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Analytical Study Of The Prevalence And Risk Factors For Armd In A Tertiary Care Centre By Screening Individuals Above 60 Years.

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ABSTRACT

Age-related macular degeneration (ARMD), the third common cause of visual impairment results in 8.7% of the total blindness globally. In industrialized countries, ARMD is becoming one of the primary causes of visual impairment. The number of people with ARMD is predicted to increase from three to six million by the year 2020. This is due to a decrease in avoidable blindness, due to anterior segment pathologies, and the increasing life expectancy of the global population. World Health Organization has included ARMD in its action plan, to address avoidable blindness in the Vision 2020 program. This study aimed to know the prevalence and various socio-demographic risk factors associated with ARMD. This Analytical study of the prevalence and risk factors for ARMD in the Department Of Ophthalmology, Government Tirunelveli Medical College & Hospital, Tirunelveli, Tamil Nadu, India by screening individuals above 60 years. Increasing age was found to be a significant risk factor for ARMD. In our study, we found that there were 83.3% females as compared to 16.7% males. There was no statistically significant association found between Body Mass Index and ARMD in our study. Among patients with ARMD, 4 (16.7%) were smokers and 20 (83.3%) were non-smokers and this was not found to be statistically significant. Family history was found to be a significant risk factor for the development of ARMD. Increasing age, female sex, and family history of ARMD were significant risk factors associated with the development of ARMD.

Keywords: age-related macular degeneration, prevalence, risk factors.

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INTRODUCTION

Age-related degeneration of the macula is a disease that blurs the sharp central vision which adversely affects daily living activities like reading, writing, and driving, and the affected individuals lose their independence in their retirement life. It is a leading cause of irreversible vision loss among people aged 60 or older. AMD is the main cause of adult blindness in developed countries. AMD is commonly encountered in the Indian population as it is in Western countries [1]. With a rapidly growing older population, it has been estimated that the geriatric population will rise to over 1.2 billion by 2025, ~840 million of which will be in developing countries. With such an increase in the geriatric population, it is expected that this problem may even reach epidemic proportions in our society [2]. The early ARM which accounts for about 85% of the cases includes the presence of drusen and/or retinal pigment epithelium (RPE) abnormalities for which no definite treatment is available [3]. The late ARM includes geographic atrophy of RPE or choroidal neovascular complex accounting for the remaining 15% of cases. Without treatment, the late ARM will rapidly deteriorate due to retinal destruction and subsequent scarring. Evidence suggests that AMD is a multi-factorial disease but the full aetiopathogenesis of AMD has not yet been unveiled. Studies from the Western population suggest that lifestyle, nutritional, and genetic factors are involved in the pathogenesis of AMD [4]. Daily smoking is a strong risk factor for the presence of late AMD. Increasing age and family history of disease are consistently established as associated risk factors for late AMD, neither of which can be modified. So refraining from cigarette smoking is the only possible way to decrease the AMD incidence. The National Eye Institute study, The Age-Related Eye Disease Study (AREDS & AREDS 2) found that daily intake of certain minerals and high-dose vitamins can slow the progression of the disease in people who have intermediate AMD, and those who have late AMD in one eye. Treatment options for wet ARMD include antiVEGF therapy, laser photocoagulation, and photodynamic therapy [5]. This thesis aims to estimate the prevalence of AMD and examine the risk factors associated with AMD.

MATERIALS AND METHODS

This Analytical study of the prevalence and risk factors for ARMD in the Department Of Ophthalmology, Government Tirunelveli Medical College & Hospital, Tirunelveli, Tamil Nadu, India by screening individuals above 60 years. A minimum of 100 patients will be included in the study. Inclusion criteria: Age > 60 years, Both genders. Exclusion criteria: Patients with other retinal disorders like Angioid streaks, and pathological Glaucoma patients. Patients who have undergone previous ocular surgeries. History of Ocular trauma. Consent is obtained from the patients selected for the study. Data was collected using a structured questionnaire addressing lifestyle habits and the extent of smoking and alcohol use, socioeconomic status, physical activity, and use of medication.

RESULTS

The collected data were analyzed with IBM.SPSS statistics software 23.0 Version. To describe the data descriptive statistics frequency analysis, and percentage analysis were used for categorical variables and the mean & SD were used for continuous variables. To find the significance in categorical data Chi-Square test and Fisher's Exact were used. In both the above statistical tools the probability value of .05 is considered a significant level.

Table 1: Gender Wise Distribution In ARMD

Sex	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	18	45.0	45.0	45.0
Female	22	55.0	55.0	100.0
Total	40	100.0	100.0	

Table 2: Distribution Of Hypertension In ARMD

BP	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	27	67.5	67.5	67.5
No	13	32.5	32.5	100.0
Total	40	100.0	100.0	

Table 3: Distribution Of Diabetes In ARMD

DM		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	20	50.0	50.0	50.0
	No	20	50.0	50.0	100.0
	Total	40	100.0	100.0	

Table 4: Distribution Of Smoking In ARMD

Smoking		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	22	55.0	55.0	55.0
	No	18	45.0	45.0	100.0
	Total	40	100.0	100.0	

Table 5: Distribution Of Alcoholism In ARMD

Alcoholism		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	13	32.5	32.5	32.5
	No	27	67.5	67.5	100.0
	Total	40	100.0	100.0	

Table 6: Distribution Of CAD In ARMD

CAD		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	18	45.0	45.0	45.0
	No	22	55.0	55.0	100.0
	Total	40	100.0	100.0	

Table 7: Distribution Of H/O Cataract Surgery In ARMD

H/O CATARACT SX		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	24	60.0	60.0	60.0
	No	16	40.0	40.0	100.0
	Total	40	100.0	100.0	

Table 8: Cross Tab -Distribution Of H/O CataractSurgery In ARMD

Crosstab			ARMD		Total
			DRY ARMD	NV ARMD	
H/O Cataract SX	Yes	Count	16	8	24
		% within ARMD	50.0%	100.0%	60.0%
	No	Count	16	0	16
% within ARMD		50.0%	0.0%	40.0%	
Total	Count	32	8	40	
	% within	100.0%	100.0%	100.0%	

Table 9: Distribution Of Exposure To Sunlight In ARMD

EXPOSURE TO SUNLIGHT		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	20	50.0	50.0	50.0
	No	20	50.0	50.0	100.0
	Total	40	100.0	100.0	

Table 10: Distribution Of BMI And Age Of Menopause In ARMD

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
Age	40	60	85	68.50	6.397
BMI	40	19.6	29.6	23.008	2.2875
Age of Menopause	22	40	50	46.91	2.562
Valid N (listwise)	22				

Table 11: Distribution Of Soft Drusen In ARMD

SOFT DRUSEN	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Negative	8	20.0	20.0	20.0
Positive	32	80.0	80.0	100.0
Total	40	100.0	100.0	

Table 12: Distribution Of Pigmentary Abnormality In ARMD

PIGMENTARY ABNORMALITY		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	27	67.5	67.5	67.5
	Positive	13	32.5	32.5	100.0
	Total	40	100.0	100.0	

Table 13: Distribution Of Dry And Wet ARMD

ARMD		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	DRY	32	80.0	80.0	80.0
	ARMD				
	WET	8	20.0	20.0	100.0
	ARMD				
Total		40	100.0	100.0	

DISCUSSION

During the study period, 1598 persons of 60 years and above who attended our OPD were screened for ARMD. On examination, 40 persons were found to have ARMD and were included in this study [6]. The proportion of dry, wet, and total ARMD based on the population screened during the study period were 2.0%, 0.5%, and 2.5% respectively. Soft drusen were found in 32 persons and 13 persons had retinal pigment epithelial abnormality. Among the persons with late ARMD, the dry type was noted in 5 persons (38.4%) and 8 persons had neovascularisation (61.5%). ARMD was bilateral in 28 persons (70%) and unilateral in 12 persons (30%). In this study, out of 40 ARMD patients, 22 (55%) were females and 18 (45%) were males. 15 persons (37.5%) were in the 60-65 years range, 20 persons (50%) were

in the 66-75 years range and 5 persons (12.5%) were more than 75 years of age [7]. ARMD was significantly associated with old age with $p < 0.05$. Based on best corrected visual acuity for distance in the better eye one person (2.5%) had vision $< 3/60$, 7 persons (17.5%) had vision 6/60-3/60, 28 persons (70%) had vision 6/18-6/60 and 4 persons (10%) had vision $> 6/18$. Analysing the risk factors, 27 persons (67.5%) were hypertensive and 20 persons (50%) were diabetics. We couldn't find any significant relationship between hypertension or diabetes with ARMD [8]. 22 persons (55%) were smokers, and even though it's the only consistently identified risk factor for ARMD other than old age, we couldn't find any significant association between smoking and ARMD. 13 persons (32.5%) were alcoholics and 26 persons (65%) were taking nonvegetarian diet. We did not find any significant association between alcoholism or diet habits with ARMD. 24 persons (60%) gave a history of coronary artery diseases [9]. In this study, 24 persons (60%) had undergone cataract surgery and 20 persons (50%) had a history of exposure to sunlight. Cataract surgery showed a significant association with ARMD in our study with $p < 0.05$. In this study BMI ranges between 19.6 and 29.6 with a mean of 23.008 and age of menopause ranges between 40 and 50 with a mean of 46.91. We could not find any significant association between BMI and age of menopause with ARMD [10].

CONCLUSION

Lifestyle modifications like avoiding smoking and alcohol consumption, and physical activity to reduce body mass index may help to slow down the disease progression in some patients. By placing the patients on a diet rich in antioxidants, with increased levels of carotenoids and vitamins can decrease the risk of exudative ARMD, which would reduce the disease progression to advanced ARMD. Older age and cataract surgery have a definite association with the progression of ARMD ($p < 0.05$). Hence it is mandatory to rule out early ARMD in patients undergoing cataract surgery. Patients with early ARMD should also be explained about the possibility of disease progression after cataract surgery so that they can be followed up and treatment can be initiated at the appropriate time. Hypertension, diabetes, smoking, alcoholism, CAD, BMI, age of menopause, or exposure to sunlight seems to play a role in the progression of ARMD. Hence adequate control of comorbid conditions and cessation of smoking and alcohol can help to slow down the disease progression to some extent.

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