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Original Research Article

Systemic and Ocular Co-Morbidities among Cataract Surgery Patients in a Tertiary Hospital

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Abstract:

Background: Cataract accounts for 41.8% of global blindness and 81% of blindness in India. By 2020, the elderly population in India is expected to double further increasing the number of blind people. Aim of this study to assess the frequency of systemic and ocular co-morbidities among the patients seeking cataract surgery in a tertiary hospital.

Methods: This was a retrospective cross sectional study. All patients with senile cataract seeking cataract surgery in Department of Ophthalmology, DMCH, Laheriasarai, Bihar from December 2020 to June 2021 were included.

Results: Out of 448 patient's case records reviewed, there were 218(48.66%) males and 230(51.34%) females. 147 (32.81%) patients had systemic co-morbidity and 66 (14.73%) had concurrent ocular disease. Among the systemic co-morbidities, commonest was diabetes mellitus in 61(13.62%), followed by hypertension in 42(9.38%) and renal disease in 16(3.57%) patients. Among the ocular co-morbidities age related macular degeneration was the commonest seen in 19 (4.24%) cases, followed by diabetic retinopathy in 15 (3.35%) patients.

Conclusion: Systemic and ocular co-morbidities are prevalent among the cataract surgery seeking population, which needs to be identified by the ophthalmic surgeons and systemic illness needs to be adequately controlled before surgery while ocular problems need prompt intervention with a close follow-up for a better quality of life.

Keywords: Ocular problem, Senile cataract, Systemic illness.

Introduction

Cataract remains responsible for half of the global blindness burden. [1] Approximately 90% of cataract blindness occurs in low- and middle-income countries. In India cataract has been reported to be responsible for 50-80% of bilateral blindness. [2,3] The prevalence of cataract in south India was reported as 53%.[3] Cataract surgery is one of the safest and most commonly performed ophthalmic surgical procedures. Variation in patients' preoperative co-morbidities can have a significant effect on the outcomes of cataract surgery. [4] The reported prevalence of ocular co-morbidities in patients undergoing cataract surgery ranges from 26% to 49%. [5-7] Systemic co-morbidities may be present in as many as 80% of patients. [5] The presence of ocular co-morbidities is associated with generally poor cataract surgical outcomes, including poorer vision, reduced visual function and quality of life. [8-10] India has a rapidly increasing prevalence of non-communicable disease like diabetes mellitus, hypertension and cardiac disease. [11] The cost of surgery to public health system increases if the cataract patients selected for surgery have associated systemic co-morbidity. The knowledge of systemic co-morbidity reflects the need for extra health care services and allocation of resources for these patients. Our study aimed to assess the frequency of systemic and ocular co-morbidities among the cataract surgery patients.

Materials and Methods

The cross-sectional study was carried out by descriptive analysis of medical records of 448 cataract patients who underwent cataract surgery in

Department of Ophthalmology, Darbhanga Medical College and Hospital, Laheriasarai, Bihar from December 2020 to June 2021. Those who had given a history of ocular trauma were excluded from the study.

All patients had a detailed history taken including medical history, medications and through clinical examination performed, with vital signs, routine blood investigations and urine analysis was recorded. Physician fitness for surgery, Cardiologist and Anesthetic opinion sought in relevant patients with electrocardiogram, chest X-ray, ultra-sonogram, ECHO cardiogram. Patients with known history of systemic disease along with the newly detected systemic illness were noted.

All patients had their visual acuity assessment and complete ocular examination and fundus examination recorded. Intraocular pressure, lacrimal sac syringing, keratometry and axial length measurement for intraocular lens power calculation were recorded. After physician fitness and anesthetist stand by in relevant patients all underwent surgical intervention.

All data variables were analyzed by SPSS statistics version 16.0 software. Continuous variables were expressed as mean ± standard deviation. Categorical variables were presented as frequencies (%). Prevalence rates for medical co-morbidities were person-specific and prevalence rates for ocular co-morbidities were eye-specific.

Results

A total of 448 patients underwent cataract surgical procedures in ophthalmology department of DMCH. There were 218(48.66%) males and 230(51.34%) females.

The ages ranged between 50–76 years with mean age of 64.6 ± 7.2 years. There were 251 (56.03%) surgeries in right eye, and 197 (43.97%) in left eye. Cataract types were mostly cortical cataract in 75.89%, followed by mature cataract in 12.95%, nuclear cataract in 9.38%, and hyper mature cataract in 1.78% of the patients. Ninety-eight (21.86%) had their first eye operated previously.

There were 147 (32.81%) patients who had systemic co-morbidity.

The most common co-morbidity was diabetes mellitus in 61(13.62%), followed by hypertension in 42(9.38%), renal disease in 16(3.57%), bronchial asthma in 8(1.79%), pulmonary tuberculosis in 6(1.34%), ischemic heart disease in 5(1.12%), Senile Pruritis in 3(0.67%), Chronic Urticaria in 2 (0.45%), Hand Eczema, Acral Vitiligo, Left Primary Vaginal Hydrocele, Ca Breast in one patient each. Table 1 shows the proportion of patients found to have systemic co-morbidity.

Table 1: Systemic diseases in age related cataract patients

Systematic co-morbidities	No. of cases	Percentage
Diabetes Mellitus	61	13.62%
Hypertension	42	9.38%
Renal disease	16	3.57%
Bronchial Asthma	8	1.79%
Pulmonary tuberculosis	6	1.34%
Ischemic Heart Disease	5	1.12%
Senile Pruritis	3	0.67%
Chronic Urticaria	2	0.45%
Hand Eczema	1	0.22%
Acral Vitiligo	1	0.22%
Left Primary Vaginal Hydrocele	1	0.22%
Ca Breast	1	0.22%

About 66 (14.73%) had concurrent ocular disease. The most common ocular co-morbidity was Age related macular degeneration in 19 (4.24%), followed by diabetic retinopathy in 15 (3.35%), pseudo-exfoliation in 10 (2.23%), and corneal opacity in 8(1.79%). All ocular co-morbidities are listed in Table 2.

Table2:Coexistingoculardiseasesin cataract patients

Ocularco-morbidity	No. of cases	Percentage
AgeRelatedMacular Degeneration	19	4.24
Diabeticretinopathy	15	3.35
Pseudo-exfoliation	10	2.23
Cornealdisease	8	1.79
Glaucoma	5	1.12
EpiRetinalMembrane	4	0.89
Myopicdegeneration	3	0.67
Macularhole	2	0.45

All patients had their surgical intervention after their control of their systemic co-morbidities by the physician of the concerned specialties. None of the operated subjects had intra-operative or postoperative complications related to the co-morbidities.

Discussion

In India as per the National survey on blindness (2001- 2002) there is an annual incidence of two million cataract induced blindness. [12] Two fifth of all global blindness are caused by cataract. [13] Cataract is usually seen above 50 years of age and almost universal in varying degrees in persons above 70 years. Diabetes is known to be strongly associated with cortical and posterior sub capsular cataract and with earlier cataract surgery. [14] The prevalence of diabetes had been reported as 14.2% in persons aged more than 50 years in Puducherry. [15]

In the present study the prevalence of diabetes among cataract cases was 13.62% while the Auckland cataract study reported as 20% next only to hypertension in 46% of their study population. [5] In India studies had reported diabetes prevalence as 5.9% in Rajahmundry, Andhra Pradesh [16] and similar report in Erode, Tamil Nadu too. [17] Prevalence of hypertension was 9.38% in our study, while rest had reported as 7.82% in Erode study, [17] 20.59% in Rajahmundry. [16]

Renal disease were found in 3.57% which is similar to study in Riyadh, Saudi Arabia (3.1%). [18] Bronchial asthma was noted in 1.79% while in Riyadh 10.6% [18] and in Auckland it was reported as 11%. [5] Pulmonary tuberculosis was noted in 1.34% while in Chandigarh reported as 0.57%. [19] ischemic heart disease were noted in 1.12% in our study while it was reported as 2.31% in Chandigarh, [19] 15.9% in Riyadh. [18]

Among our study people 14.73% had exhibited coexisting ocular disease, while the Auckland cataract study reported as 26% [5] and in Riyadh as 15%. [18] Age related macular degeneration the commonest among our study population 4.24%, while in Sydney 12.6%, [6] 5.1% in Auckland, [5] 0.2% in Riyadh. [18] Diabetic retinopathy was noted in 3.35%, and was reported as 9.0%, 7.6% and 5.1% respectively in Sydney, [6] Auckland [5] and Riyadh. [18] Pseudo-exfoliation noted in 2.23% of subjects while it was reported as 5.6% in Riyadh. [18] Corneal disease was noted in 1.79% in our study similar to 1.4% in Sydney. [6] Glaucoma was seen in 1.12% while rest of the studies showed higher values as 4.6%, 9.2% and 10.6% respectively in Riyadh, [18] Auckland [5] and Sydney. [6]

Determining preoperative ocular status is important because it can influence the visual outcome after cataract surgery. Preoperative ocular co-morbidity has been shown to be strongly predictive of poor postoperative visual outcomes. [8-10,20] The preoperative identification of systemic co-morbidities and their adequate control coordinated with the specified medical expert faculties would avoid intra-operative and post-operative complications. The results of this study indicate a high prevalence of Non-Communicable Disease in patients operated for cataract surgery in our region and ocular co-morbidities among them. This would be helpful in planning and allocating the resources for effective management of cataract patients.

Conclusion

In conclusion early identification and adequate control of any identified systemic illness and their proper control will greatly delay the development and progress of complications. A meticulous preoperative examination and postoperative follow-up might lead to better results and improved quality of life for cataract patients.

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