

SHORT ARTICLE

Prevalence and determinants of age related macular degeneration in north Indian city of Dehradun, UttarakhandMegha Luthra¹, Saurabh Luthra², Shrutanjoy M. Das³, Kamal Singh Negi⁴¹Associate Professor, ⁴Professor, Department of Community Medicine, SGRRIM&HS, Dehradun; ²Drishti Eye Institute, Dehradun.

Abstract	Introduction	Methodology	Results	Conclusion	References	Citation	Tables / Figures
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Citation

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Introduction: Age-related macular degeneration (AMD) is among the fourth leading cause of blindness in India after cataract, refractive errors and glaucoma. **Aim and Objective:** To find out magnitude and determinants of blinding AMD among patients presenting at a tertiary level eye care centre in Dehradun with this condition. **Material and methods:** This was a study of eye patients above age 45 years seen from July 2010 to October 2013. After taking preliminary information, optometrist noted the best-corrected vision. Ophthalmologists examined eyes using a slit-lamp bio-microscope. AMD was confirmed by fluorescein angiography and optical coherence tomography. The age, sex, history of smoking, sun exposure, family history of AMD, diet, body mass index (BMI), history of hypertension, dyslipidemia and diabetes were noted. **Results:** Of the 14,698 patients seen, 221 had AMD (dry or wet) in at least one eye, the overall proportion of AMD being 1.50%. Of all AMD patients, 103 had blinding wet AMD (46.61%). Further analysis revealed that old age (71-80 years), male sex and history of hypertension, diabetes etc were significant risk factors of wet AMD. Of the 221 patients with AMD, nearly a third, that is 71 patients (32.13%) had visual acuity of better eye < 3/60, which was taken as criteria for blindness. **Conclusions:** AMD does not seem to be a problem of public health magnitude in the study area. Age, being male, history of hypertension, diabetes etc are significant risk factors for wet AMD.

Key Words

Age- Related Macular Degeneration; Wet AMD; Blindness; Determinants.

Introduction

Age Related Macular Degeneration (AMD) or Age Related Maculopathy (ARM) is a degenerative disorder of the macula characterised by clinical and histopathologic changes [1]. It is one of the fourth leading cause of blindness in India after cataract, refractive error and glaucoma [2]. It is of two types: Dry (Non exudative) AMD is slightly more common and its rare advanced form is known as Geographic Atrophy. There is asymmetric, gradual impairment of vision over months or years, vision is better in bright light. Wet (Exudative) AMD is less common but has rapid progression to loss of vision.

Aims & Objectives

The study is focused on finding out magnitude and determinants of blinding AMD among patients

presenting at a tertiary level eye care centre in Dehradun with this condition.

Material and Methods

All 14,698 patients attending the tertiary level eye care centre during the study period of July 2010 to October 2013 were included in the study. After taking preliminary information, the age, sex, history of smoking, sun exposure, family history of AMD, diet, body mass index (BMI), history of hypertension, dyslipidemia and diabetes were noted. Optometrist noted the best-corrected vision. Ophthalmologists examined eyes using a slit-lamp bio-microscope. Wet/Exudative AMD was confirmed by fluorescein angiography and optical coherence tomography. Data was analysed with help of Epi Info version 6.0 (STATCALC).

Results

Of the 14,698 patients considered during the study period, 221 persons had AMD (dry or wet) in at least one eye. The overall proportion of AMD was 1.50%. Of all patients with AMD, 103 (46.61%) had wet/exudative AMD and were more at risk of losing vision. Of all patients with AMD, 71 (32.13%) had visual acuity of better eye < 3/60, which was taken as criteria for blindness.

It was also found that old age (71-80 years), male sex, family history of AMD, history of sun exposure, vegetarian diet, history of hypertension were significant risk factors of wet AMD ($p < 0.05$). Although history of cataract surgery, diabetes and dyslipidaemia seem to have significantly protective effect (we took those taking treatment for latter two as criteria for presence of disease), presence of cataract, diabetes and dyslipidemia are known to predispose to AMD.

Discussion

Prevalence of AMD in present study (1.50%) was slightly less than another hospital based study conducted in India (Mysore) where 2.2% patients had AMD whereas in another study conducted in Maharashtra, 1.38% patients had same problem [3,4]. The difference can be explained partly in terms of selection criteria as in Maharashtra study, patients aged 50 years and above were included as compared to 45 years and above in present and Mysore study. Prevalence of 1.82% and 2.7% respectively have been recorded in Andhra Pradesh Eye Disease Study and Aravind Comprehensive Eye Study conducted in India.

A comparative study conducted from Singapore concluded that the prevalence of AMD was similar among Indian adults living in urban Singapore and rural India, despite differences in cardiovascular risk factor profile and demographics [5].

In Western populations, prevalence of 1.51% and 1.81% has been recorded in the Beaver Dam Eye Study and The Blue Mountains Eye Study [6,7]. Prevalence of 1.4% and 4.9% respectively has been recorded in Beijing Eye Study and Singapore Malay Eye Study. The LA Latino Eye Study also took into account patients with AMD.

Similar determinants of AMD have been recorded in most Indian and western studies [3,4,1,6,7].

Conclusion

AMD does not seem to be a problem of public health magnitude in the study area. Old age (71-80 years),

male sex, history of sun exposure, family history of AMD, vegetarian diet, history of hypertension, cataract, diabetes and dyslipidaemia are significant risk factors of wet AMD.

Recommendation

Awareness of community health workers towards determinants of blinding AMD can go a long way in screening and early diagnosis of the disease and thereby prevention of blindness in the elderly.

Limitation of the study

It is a hospital based study. Another limitation of the study is that due to shortage of time response to treatment and its determinants could not be analysed.

Relevance of the study

In today's age of increasing tendency for prevention of blindness, a thorough knowledge of all causes of blindness is a must so as to reach the goal of <1% prevalence of blindness in the community.

Authors Contribution

ML: Study design, analysis and manuscript preparation. SL, SMD: Data Collection and KSN: Checking of analysis, facilitating manuscript writing.

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Tables

TABLE 1 RESULTS IN LINE STATEMENT (PATIENTS WITH WET AMD)

1.	Age (All patients were above 45 years)	Max (39.80%) in age group 71-80 years
2.	Sex	Males 61.16% Females 38.83%
3.	Dietary Habit	Vegetarian 68.49 % Non Vegetarian 31.51 %
4.	Hypertension with AMD	Yes 63.11% No 36.89%
5.	Diabetes (H/O taking Hypoglycaemic Drug)	Yes 27.18% No 72.81%
6.	Family History with AMD	Yes 47.83% No 52.17%
7.	Cataract Surgery with AMD	Yes 38.83% No 61.16%
8.	Smoking Habit with AMD	Yes 28.12% No 71.87%
9.	BMI	Underweight 5.26% Normal Weight 56.58% Overweight 31.58% Obese 6.58%
10.	Dyslipidaemia (H/O taking Cholesterol Lowering Drug)	Yes 3.88% No 96.12%

Figure

FIGURE 1 DISTRIBUTION OF WET AMD PATIENTS AS PER BMI

