.* (15) in their study found that 37.46% patients with cataract belonged to age group of 60-69 years and cataract was more prevalent in males (66.9%) as compared to females (60.4%). In their study, 26.6% patients had visual acuity between 6/18-6/60, similar to our study. In their study, only 10.6% patients had visual acuity between 6/60-3/60.

McCarty *et al.* (16) found that age, female sex, duration of diabetes mellitus more than five years duration, presence of arthritis, gout of more than 10 years duration, presence of myopia, patients using oral beta-blockers and exposure to UV radiation as risk factors for development of cataract. In our study, female gender was more affected with cataract. Diabetes and joint paints were found as systemic factors among cataract patients. Tsai *et al.* (17) in their study reported that women had a higher prevalence of cataracts and prevalence of age-related cataracts increased with age. In their study, nuclear opacity was the most common type (38.9%), followed by cortical opacity (21.9%) and posterior subcapsular opacity (9.2%). After the final logistic regression model, increased age and female gender were factors that were associated with an increased risk for all types of cataracts. Cigarette smoking, higher systolic blood pressure and history of diabetes were the most significant risk factor for cataracts.

Conclusion

In our study, increasing age and female gender were commonly associated with cataract. Most of the patients had bilateral cataract and low vision at presentation. Hypertension and type 2 diabetes mellitus were associated with cataract.

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Conflicts of Interest
There are no conflicts of interest.

References

1. World Health Organizationý. State of the world's sight: VISION 2020: the Right to Sight: 1999-2005. World Health Organization, 2005. [cited 2020 July 17]. Available from: https://apps.who.int/iris/handle/10665/43300
2. National Blindness & Visual Impairment Survey India 2015-2019 - A Summary Report. National Programme for Control of Blindness & Visual Impairment, Directorate General of Health Services, Ministry of Health & Family Welfare, Government of India, New Delhi [cited 2020 July 17] Available from: https://npcbvi.gov.in/writeReadData/mainlinkFile/File341.pdf

3. Ravindran RD, Vashist P, Gupta SK, Young IS, Maraini G, Camparini M, *et al.* Inverse association of vitamin C with cataract in older people in India. *Ophthalmology* 2011;118(10):1958-65.e2.
4. Sundaresan P, Ranindran RD, Vashist P, Shanker A, Nitsch D, Talwar B, *et al.* EPHA2 polymorphisms and age-related cataract in India. *PLoS ONE* 2012;7(3):e33001.
5. Wong TY, Loon SC, Saw SM. The epidemiology of age related eye diseases in Asia. *Br J Ophthalmol* 2006;90(4):506-11.
6. Athanasiov PA, Casson RJ, Sullivan T, Newland HS, Shein WK, Muecke JS, *et al.* Cataract in rural Myanmar: prevalence and risk factors from the Meiktila Eye Study. *Br J Ophthalmol* 2008;92(9):1169-74.
7. Husain R, Tong L, Fong A, Cheng JF, How A, Chua WH, *et al.* Prevalence of cataract in rural Indonesia. *Ophthalmology* 2005;112(7):1255-62.
8. Shori C, Shori R, Laxmiprasad G, Alli A. A study of clinical and ophthalmologic profile of patients undergoing cataract surgery. *Int J Res Med Sci* 2017;5(5):2229-32.
9. Vashist P, Talwar B, Gogoi M, Maraini G, Camparini M, Ravindran RD, *et al.* Prevalence of cataract in an older population in India: the India study of age-related eye disease. *Ophthalmology* 2011;118(2):272-78.e1-2.
10. Avachat SS, Phalke V, Kambale S. Epidemiological correlates of cataract cases in tertiary health care center in rural area of Maharashtra. *J Family Med Prim Care* 2014;3:45-47.
11. Nirmalan PK, Krishnadas R, Ramakrishnan R, Thulasiraj RD, Katz J, Tielsch JM, *et al.* Lens opacities in a rural population of southern India: the Aravind Comprehensive Eye Study. *Invest Ophthalmol Vis Sci* 2003;44(11):4639-43.
12. Xu L, Cui T, Zhang S, Sun B, Zheng Y, Hu A, *et al.* Prevalence and risk factors of lens opacities in urban and rural Chinese in Beijing. *Ophthalmology* 2006;113(5):747-55.
13. Murthy GV, Gupta SK, Maraini G, Camparini M, Price GM, Dherani M, *et al.* Prevalence of lens opacities in North India: the INDEYE feasibility study. *Invest Ophthalmol Vis Sci* 2007;48(1):88-95.
14. Seah SK, Wong TY, Foster PJ, Ng TP, Johnson GJ. Prevalence of lens opacity in Chinese residents of Singapore: the tanjong pagar survey. *Ophthalmology* 2002;109(11):2058-64.
15. Aarthi R, Roy G, Kar SS, Srinivasan R. Prevalence of cataract among adults above 50 years in a rural community of Villupuram, Tamil Nadu. *Int J Adv Med Health Res* 2015;2:50-54.
16. McCarty CA, Mukesh BN, Fu CL, Taylor HR. The epidemiology of cataract in Australia. *Am J Ophthalmol* 1999;128(4):446-65.
17. Tsai SY, Hsu WM, Cheng CY, Liu JH, Chou P. Epidemiologic study of age-related cataracts among an elderly Chinese population in Shih-Pai, Taiwan. *Ophthalmology* 2003;110(6):1089-95.