Research Article

Systemic co-morbidity in patients of age related cataract – A retrospective study

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Abstract

Background: Senile cataract is most common cause of blindness in the world. As it is an age related change, it is usually associated with other systemic illness. Our aim is to know the prevalence of other systemic illness (Diabetes Mellitus, hypertension, ischemic heart disease, chronic bronchitis or bronchial asthma and others) in patients attending tertiary health care centre in south India. **Design:** Cross –sectional study of cataract cases requiring surgery between Nov. 2011 and Oct. 2014 at Sri Venkateshwara Medical College and Research Centre, Pondicherry. Patients are screened for cataract at village level camps. The study group consisted of diagnosed cases of senile cataract admitted to the hospital for surgery. **Result:** Out of 949 patients, 13.38% cases were having systemic co-morbidity. Cardio-vascular illness including hypertension were present in 40(4.21%) followed by Diabetes Mellitus 32(3.37%) cases. **Conclusion:** The findings of this study will help in planning and allocating the resources for proper management of cataract surgical patients.

Keywords: Cataract patients, prevalence, systemic co-morbidity.

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INTRODUCTION

Cataract is the principle cause of blindness and visual impairment worldwide affecting approximately 18 million people[1]. The prevalence of cataract in south India is 53%[2]. Currently the sole treatment of cataract is surgical extraction of involved lens with implantation of artificial intra ocular lens. 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. Cataracts are 2-5 times more frequent in diabetic patients and occur at an earlier age[3,4]. Fluctuating levels of sorbitol, fructose and glucose exert harmful osmotic stress within the lens, so control of Diabetes would help to prevent the fluctuations[5]. It has been estimated that 20% of all cataract surgeries are performed on Diabetic patients[6]. Like Diabetes, systemic hypertension was found to increase the incidence of posterior sub-capsular cataracts. Hypertension induces change in the protein structure of lens capsule. It also alters the membrane transport and permeability of ions with increased intra ocular pressure resulting in exacerbation of cataract formation[7]. Early detection of Hypertension and Diabetes Mellitus in cataract patients will help in prevention of severe complications.

MATERIAL AND METHODS

The cross-sectional study was carried out by descriptive analysis of medical records of 949 cataract patients requiring surgery from Nov. 2011 to Oct. 2014 at Department of Ophthalmology at Sri Venkateshwara Medical College and Research centre at Pondicherry. All cases were admitted to hospital for surgery after screening at eye camps. After admission to the hospital, a detailed history was taken and thorough clinical

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examination was performed. Emphasis was placed on history of hypertension and Diabetes Mellitus, duration of disease and medications. Blood pressure was measured by mercury sphygmomanometer and stethoscope. Cases with systolic blood pressure ≥140mm of Hg and/or diastolic blood pressure ≥ 90mm of Hg on two separate occasions were considered hypertensive[8]. Appearance of korotkoff sound was taken as systolic blood pressure (SBP) and disappearance was taken as diastolic blood pressure (DBP). Cases with history of Hypertension regardless of present blood pressure level were also considered hypertensive. A cardiovascular system was examined in detail in each case. A cardiovascular disease was defined by presence of at least one of the following conditions at examination; definite manifestation of coronary heart disease, congestive heart failure or stroke[9]. Chest auscultation was done carefully in each case. In suspected cases of pulmonary disease, chest Xray was done. We used American Thoracic Society criteria to label bronchial asthma or chronic bronchitis[10]. Blood sugar was estimated in fully automated analyzer in the Hospital central laboratory. Blood samples were collected in morning from the patients after overnight fasting and 2 hours postprandial. Patients with FBS ≥126 mg/dl and or postprandial ≥ 200mg/dl were considered diabetic[11]. Urine examination for sugar was performed using Benedict's solution. Known Diabetic persons regardless of their current blood sugar level were considered diabetic along with newly detected diabetic persons. Systemic diseases were controlled for a minimum period of one week before surgery. Cases with visual impairment due to corneal disorders, glaucoma and lens abnormalities other than cataract, vitreous disorders and retinal disorders were excluded from the study.

RESULTS

A total of 949 cataract operations were performed during this three years period among persons aged 50 yrs or older. 502(52.89%) were females while 447(47.10%) were males. The mean age was higher among cataract cases with hypertension while mean age was lower in cataract cases with diabetes. Systemic diseases (Table 1) was associated in 127 (13.38%) cases. The prevalence of hypertension was greater among females whereas prevalence of diabetes was more in males. The most frequent illness was cardiovascular diseases including hypertension 40(4.21%) followed by Diabetes Mellitus 32(3.37%) followed by pulmonary diseases 24(2.52%). Oro-dental disorders in 15(1.58%) and skin disorders in 7(0.73%). One female patient had uterus prolapse.

Table 1: Systemic diseases in age related cataract patients

Disease	No. of patients (%)	Male	Female
Diabetes Mellitus	32(3.37%)	18	14
Hypertension	44(4.63%)	19	25
Cardiac arrhythmias	4(0.42%)	3	1
Ischemic heart disease	2(0.21%)	1	1
Bronchitis/ bronchial asthma	24(2.52%)	15	9
Oro-dental	15(1.58%)	10	5
Scabies	2(0.21%)	1	1
Eczema	3(0.31%)	2	1
Uterus prolapse	1(0.10%)	-	1
Total	**127(13.38%)**	**69**	**58**

DISCUSSION

Cataract is one of the most significant problems in India. According to national survey on blindness (2001-2002), there is an annual incidence of two million cataract induced blindness in India[12]. Two fifth of all global blindness are caused by cataract[13]. Persons with diabetes develop cataract at younger age with faster progression[14]. The complications of cataract surgery are greater in hypertensive cases. This study documents the frequency of systemic co-morbidity among patients attending tertiary health centre in South India for cataract surgery during 36 month period. Prevalence of hypertension among cataract patients was 4.63% in our study. Studies in different parts of world showed different prevalence rates. In Chandigarh, India 4.1%[15], in Erode, India 7.82%[16], in Rajahmundry, India 20.59%[17] and in Karachi, Pakistan 43.75%[18]. In present study, the prevalence sstudies[16,17]. The prevalence of hypertension was higher among females and the prevalence of diabetes was more among males. As the cases were not selected randomly and majority of cases were screened from camp, the study sample may not be representative of general population. The intra-operative and post-operative complications are more in uncontrolled diabetes and hypertension. To avoid such complications, early detection and good control of both sugar and blood pressure are prerequisites[19]. Early detection of diabetes and hypertension among cataract cases and their proper control will greatly delay the development and progress of complications.

CONCLUSIONS

The findings of study will help in planning and allocating the resources for proper management of cataract patients.

REFERENCES

1. World Health Organization. Http:// www.who.int/blindness/cause.
2. Vashist P, Talwar B, Gogoi M, Maraini G, Camparini M, Ravindran RD, Murthy GV, Fitzpatrick KE, John N, Chakravarthy U, Ravilla TD, Fletcher AE. Prevalence of cataract in an older population in India: the India study of

age-related eye disease. Ophthalmology. 2011 Feb; 118 (2):272 -278.
3. Klein BE, Klein R, Moss SE. Incidence of cataract surgery in the Wisconsin Epidemiologic Study of Diabetic Retinopathy. Am J Opthalmol 1995; 119:295-300.
4. Klein BE, Klein R, Wang Q, Moss SE. Older-onset diabetes and lens opacities. The Beaver Dam Eye Study. Opthalm Epid 1995;2: 49-55.
5. Pirie A and R van Heyningen. Exp. Eye Res., 1964, 3, 124.
6. Hamilton AMP, Ulbig MW, Polkinghorne P. (Eds): Epidemiology of diabetic retinopathy. In: Management of diabetic retinopathy. London: BMJ Publishing Group, 1996: 1-15.
7. Johns KJ, Feder RS, Rosenfeld SI, *et al*. Lens and cataract. In: American Academy of Ophthalmology Basic and Clinical Science Course. Vol.11. 1999-2000.
8. Williams GH. Approach to the patient with hypertension. In: Braunwald E, Fauci AS, Kasper DL, Hauser SL, Longo DL, Jameson JL, editors. Harrison's Principles of Internal Medicine. 15th ed. New York: McGraw-Hill; 2001; Vol. 1: 211-214.
9. Shurt-leff D. some characteristics related to incidence of cardiovascular diseases and death. Framingham study, 18 years follow up. Section 30. In:Kannel WB, Gordon T (eds) 'The Framingham study. An epidemiological investigation of cardiovascular disease.' US Department (Public health survey Publication No. (NIH) 74-599)
10. Meneely D, Steele JR, Wyath JP. Chronic bronchitis, asthma and pulmonary emphysema. Am Rev Resp Dis 1962; 85: 762-8
11. WHO (2006), Definition and diagnosis of diabetes mellitus and intermediate hyperglycemia,http://whqlibdoc.who.int/publications/2006/9241594934_eng.pdf,
12. Park K. Park's text book of Social and Preventive Medicine, 20th edition Jabalpur: M/s Banarsidas Bhanot Publishers 2010; 314-358
13. Snellingen T, Shrestha BR, and Gharti MP, Shrestha JK. Socioeconomic barriers to cataract surgery in Nepal: the South Asian cataract management study. Br J Opthalmol 1998; 82:1424-1428.
14. Sihota R and Tandon R. Parson's diseases of eye. New Delhi. Elsevier 2011. 21st ed: 260, 552.
15. . Ram J, Pandav SS, Ram B, Arora FC. Systemic diseases in age related cataract patients. Int Ophthalmol. 1994; 18(3):121-125.
16. Venkateswaramurthy N, Fathah MAA, Perumal P. Prevalence of diabetes mellitus and arterial hypertension in ocular disorders: International Journal of Pharmacy and Technology . 2011; 3(2): 2765-2771.
17. B Behera, K Satish, S Jena, M Hussain, S Samal. Prevalence Of Hypertension And Diabetes Mellitus Among People Seeking Cataract Surgery In Rural South India. ISPUB.com / IJE/10/2/13984
18. Shakil M, Ahmed ST, Samiullah S, Perveen K, Sheikh S, Humaira A, Khoja A. Influence of hypertension and diabetes mellitus on senile cataract. Pak J Physiol 2008; 4(2):30-32.
19. Ramamurthy B.Cataract surgery in diabetes in Das T, Rani A, Diabetic eye diseases. New Delhi. Jaypee Brothers Medical Publishers (P) Ltd.2006 First Ed: 173-184.

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