Original Research Article

RISK FACTORS AND CAUSES OF PRESENILE CATARACT IN PATIENTS ATTENDING GOVERNMENT GENERAL HOSPITAL, TELANGANA STATE

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A B S T R A C T

Background: To find out the common causes and risk factors leading to early onset of cataract (presenile) among patients attending a Government General Hospital in Telangana State.

Material and Methods: A total of 246 eyes of 140 patients in 18-50 years age group were recruited for this study. Brief relevant history was taken and they were thoroughly evaluated to observe the causes and risk factors.

Results: We noticed that Presenile cataract is more common in 31-50 years age group in which males are more common than females. Common risk factors found in our study were outdoor work, smoking and alcohol consumption and significant causes were diabetes, indiscriminate use of steroids and ocular trauma.

Conclusion: Early detection of causes and risk factors can prevent the onset of cataract in presenile age group thereby reducing the already existing burden of cataract in our society.

Key Words: Presenile cataract, smoking, Alcohol, Diabetes, Ocular trauma, Steroids.

INTRODUCTION

Age related senile cataract is one of the leading causes of avoidable blindness worldwide. It is commonly seen in elderly age >50years. It accounts for nearly 48% of avoidable blindness. Presenile cataract is the opacification of the intraocular lens occurring before the age of 50 years.[1,2] Cataract occurs at an early age in developing countries. (3,4) Many risk factors have been proposed which are responsible for the development of cataract at early age which include chronic exposure to sunlight (UV radiation), smoking,[5] alcohol consumption, malnutrition, high myopia, Diabetes Mellitus.[6] Other causes like intraocular inflammation, Ocular trauma and indiscriminate use of steroids. An accumulation of sorbitol causes early denaturation of the lens proteins results in posterior subcapsular cataract in Diabetics.[7] UV radiation causes early degeneration of lens fibres in patients who are working outdoors like agriculture workers and other labours for longer hours. Toxins or toxic products of alcohol and smoking leads to free radicle injury and early onset of cataract.[8] Ocular trauma breaks the capsular integrity resulting in hydration of lens fibres and cataract formation. Glucocorticoids are bound covalently to the lens proteins resulting in destabilization of structure of lens protein allowing oxidation leading to cataract.[9]

In a study conducted by J.P. Mishrikotkar et.al,[10] 4.31% of the study subjects had presenile cataracts. Das et.al,[11] found that patients between the ages of 20 and 50 had presenile cataracts (incidence and prevalence of presenile cataract). This study is conducted to explore the risk factors associated with presenile cataract in Sangareddy district, Telangana state as there are no significant studies available in our population.

MATERIALS AND METHODS

The study was conducted in the Ophthalmology Outpatient Department of Government Medical College

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and General Hospital, Sanga Reddy district, Telangana State over a period of 1 year that is from June 2023 to May 2024. This is a cross-sectional retrospective observational study.

A total of 246 eyes of 140 patients in 18-50 years age group who are willing to participate in the study of both male and female gender belonging to urban and rural population were included in the study.

Patients <18years and >50years, patients who are not willing to participate in the study, patients with congenital and developmental cataract were excluded from the study. Approval from the head of the institution and informed consent was taken as per the protocol.

Detailed clinical history was noted. A questionnaire was prepared to record the information about age, occupation, sociodemographic profile, history of COVID infection and hospital admission for COVID, history of use of glasses, smoking, use of tobacco, alcohol use, dietary pattern, any systemic disorders, long-term drug therapy(steroids), ocular trauma, and hair dye use.

All the selected patients underwent complete ocular examination including assessment of visual acuity using Snellen's chart, Anterior segment examination to identify the type of cataract, Assessment of intraocular pressure, Fundus examination using Indirect Ophthalmoscope, B scan for dense cataracts, A scan for axial length measurement in all cases. Necessary lab investigations were ordered to rule out the causes and risk factors.

RESULTS

The present study included a total of 140 patients. Among them 93(66.42%) were males 47(33.57%) were females. [Table 1]

Out of 140 patients 37 (26.42%) had unilateral cataract and 103(73.57%) had bilateral cataract. Majority of the patients with presenile cataract are rural and low socioeconomic group 118 (84.28%) and few patients are from urban group 22(15.71%). In the present study outdoor work and undernutrition are the most common risk factors followed by smoking and steroid use. [Table 3]

Agricultural workers 63(45%) developed cataract at early age compared to other occupation groups such as civil workers 34(24.28%), labour works 12(8.57%), kitchen work 8(5.7%) and others 23(16.42%). [Table 3]

Smoking was associated with the early development of cataract in 38 patients (27.14%) in our study. Most of the cases are underweight and malnourished (58.57%). Steroid intake was the second most common risk factor in the present study 38 patients (27.14%). There were 9 cases (6.42%) with Diabetes mellitus ,10 cases with history of trauma 10 (7.13%), 12 cases with complicated cataract 12 (8.57%). [Table 4]

Table 1: Patient Demographics

Age group in years	Male	Female	Total
18-30	13	14	27(19.28%)
31-40	34	18	52(37.14%)
41-50	46	15	61(42.57%)
Total (N=140)	93(66.42%)	47(33.57%)	

Table 2: Laterality and resident in present study

Variable	Number of patients	Percentages
Unilateral	37	26.4
Bilateral	103	73.5
Urban	22	15.7
Rural	118	84.2

Table 3: Occupation in present study

Occupation	No. of Patients	Percentage
Agricultural Worker	63	45%
Civil Worker	34	24.28%
Labour Work (Stone Crush/Mining)	12	8.57%
Kitchen Work	08	5.7%
Others	23	16.42%

Table 4: Risk Factors and Causes in present study

Risk Factors And Causes			No. of patients (Percentages)
Addictions	i.	A) Smoking and Tobacco Use	38 (27.14%)
	ii.	B) Alcohol	15 (10.71%)
Nutritional Status	i.	A) Underweight/Malnourished	82(58.57%) 21(15%)
	ii.	B) Overweight	
Diabetes Mellitus			9(6.42%)
Steroid Induced	i.	Covid Related	3(2.14%)
	ii.	Rheumatoid Arthritis and Other Autoimmune Diseases	
	iii.	Joint Pains	5(3.57%)

	iv.	Asthma	24(17.14%) 6(4.28%)
Trauma	i. ii.	Mechanical Surgical	8(5.71%) 2(1.42%)
Complicated Cataract A) Uveitis B) High Myopia C)Renal Dystrophies (RP) D) Glaucoma			2(1.42%) 6(4.28%) 3(2.14%) 1(0.71%)

DISCUSSION

The present study was conducted as there was relatively higher incidence of presenile cataract in patients attending Government General hospital, Sangareddy. Male preponderance was seen in our study in contrast to the female preponderance which was observed in Das, et al,[11] study. This is because of longer duration of exposure to UV light as most of the patients are involved in agricultural activities. An average of 5-6 hours/day of outdoor activity was observed in these cases. Also smoking and alcohol consumption is more common in males. Cumming et.al,[8] study in Australia identified the association of cigarette smoking and dietary deficiencies in vitamins and proteins with cataract.

Beaver Dam Study,[12] concluded significant association of cigarette smoking with cataract.

Among the female patients most of the cases are steroid induced. Among them majority of the patients 24 (17.14%) are on oral prednisolone prescribed for knee pain by the local quacks in villages. In contrast diabetes and idiopathic were common causes of presenile cataract in females in a study conducted by Atiya Rahman et.al,[13] Diabetes is one of the commonest cause of presenile cataract in developing countries due to accumulation of sorbital leading to hydration of lens and alteration of its metabolism .(13)In contrast only 9 cases (6.42%) are diabetic in our study and most of them are from urban area.

Longer duration of working in high humid conditions, occupational exposure to heat, poor general health, indiscriminate use of topical and systemic steroid, occupational trauma were some of the reasons for early development of cataract in rural population (84.28%). Vasudevan M et al,[14] observed risk factors like steroid use, alcohol use, cigarette smoking, and exposure to sunlight were identified.

Trauma (7.13%) was one of the main risk factor in civil and labour workers. Cyanide which is present in the tobacco was reported as harmful to eye in previous studies.[15] In the present study 38 (27.14%) patients who were addicted to smoking and tobacco chewing developed Presenile cataract. Similarly, Rahman et.al,[13] observed that risk factors like diabetes mellitus, high myopia, occupational exposure to metal work, atopic dermatitis, and smoking were responsible for presenile cataract.

As most of the risk factors associated with presenile cataract in our population were modifiable, changes such as use of dark goggle during outdoor activities to avoid UV radiation, use of protective polycarbonate glasses to prevent occupation related injury, use of helmets while spraying fertilizers, avoiding indiscriminate use of steroids, effective management of diabetes, ocular trauma and other systemic illness, cessation of smoking and alcohol ,health education of the people from village background to improve the nutritional status, early diagnosis and management of causes and risk factors help to prevent development of presenile cataract.

CONCLUSION

Increased exposure to sunlight (UV radiation), poor nutritional status, smoking, alcohol consumption and indiscriminate use of steroids are the commonest risk factors in our study which can be modified by appropriate measures.

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