

Determinants and Awareness Regarding Senile Cataract among Tribal Patients Attending a Tertiary Care Centre in Tripura

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Abstract:

Background: Blindness is a devastating physical condition with deep emotional and economic implications. Cataract is responsible for 50% of blindness in the world. Limited information is available regarding the proportion of cataract, its determinants and level of awareness regarding cataract and its treatment among tribal patients of Tripura. This study was done with the aim to study the epidemiology of senile cataract among the tribal patients of Tripura and formulate recommendation for its remedy.

Materials and Methods: This cross-sectional study was carried out on 184 Tribal patients of Department of Ophthalmology Agartala Government Medical College and Govind Ballabh Pant Hospital for 2 years study period extending from 1st October 2015 to 30th September 2017. After detailed examination patients were studied for determinants and awareness regarding senile cataract among the tribal patients attending a tertiary care centre. **Results:** Female (59%) tribal patients were found to be suffered more of cataract than male. Cortical cataract was found to be the most common type of senile cataract and was associated with multiple factors like age, female gender, non-vegetarian diet (96%), lower middle class socio-economic status (58%), farmers (46%) and with those who had addiction to tobacco and alcohol (51%). Majority of the study subjects had poor level of awareness.

Conclusion: Lack of awareness in tribal population regarding Cataract has led to its increased prevalence which is increasing with many determinants like age sex etc playing significant role.

Key Word: Hyper mature senile cataract, Mature senile cataract, Posterior sub capsular cataract, Immature senile Cataract

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I. Introduction

Cataract is responsible for 50% of blindness in the world. It may occur early in the fifth decade or later as in sixth decade of life in developing countries. Besides this contributing factors, absence of an effective eye health care delivery system and relatively poor surgical care for cataract leads to a high prevalence of blindness from cataract in the developing countries.^[1] 'Age related cataract' also called as senile cataract is the commonest type of acquired cataract affecting individuals of either sex. The condition is usually bilateral, but almost one eye is affected earlier than the other. Morphologically, the senile cataract has two forms, the cortical cataract and the nuclear cataract.^[2] In the year of 2003 a study was conducted which predicted that without extra interventions the global number of blind individuals would increase from 44 million in the year 2000 to 76 million by 2020.^[3] According to a survey conducted by the ministry of Health and Family Welfare, prevalence of cataract was found to be higher among women and tribal populations of rural India. Some 40% of the cases in India belong to the productive age of 40-50 years. The barriers for under utilization of eye care services by the scheduled tribes were identified as lack of money, fear of surgery or treatment, lack of information on eye care services etc.^[4] The present study was done to find out the epidemiology of cataract, its level of awareness and to form a basis in implementing measures to reduce the burden of cataract blindness among the tribal patients of Tripura and to aid in revealing relations between tribal lifestyle and cataract.

II. Material And Methods

This cross-sectional study was carried out on patients of Department of Ophthalmology Agartala Government Medical College and Govind Ballabh Pant Hospital for 2 years study period extending from 1st October 2015 to 30th September 2017.

Study Design: Hospital based cross-sectional study.

Study Location: Department of Ophthalmology, Agartala Government Medical College and Govinda Ballabh Pant Hospital.

Study Duration: 2 years study period extending from 1st October 2015 to 30th September 2017.

Study population: Tribal patients aged 40 years and above attending Department of Ophthalmology, Agartala Government Medical College and Govinda Ballabh Pant Hospital.

Sample size and Sample size calculation : Minimum sample size requirement for this study was calculated considering the prevalence of senile cataract as 51.84% in India.^[5] Using the formula for calculating sample size in observational studies measuring proportions,^[6] the minimum sample size requirement for this study at 6% level of significance and 25% relative margin of error including 25% additional for non-responders was determined to be 184.

Subjects & selection method: Modified Systematic Random sampling technique was applied

Inclusion criteria:

1. Tribal patients aged 40 years and above.
2. Patient having visual acuity of 6/9 or less in one or both eyes with lenticular opacity.
3. Patients referred from eye camps conducted by National Programme for Control of Blindness (NPCB).

Exclusion criteria:

1. Those who are not willing to participate in this study.
2. Any other ocular disease causing diminution of vision.
3. History of receiving steroids for 6 weeks or more within 2 years of study.

Procedure methodology

Consenting patients were subjected to detailed history taking followed by ocular and adnexal examination as per a pre-designed proforma. To record the distant vision, a Snellen's chart fitted at a distance of six metres was used and best corrected visual acuity was recorded. For recording near vision, Near vision test type book was used. Then the intraocular pressure was measured by Schiottz tonometer and applanation tonometer and recorded. The pupil was dilated with 0.8% tropicamide and 5% phenylephrine eye drop and examination under slit-lamp biomicroscope and direct ophthalmoscope was done to rule out any other ocular pathology. The presence of cataract and its grading were done clinically using slit-lamp oblique illumination and distant direct ophthalmoscope by examining the presence or absence of iris shadow, colour of lens, any opacity in the lens and any dark area or areas present against the red fundal glow on distant direct ophthalmoscopy.^[2] The level of awareness of study subjects was assessed by using a validated interview schedule containing questions of awareness regarding cataract and its treatment etc.

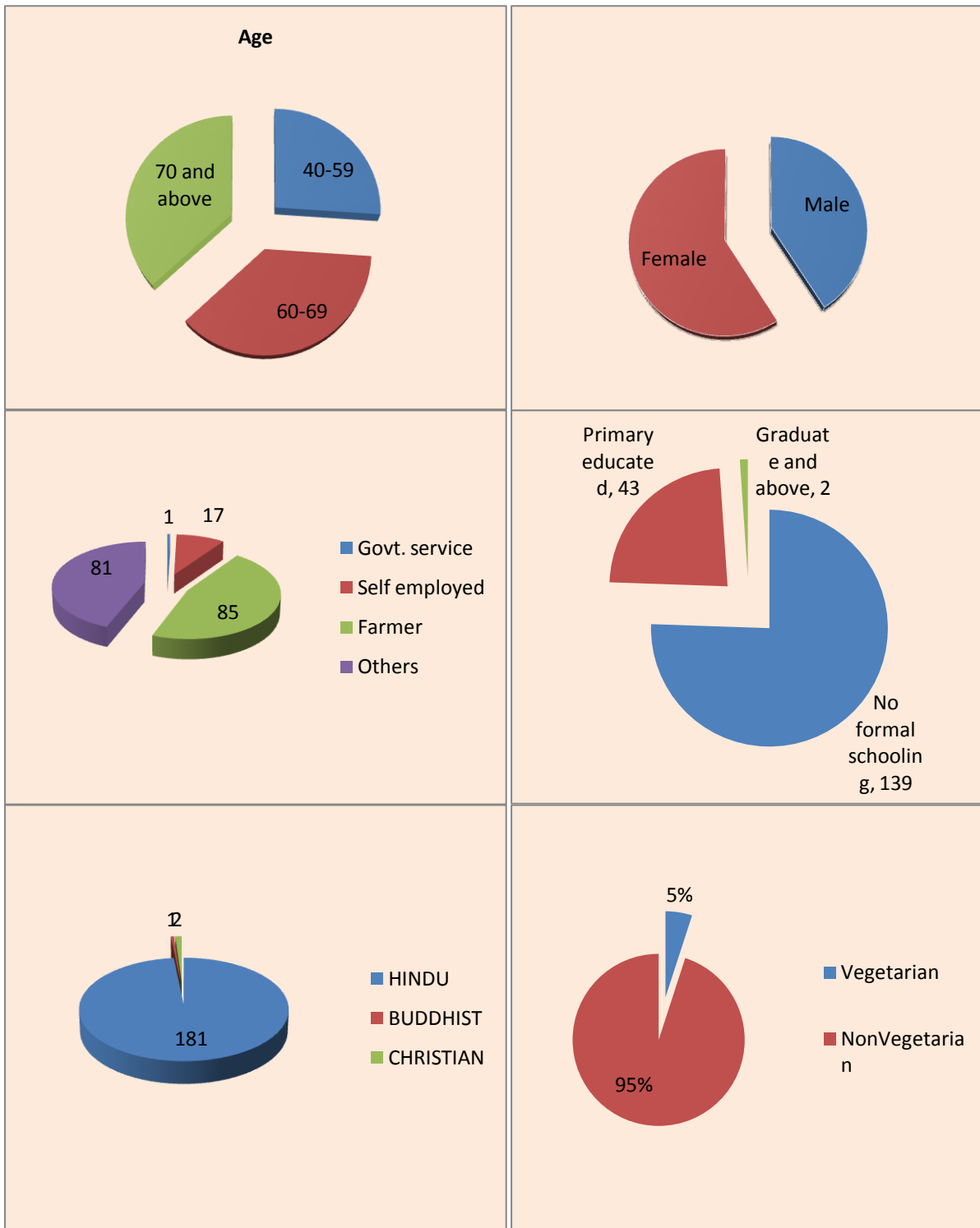
Statistical analysis

Data were entered in the proforma and the interview schedule on the spot and later on entered and analysed in computer using SPSS version 15.0.^[48] Data were presented with the help of text, tables and charts. Descriptive statistics was used to summarise the data. Chi-square test was used to test the significance of difference between two or more proportions. P value of less than 0.05 was considered as statistically significant.

Ethical issue: Informed written consent was obtained from each and every participant as per modified ICMR template. Confidentiality was ensured while collecting and analyzing the data and was used for research purpose only. The Institutional Ethics Committee of Agartala Government Medical College has approved this study.

III. Result

A total 184 subjects were included for final evaluation . Out of this 75 were (41%) female and 109 (59%) were Male 48 subjects were aged between 40 to 59 yrs., 68 were aged between 60 to 69 yrs. and another 68 subjects were aged either 70 yrs. or more. Majority (46.20%) of the study subjects were farmers, 44% were engaged in various others occupations, 9.2% were self- employed and only 0.5% were govt. servants. 139(75.50%) of the study subjects had no formal schooling, 43 (23.40%) were educated up to primary level and only 2 (1.10%)were either graduate or above. 181, 98.40% of the study subjects were Hindu by religion, 02, 1.10% were Christian and 01, 0.5% were Buddhist by religion. majority (95.00%) of the study subjects were non-vegetarian and the rest were vegetarian. 178(97.0%) of the study subjects had normal blood pressure. 96.7% were non-diabetic and 3.30% were diabetic among the study subjects.



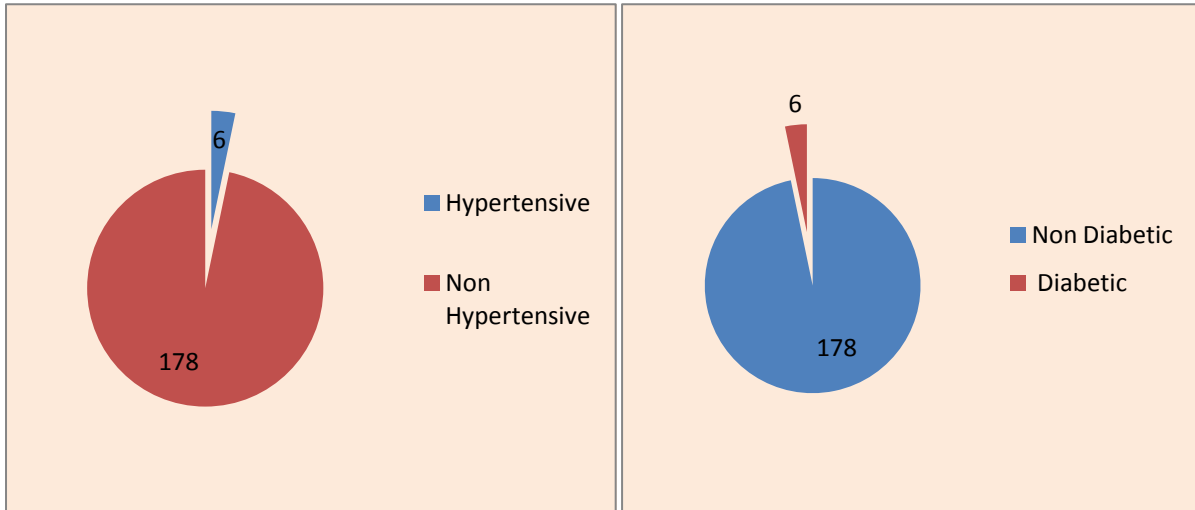


Fig . no. 1: Pie Charts showing Various Determinants among Study Subjects

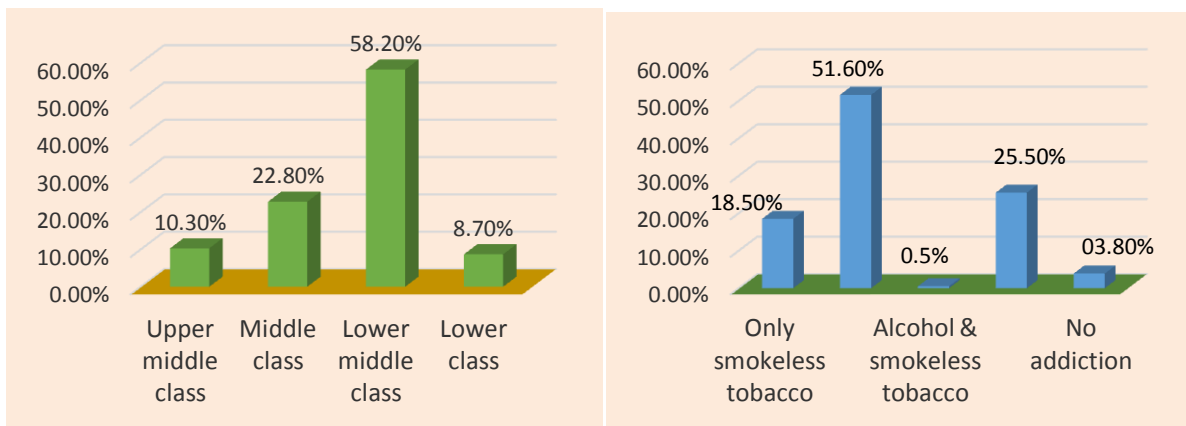


Fig. no.2. Bar diagram showing socio economic status and Habits of the study subjects.

majority (58.2%) of the study subjects belonged to lower middle class, 22.80% to middle class, 10.3% to upper middle class and 8.70% to lower class as per modified BG Prasad’s Socio-economic status classification 2015. majority of the study subjects (51.60%) had concomitant addiction to alcohol and tobacco both in smoked and smoke less form. Only tobacco users were 25.5% and 3.90% did not have addiction to any substance.

BEST CORRECTED VISUAL ACUITY

In Right eye 32.10% of the study subjects presented with best corrected visual acuity(BCVA) ranging from 6/6 to 6/60, 32.60% with less than 6/60 to CF and rest 35.30% had BCVA of hand movement to perception of light present. In Left eye 40.80% of the study subjects presented with best corrected visual acuity(BCVA) of 6/6 to 6/60, followed by 32.10% with less than 6/60 to counting of fingers and 27.20% with hand movement to perception of light

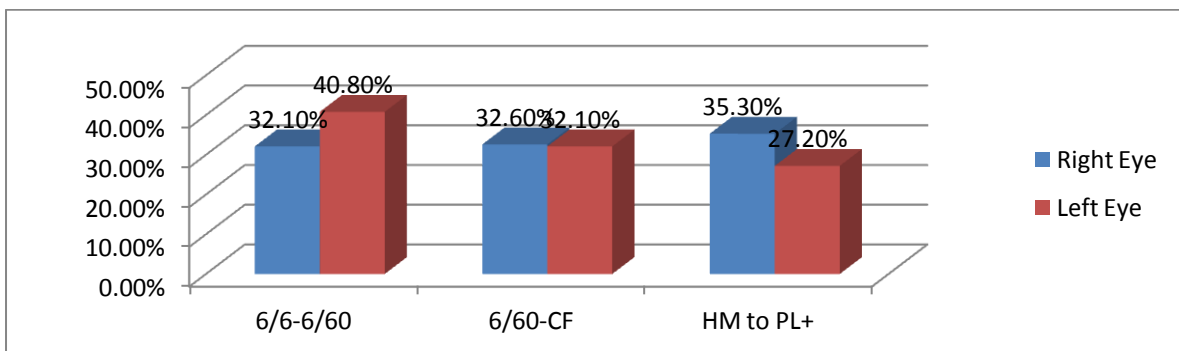


Fig. 3. Bar diagram showing best corrected visual acuity (BCVA) in left eye of the subjects

TYPE OF CATARACT

In right eye of the study subjects IMSC was the most common (97,52.70%) type of cataract, followed by MSC (64,34.80%), and PSC was the least common variety (1.10%). In left eye of the study subjects IMSC was the most common (124,67.40%) type of cataract, followed by MSC (42,22.8%), and PSC was the least common variety (2,1.10%).

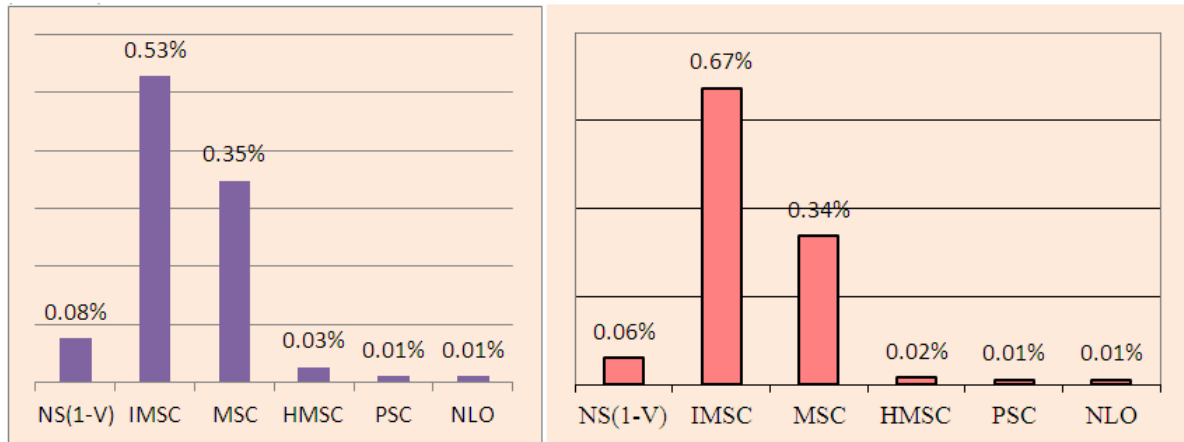


Fig. 4. Bar diagram showing Type of Cataract in Right eye and left eye of the subjects. (NS: Nuclear Sclerosis, IMSC: Immature senile cataract, MSC: Mature senile cataract, HMSC: Hyper mature senile cataract, PSC: Posterior sub capsular cataract, NLO: No-lenticular opacity)



Fig. 5. Showing Type of Cataract from left to right Hyper mature senile cataract, Mature senile cataract and Posterior sub capsular cataract

COMPARITIVE STUDY OF TYPE OF CATARACT IN RIGHT EYE AND LEFT EYE WITH RESPECT TO DETERMINANTS

	Type of cataract (Right eye) n = 182		Type of cataract (Left eye) n = 182	
	NS(I-V), n (%)	CC, n (%)	NS(I-V), n (%)	CC, n (%)
Sex				
Male	5(06.84)	68(93.15)	4(05.47)	69(94.52)
Female	9(08.25)	100(91.74)	7(06.42)	102(93.57)
Age				
40 - 59	5 (10.63)	42 (89.36)	3 (6.25)	45 (93.75)
60 - 69	4 (5.88)	64 (95.11)	5 (7.46)	62 (92.53)
≥ 70	5 (7.46)	62 (92.53)	3 (4.47)	64 (95.52)
Socio-economic status				
Upper middle class	04(21.05)	15(78.94)	2(10.52)	17(89.47)
Middle class	01(2.38)	41(97.65)	2(04.87)	39(95.12)
Lower middle class	06(05.66)	100(94.33)	5(04.71)	101(95.28)
Lower class	03(20)	12(80)	2(12.50)	14(87.50)
Occupation				
Govt. service	00(00)	01(100)	00(100)	01(100)

Self employed	03(18.75)	13(81.25)	02(13.33)	13(86.66)
Farmers	04(4.70)	81(95.29)	03(3.52)	82(96.47)
Others	07(8.75)	73(91.25)	06(7.40)	75(92.59)
Habits				
Only smokeless tobacco	02(5.88)	32(94.11)	03(8.82)	31(91.17)
All	09(9.67)	84(90.32)	06(6.45)	87(93.54)
Alcohol and Smokeless Tobacco	00(0)	01(100)	00(0)	01(100)
Smoking and smokeless Tobacco	02(4.25)	45(95.74)	01(2.12)	46(97.87)
No addiction	01(14.28)	06(85.71)	01(14.28)	06(85.71)
Diet				
Non-veg	04(2.46)	158(97.53)	11(6.39)	161(93.60)
Veg	00(0)	10(100)	00(0)	10(100)

Cortical Cataract was the commonest type of cataract detected among male study subjects and nuclear sclerosis was found to be common among female. Cortical Cataract was the commonest type of cataract detected in the right eye of the subjects aged 60 to 69 yrs. age group whereas in the left eye it was more among subjects aged 70 yrs. or more and both these occurrences were not found to be statistically significant ($p > 0.05$). In the right eye cortical cataract is more common among middle class whereas nuclear sclerosis was most common among upper middle class study subjects. In the left eye cortical cataract is more common among lower middle class whereas nuclear sclerosis was most common among lower class study subjects. Among the study participants, cortical cataract was most common among govt. employees and farmers whereas nuclear sclerosis was common among self-employed and other occupation. Cortical cataract is most common among the study participants who were addicted to both tobacco and alcohol. Cortical Cataract was the commonest type of cataract detected among vegetarian study subjects whereas nuclear sclerosis was found to be common among non-vegetarians, but these occurrences were not found to be statistically significant ($p > 0.05$).

IV. Discussion

Cataract development is a complex disease process and depends upon multiple factors. The present cross-sectional study deals with the determinants and awareness regarding senile cataract among the tribal patients attending a tertiary care centre.

Majority of the study subjects (68,37%) belonged to the age group of 60 to 69yrs. and 70yrs. and above, followed by 40 to 59yrs. (48,26%), similarly J. Bhagwan et al have found that majority of the study subjects were aged between 60-69yrs. (520,41.94%).^[6] In a study done by Praful V. Dhake et al observed the mean age of participants was 61.9yrs.^[7]

In the study, majority of the study subjects (37%) presented with cataract belonged to the age group of above 59 to 69yrs. and 70yrs. and above. A study done by I N Raizada in rural areas of western UP observed increased incidence of cataract with age, 88.67% of persons were in the age group of 75-80yrs of age as compared to age group 40 to 45yrs of age (15.91%)^[5] and A Kuruvilla et al also observed the similar results in their study, where they found out a significantly highest prevalence of cataract in the age group of 61 to 70yrs.^[8] All the above studies were comparable to the present study.

As per gender distribution, majority of the study subjects (59%) were female who presented with cataract as compared to male who were only 41%. Similar finding was observed in a study done by Pant H B et al where cataract blindness was found to be higher in females than males.^[9]

Regarding level of education, illiterates study subjects (75.50%) presented most with cataract followed by 23.40 % primarily educated and only 01.10% belonged to graduate and above category. Similar results were observed in a study conducted by P Kanagarajan et al in a rural district of Puducherry.^[10] An association of low literacy level with cataract was also observed by S Sobti et al in their study.^[11]

In the study 98.4% of the study subjects presented with cataract were Hindu by religion, 1% Christians and 0.5% Buddhists. But in a study done by IN Raizada et al observed incidence of cataract to be more among Muslims.^[5] This difference in observation may be attributed to the fact that the present study was limited to tribal patient alone.

In the study majority (175.95%) of the study subjects were suffering from cataract of both eyes at the time of presentation. 35.30% study subjects had best corrected visual acuity of hand movement to perception of light present in the right eye and 40.80% had presented with 6/6 to 6/60 visual acuity in the left eye respectively. So it can be assumed that there may be some barriers among the study subjects which led them to attend the health care centre with such poor vision. Similar results were observed in a study done by V.K.Sharma et al

where 63.3% of the study population attending eye camps for cataract surgery were blind (vision of less than 3/60) and 19.2% were having poor vision (less than 6/60) at the time of presentation. ^[12]

Out of 184 study subjects, majority of them (51.60%) presenting with cataract had concomitant addiction to alcohol and tobacco both in smoked and smoke less form Mamatha et al also concluded nuclear and cortical cataracts to be associated with various risk factors like cigarette smoking and tobacco in their study. ^[13] So it can be said that further detailed study needs to be done to find out the association of cataract with personal habits of the tribal population.

In the study cataract was found to be more common among the normotensives and non-diabetics. No correlation of cataract with hypertension and diabetes was found. Similar results were observed in a study conducted by P Kanagarajan et al. ^[10] However significant association of cataract with diabetes and hypertension was observed in other studies. So further detailed study needed to be conducted to find out the association between hypertension and cataract, at even younger age group. ^[14]

In the study, out of 184 study subjects, 126 (68.50%) subjects had poor awareness regarding cataract and its treatment. It has been also observed that among the subjects with poor awareness, 98.42% subjects presented with cataracts affecting both eyes.

V. Conclusion

Female tribal patients were found to be suffered more of cataract than male. Cortical cataract was found to be the most common type of senile cataract and was associated with multiple factors like age, male gender, vegetarian diet, lower middle class socio-economic status, farmers and with those who had addiction to tobacco and alcohol. Majority of the study subjects had poor level of awareness

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