

Original Article

Assessment of Risk Factors in Patients with Cataract- A Clinical Study

Rosy Karki

Lecturer, Department of Ophthalmology, Devdaha Medical College and Research Institute, Nepal

ABSTRACT:

Background: Among various eye diseases leading to blindness, cataract is the most common one. Cataract is the reason for visual impairment throughout the world. The present study was conducted to assess the cases of cataract in the study population. **Materials & Methods:** It included 1250 subjects of both genders. General information such as name, age, gender, history of hypertension, diabetes mellitus and socio-economic status were recorded. Ocular examination was performed using torch & distant direct ophthalmoscopy by ophthalmologist. **Results:** Out of 1250 patients, males were 735 and females were 515. The difference was non-significant ($P=0.2$). Age group 40-50 years had 60 males and 75 females, 50-60 years had 80 males and 105 females, 60-70 years had 110 males and 140 females and >70 years had 485 males and 195 females ($P<0.05$). 410 males were literate and 325 were illiterate whereas 235 females were literate and 280 were illiterate. The difference was non-significant ($P>0.05$). 40% males had hypertension and 48% had history of diabetes mellitus. 37% females had hypertension and 52% had history of diabetes mellitus. The difference was non-significant ($P>0.05$). 83% had positive family history of cataract. The difference was significant ($P<0.05$). **Conclusion:** Cataract is commonly seen in older subjects. Risk factors include diabetes, hypertension etc. Family history also plays vital role. Early detection and timely treatment is the key to prevention.

Key words: Blindness, Cataract, Diabetes mellitus, Hypertension.

Corresponding author: Dr. Rosy Karki, Lecturer, Department of Ophthalmology, Devdaha Medical College and Research Institute, Nepal

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INTRODUCTION

Blindness has higher mortality and morbidity but it also affects socio-economic development. India faces major demographic changes that lead to age related diseases. Among various eye diseases leading to blindness, cataract is the most common one. Cataract is the reason for blindness and visual impairment throughout the world and is likely to present an increasing burden to health care systems as the world's population ages due to increased life expectancy.¹

A cataract is a clouding of the lens in the eye. This results in decrease in vision. It starts slowly in first eye and can spread to second eye too. The common features are faded colors, blurry vision, halos around light, trouble with bright lights, and trouble seeing at night. This may result in trouble driving, reading, or recognizing faces. Poor vision caused by cataracts may also result in an increased risk of falling and depression. Cataracts are the cause of half of blindness and 33% of visual impairment worldwide.²

There is need to discover the risk factors associated with the condition. The early detection of the disease can prevent

developing the condition and hence the vision may be preserved. Among various causative factors aging is considered to be the common. There can be trauma or radiation exposure, be present from birth, or occur following eye surgery for other problems. Risk factors include diabetes, smoking tobacco, prolonged exposure to sunlight, and alcohol. WHO survey shows, there is a backlog of 12 million blind eyes in India, of which cataract contributes 80% have vision of <20/200 in better eye on presentation.³

It has been observed that with ageing, lens proteins denature and degrade and diseases such as diabetes mellitus and hypertension trigger it. Environmental factors, including toxins, radiation, and ultraviolet light, have cumulative effects, which are worsened by the loss of protective and restorative mechanisms due to alterations in gene expression and chemical processes within the eye.⁴ The present study was conducted to assess the cases of cataract in the study population.

MATERIALS & METHODS

The present study was conducted in the department of Ophthalmology. It included 1250 subjects of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was taken prior to the study from institutional ethical committee.

General information such as name, age, gender etc was recorded in case history proforma. Other parameters such as

history of hypertension, diabetes mellitus and socio-economic status were also recorded.

Ocular examination was performed using torch & distant direct ophthalmoscopy by ophthalmologist. Results were tabulated and subjected to statistical analysis using chi-square test. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 1250		
Males	Females	P value
735	515	0.2

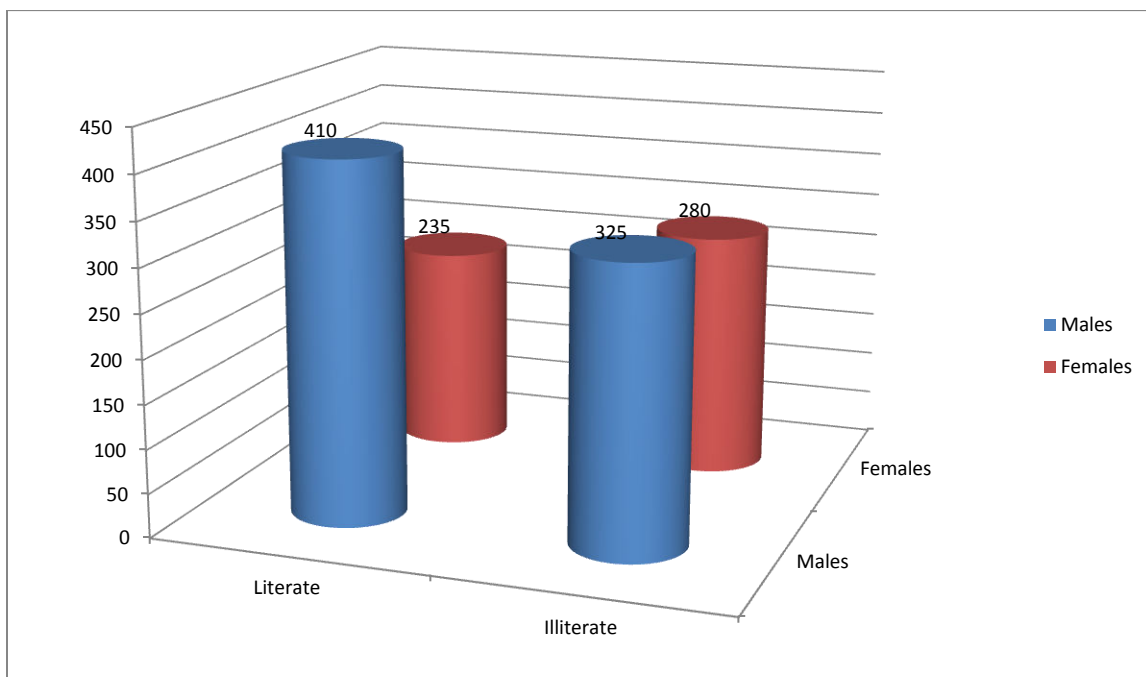
Table I shows that out of 1250 patients, males were 735 and females were 515. The difference was non- significant (P=0.2).

Table II Age wise distribution of patients

Age group (years)	Males	Females	P value
40-50	60	75	0.5
50-60	80	105	0.21
60-70	110	140	0.1
>70	485	195	0.01
Total	735	515	

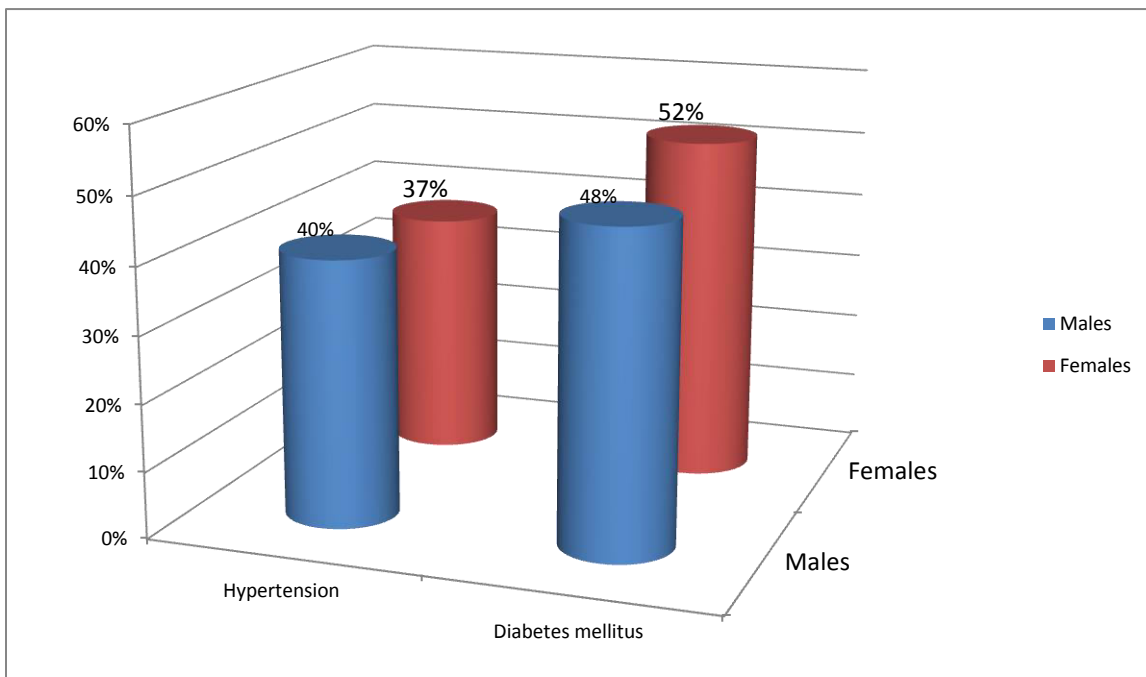
Table II shows that age group 40-50 years had 60 males and 75 females, 50-60 years had 80 males and 105 females, 60-70 years had 110 males and 140 females and >70 years had 485 males and 195 females (P<0.05).

Graph I Literacy status of patients



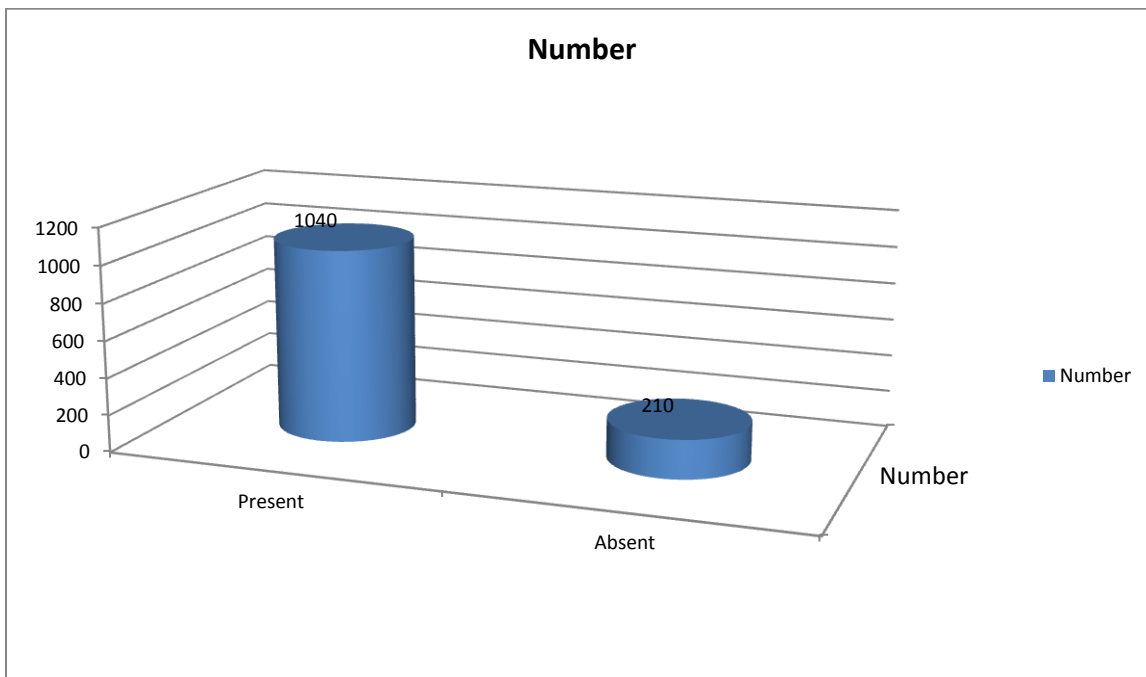
Graph I shows that 410 males were literate and 325 were illiterate whereas 235 females were literate and 280 were illiterate. The difference was non- significant (P> 0.05).

Graph II Medical status of patients



Graph II shows that 40% males had hypertension and 48% had history of diabetes mellitus. 37% females had hypertension and 52% had history of diabetes mellitus. The difference was non-significant ($P > 0.05$).

Graph III Family history of cataract



Graph III shows that 1040 (83%) had positive family history of cataract while 210 (17%) had not history of cataract. The difference was significant ($P < 0.05$).

DISCUSSION

Cataracts may be partial or complete, stationary or progressive, or hard or soft. The main types of age-related cataracts are nuclear sclerosis, cortical, and posterior subcapsular. Nuclear sclerosis is the most common type of cataract, and involves the central or 'nuclear' part of the lens. This eventually becomes hard, or 'sclerotic', due to condensation on the lens nucleus and the deposition of brown pigment within the lens. In its advanced stages it is called a brunescant cataract. This type of cataract can present with a shift to nearsightedness, causing problems with distance vision though reading is less affected.⁵ The present study aimed at recording cases of cataract.

In this study we found that out of 1250 patients, males were 735 and females were 515. We found that maximum patients were seen in age group >70 years (485 males and 195 females) followed by 60-70 years (110 males and 140 females), 50-60 years (80 males and 105 females) and 40-50 years (60 males and 75 females). This is in accordance to Nathan et al.⁶

A study by Limburg et al⁷ found that amongst individuals aged more than 40 years had higher prevalence of cataract as compared to younger population. Leske⁸ found cataract prevalence of 43.3% amongst 50 years and older individuals, increasing from 25.5% among individuals aged 50-59 years to 63% among those aged 70 years and above.

We observed that patients had almost same level of literacy among males and females. The difference was statistical non-significant. We obtained the medical history of patients and found that 40% males had hypertension as compared to 37% females whereas and 48% males had diabetes mellitus as compared to 52% females. This is similar to Broman et al.⁹ 1040 had positive family history of cataract.

It has been observed that trauma causes swelling, thickening, and whitening of the lens fibers. While the swelling normally resolves with time, the white color may remain. In severe blunt trauma, or in injuries that penetrate the eye, the capsule in which the lens sits can be damaged. Ultraviolet light, specifically UVB, has been shown to cause cataracts, and some evidence indicates sunglasses worn at an early age can slow its development in later life.¹⁰

Diabetic patients also have a higher risk of complications after phacoemulsification cataract surgery compared to nondiabetics. It has been shown that the intracellular accumulation of sorbitol leads to osmotic changes resulting in hydropic lens fibers that degenerate and form sugar cataracts. In the lens, sorbitol is produced faster than

it is converted to fructose by the enzyme sorbitol dehydrogenase. In addition, the polar character of sorbitol prevents its intracellular removal through diffusion. It has been observed that cataract is quite common in patients with hypertension. The systolic hypertension leads to ocular hypertension and ultimately cataract may occur.¹¹

CONCLUSION

Cataract is commonly seen in older subjects. Risk factors includes diabetes, hypertension etc. Family history also plays vital role. Early detection and timely treatment is the key to prevention.

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