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Original Article

Study of Demographic Profile and Risk Factors for Cataract in Young Adults at a Tertiary Care Hospital

Dr. Satish K[1], Dr. Shilpa M[2*]

[1] Professor and HOD, Department of Ophthalmology, Mysore Medical College and Research Institute, Mysuru
[2] Senior resident, Department of Ophthalmology, Mysore Medical College And Research Institute, Mysuru

ABSTRACT

Objective: To study the demographic profile and risk factors for cataract in young adults
Materials and methods: It's a cross sectional observational study conducted between 2021-2022 at a tertiary health care centre.100 patients with cataract between age of 20-45 years were selected. Risk factors like diabetes, field work (exposure to sunlight), high myopia, smoking were noted. Morphological type of cataract was determined with slit lamp examination.
Results: Out of 100 patients there were 49males (mean age of 38) and 51 females (mean age of 36), most of them had unilateral cataract(73%).53 % of patients had idiopathic cataract where no risk factors were identified, among identifiable risk factors field work was the strongest risk factor(11%) followed by diabetes and smoking. Posteriorsubcapsular cataract was the most common type of cataract (51%).
Conclusion: In majority of patients risk factor for cataract was found to be idiopathic, field work or excessive sunlight exposure was the strongest identifiable risk factor for cataractogenesis in young adults followed by diabetes and smoking, and posterior subcapsular cataract was the most common type of cataract at presentation.

Key Words: *Cataract, diabetesmellitus, smoking, high myopia*

***Corresponding Author**
Dr. Shilpa M*
Senior resident, Department of Ophthalmology, Mysore Medical College And Research Institute, Mysuru

INTRODUCTION

Cataract is the opacification of crystalline lens or its capsule. Cataract is caused by degeneration and opacification of the lens fibres already formed, the formation of aberrant lens fibres or deposition of other material in their place. Hydration, denaturation or slow sclerosis of lens fibresleads to cataract [1].

Age related cataract is the commonest eye disease causing visual impairment and preventable blindness worldwide, accounting for 48%of total blindness [2].

Eventhough age is the most common risk factor for cataractogenesis, it can occur in younger individuals. Presenile cataract is defined as the opacification of lens or its capsule before the age of 50 years when all the other causes are ruled out [3-5]. It will be a burden on society and healthcare system as the working adult group is involved.

Many studies have identified the risk factors for occurencecataract, few important studies among them are, Beaver dam study in Wisconsin which established the association between cigarette smoking and cataractogenesis [6]. Observation of relation between psc and vit d was done by brown [7]. lee observed risk factors of presenile cataract like diabetets, atopicdermatitis, highmyopia, smoking etc [8].

We conducted our study in view of observation of demographic profile, identification of risk factors associated with cataract in young adults as well as to know the common types of cataract at presentation of patient to a tertiary care centre.

METHODOLOGY

A total of 100 patients visiting out patient clinic at department of ophthalmology in KR hospital, mmcri who fulfilled the inclusion and exclusion criteria were enrolled in the study, study was conducted between 2021-2022

Inclusion criteria
1) age group of 20-45 years
2) diagnosed as cataract

Exclusion cataract
1) pediatric cataract
2) age more than 45 years

The demographic details of the patients were noted like name, age, sex, occupation to know the amount of sunlight exposure, substance abuse and medical history related to chronic intake of medications for any respiratory or dermatological conditions suggestive of steroids.

Detailed routine clinical examination was done for best corrected visual acuity, slit lamp examination for grading of cataract, slit lamp biomicroscopy with 90 D lens and indirect ophthalmoscope. In relevant cases axial length was calculated by using A scan to rule out high myopia.

STATISTICAL ANALYSIS

Calculation of sample size

$S=Z^2PQ/D^2$

S=sample size

Z=std. value @ .05 level =1.96

P=proportion of prevalence =7% becomes .07

Q=1-P = 1-00-.07 =.93

D^2= Margin of error or confidence interval = 5% (to be expressed in decimals) = .05

S= (1.96 x1.96 x .07x .93) / .05 x .05 =**100**

RESULTS

In our study which consisted of 100 patients 49 were male and 51 were females. In both gender groups the majority of age group was 36-40 years. With mean age group of male patients was 38.34 years, and of females was 36.72 years with overall mean age group of adults with early onset of cataract was 37.52 years.

Age group (years)	Frequency	Percent
<30	11	11.0
31-35	17	17.0
36-40	41	41.0
41-45	31	31.0
Total	100	100.0

Gender	Frequency	Percent
male	49	49.0
female	51	51.0
Total	100	100.0

Chi-Square Test

Test Statistics

	Ages	Gender
Chi-Square	22.080	.040
df	3	1
Asymp. Sig.	.000	.841

Age

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
male	49	38.3469	5.02722	.71817	26.00	45.00
female	51	36.7255	4.78363	.66984	27.00	45.00
Total	100	37.5200	4.94716	.49472	26.00	45.00

And among 100 patients majority of the patients had unilateral (73%) occurrence of cataract where as only 27% of patients had bilateral cataract.

laterality	Frequency	Percent

UL	73	73.0
BL	27	27.0
Total	100	100.0

risk

		Frequency	Percent
Valid	nil	53	53.0
	Steroid intake	6	6.0
	Diabetes mellitus	10	10.0
	smoking	10	10.0
	high myopia	3	3.0
	trauma	5	5.0
	Retinitispigmentosa	2	2.0
	field work	11	11.0
	Total	100	100.0

Chi-Square Test

Test Statistics

	idiopathic
Chi-Square	156.320
df	7
Asymp. Sig.	.000

When it came to risk factors, our study found that in majority of the patients with early onset of cataract had no identifiable risk factors, i.e. the cause was idiopathic (53%). the other identifiable risk factors were found to be field work (11%), followed by diabetes (10%), smoking (10%), steroid intake (6%), previous ocular trauma (5%), high myopia (3%) and retinitis pigmentosa (2%).

Type of cataract	Frequency	Percent
cortical cataract	4	4.0
hypermature cataract	3	3.0
mature cataract	28	28.0
near mature cataract	3	3.0
nuclear cataract	10	10.0
Anterior capsular cataract	1	1.0
Posterior subcapsular cataract	51	51.0
Total	100	100.0

Chi-Square Test

Test Statistics

	Posterior subcapsular cataract
Chi-Square	146.400
df	6
Asymp. Sig.	.000

The most common morphological type of cataract in young adults was found to be posterior subcapsular cataract (51%), followed by mature and nuclear cataract (28%)

DISCUSSION

In our study female preponderance for cataract was noted as in accordance with a case control study conducted by Gopal k das et al to study the risk factors foepresenile cataract [9].

Eventhough cataract accounts for majority of blindness in india, risk factors for cataract in young adults have been less known and studied in very few studies. In our study the most common risk factors for cataract in young adults was idiopathic, in a study conducted by Sharma s kumar et al, also idiopathic cause was found to be more prevalent among risk factors for early onset cataracts [10]. In a study of risk factors factors for early onset cataract in India by vashist et

al., atopy was the most common identifiable risk factor associated with occurance of cataract [11] where as in our study field work where there is excessive sun exposure is predominantly associated with cataract, followed by diabetes and smoking comprising almost equal proportions.

The morphological type of cataract which was more prevalent was posterior subcapsular cataract. in a study in south india to analyse the causes and types of presenile cataract conducted by vasudevan et al, posteriorsubcapsular cataract was the common type [12]. The prevalent nature of psc could be attributed to its nature of causeing early vision deterioration because of its central position.

CONCLUSION

Our study concludes that the most common risk factor for development of cataract in young adults was idiopathic followed by field work, diabetes and smoking. the most common morphological type of cataract was posterior subcapsular cataract.

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