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Original Research Article

Cataract and its risk factor among adults residing in South Bihar, India

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ABSTRACT

Background: Cataract is considered as one of the most common causes of visual impairment and the leading cause of blindness in the world. Age related cataract occurs in people above 50 years of age and the its pathogenesis is multifactorial. Therefore, the present study was aimed to assess the prevalence and risk factors for cataract.
Methods: Community based cross sectional study was conducted among adults residing at urban areas of South Bihar. The data was collected by interview method, using pre-tested semi-structured questionnaire which contains socio-demographic data, dietary habits, history of diabetes or hypertension, family history of cataract and long-term sun exposure.
Results: Among 240 participants, 94 (39.2%) were male and 146 (60.8%) were female. Maximum participants were aged more than 70 years. The prevalence of cataract was 52.1%.
Conclusions: The prevalence of cataract was quite high and was significantly associated with age, long term sun exposure and family history of cataract.

Keywords: Cataract, Diabetes, Hypertension

INTRODUCTION

Cataract is defined as opacity within the clear lens inside the eye that reduces the amount of incoming light and results in deterioration of vision.[1] Cataract is considered as one of the most common causes of visual defect or impairment in the world. According to the World Health Organization (WHO), cataract is the leading cause of blindness all over the world, responsible for 47.8% of blindness and accounting for 17.7 million blind people.[2] In India, major cause of blindness is cataract, which accounts 62.6%.[3]

Age-related cataract or senile cataract occurs in people aged >50 years of age and results from increasing opacification of the ocular lens, eventually leading to visual impairment or loss among older adults throughout the world.[4] The role of environmental and personal risk factors for the development of age-related cataract in this population is uncertain. The pathogenesis of age-related cataract is multifactorial and not completely understood.[5]

The various modifiable risk factors are associated with cataract which includes UV exposure, medical condition like diabetes and hypertension, BMI (body mass index), smoking and socioeconomic factors like education, income and housing. But, advancing age is the single most important risk factor for cataract.[6-9]

The present study was done among adults aged above 40 years to assess the risk factor associated with cataract.

METHODS

The present community based cross-sectional study was conducted among adults (aged above 40 years) residing at

urban areas of South Bihar from November 2016 to January 2017. A house to house survey was done in the localities of Darbhanga district to enumerate the eligible population. The first visit was followed by second visit, if the house was locked or eligible person was not available at the time of visit. The sample size was estimated to 240 on the basis of cataract prevalence of 62.6% reported by National blindness and visual impairment survey 2019.[3] The data was collected using pretested semi-structured questionnaire through personal interview method. The purpose of this study was informed to each participant and written informed consent was obtained from each participant. The information regarding sociodemographic characteristics (age, gender, education and socioeconomic status), dietary habits, any habit of alcohol or tobacco, history of diabetes or hypertension, family history of cataract and long-term sun exposure were collected. Long term sun exposure was based on self-reported mean time of sun exposure (the estimated daily time outdoors between 9:00 AM and 5:00 PM). The participants who was having decreased vision or difficulty in vision were included in the study and among those who was diagnosed with cataract or underwent cataract surgery, were labelled as cataract. Those who were having vision difficulty, but not yet diagnosed with cataract were labelled as non-cataract (cataract absent). The data was coded and entered into Microsoft excel spreadsheet. further it was analysed using appropriate statistical tool. The chi square test was used with 95% of confidence interval and statistical significance level of $p<0.05$.

RESULTS

A total of 240 participants were enrolled in this study, out of which 94 (39.2%) were male and 146 (60.8%) were female. Maximum participants (37.1%) were in the age group of more than 70 years. The dietary habit of maximum participants (64%) was mixed diet.

Table 1: Socio demographic characteristics of study participants (n=240).

Characteristics		Frequency	Percentage
Age	40-49	32	13.3%
	50-59	38	15.8%
	60-69	81	33.8%
	>70	89	37.1%
Gender	Male	94	39.2%
	Female	146	60.8%
Education	Illiterate	64	26.7%
	Literate	176	73.3%
Dietary habits	Vegetarian	86	35.8%
	Mixed	154	64.2%
Habits	Tobacco	63	26.3%
	Alcohol	7	2.9%
	Tobacco and alcohol	4	1.7%
Morbid condition	Diabetes	111	46.3%
	Hypertension	134	55.8%
Family history of cataract		132	55.0%

Table 2: Association between cataract and various risk factors among study participants.

Characteristics		Cataract present (n=125)	Cataract absent (n=115)	Chi-square	p-value
Age	40-49	14 (43.7%)	18 (56.3%)	2.733	0.434
	50-59	18 (47.4%)	20 (52.6%)		
	60-69	41 (50.6%)	40 (49.4%)		
	>70	52 (58.4%)	37 (41.6%)		
Gender	Male	50 (53.2%)	44 (46.8%)	0.076	0.782
	Female	75 (51.4%)	71 (48.6%)		
Dietary habit	Vegetarian	46 (53.5%)	40 (46.5%)	0.106	0.744
	Mixed	79 (51.3%)	75 (48.7%)		
Family history of cataract	Present	80 (60.6%)	52 (39.4%)	8.537	0.003
	Absent	45 (41.7%)	63 (58.3%)		
Long term sun exposure	Present	37 (66.1%)	19 (33.9%)	5.726	0.016
	Absent	88 (47.8%)	96 (52.2%)		
Diabetes	Present	65 (58.6%)	46 (41.4%)	3.469	0.062
	Absent	60 (46.5%)	69 (53.5%)		
Hypertension	Present	73 (54.5%)	61 (45.5%)	0.696	0.403
	Absent	52 (49.1%)	54 (50.9%)		

Majority of the participants had hypertension (55.8%). Among all participants, 55.0% participant had family history of cataract (Table 1).

In this study, out of 240 participants, 125 (52.1%) participants had cataract. It was observed in the study that prevalence of cataract was higher in the age group of

more than 70 years (58.4%), followed by in the age group of 60-69 years (50.6%). As the age increased, the prevalence of cataract also increased in this study. The cataract was observed more in male (53.2%) compared to female (51.4%). It was observed that the prevalence of cataract was higher among those participants who had family history of cataract (60.6%), which was statistically significant. The cataract was higher among those who had long term sun exposure (66.1%), which was statistically significant. The prevalence of cataract among diabetic and hypertensive was 58.6% and 54.5% respectively (Table 2).

DISCUSSION

In this study, the prevalence of cataract was 52.1% which was almost similar to a study done by Avachat SS et al with a prevalence of 53.6%.[10] In a Singh S study, the prevalence of cataract was 43.6% in the urban population, which was lower than this study finding.[8] Aarthi R revealed that the prevalence of cataract was higher among males (66.9%) compared to females and similar finding was observed in this study with a prevalence of cataract in 53.2% males.[11] In this study, the prevalence of cataract was increasing with the age and it was the commonest risk factor for cataract. Similar finding was observed in Avachat SS et al, Aarthi R et al, and Khan M et al, studies.[10-12]

It was observed from this study that family history of cataract was significantly associated with higher chance of developing cataract among participants. However, no studies have shown the strong association of family history of cataract with development of cataract in other family member. But, in a study done by Sreekanth B, showed that family history was observed in 27.82% of the young patients of cataract, which was much lesser than this study finding.[13] This may be happened because this study participants are above 40 years of age.

The long-term sun exposure had higher chance of developing cataract among participants, which was statistically significant in this study. Similar findings were also observed by Bamdad and Vashist.[13,14] Among diabetes, 58.6% participants had cataract, which revealed that diabetes is associated with cataract. Similar findings were observed in Raman R et al, Srinivasan S et al, and Nirmalan et al, studies.[7,16,17]

CONCLUSION

The prevalence of cataract of among adults in this study was quite high. The cataract was significantly associated with age, long term sun exposure and family history of cataract. The cataract was observed more in diabetes and hypertensive participants.

As this was a cross sectional study and the sample size was less, the role of risk factors for keratogenesis in age related cataract was not adequately identified.

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