

A Prospective Study on the Incidence and Risk Factors of Age Related Macular Degeneration among Elderly Patients in a Tertiary Care Hospital in Southern India

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ABSTRACT

Aim: To determine the incidence and risk factors causing age related macular degeneration in elderly patients who are above 50 years of age. **Materials and methods:** 500 patients attending the Ophthalmology out-patient department (OPD) from August 2020 to January 2021, aged more than 50 years were included in the study. Written and informed consent was taken. A detailed ophthalmic history including age, gender and history of hypertension, Diabetes mellitus, hyperlipidemia, chronic smoking and alcoholism, diet history, family history of defective vision was taken from all patients. Ocular examination included best corrected visual acuity testing for both distance and near vision, thorough Slit lamp bio microscopic examination of the anterior segment, fundus examination with +90 Dioptre lens and indirect ophthalmoscopy. **Results:** out of 500 patients, 15 patients had ARMD. Of which 4 patients (26.66%) had unilateral ARMD and 11 patients (73.33%) had bilateral ARMD. 8 patients were males and 7 were females. 10 out of 15 patients (66.6%) were above 80 years of age. 7 patients (46.66%) had a history of chronic smoking. 8 patients (53.33%) were hypertensive of which 6 were on regular treatment and 2 were not on regular treatment. 2 patients (13%) were on treatment for dyslipidemia. 1 patient had vision less than 3/60 in the better eye. **Conclusion:** Risk of developing ARMD increases with advancing age and chronic smoking, hypertension and dyslipidemia were associating risk factors.

Key words: Age related macular degeneration, Smoking, hypertension, Dyslipidemia, Obesity

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INTRODUCTION

Age related Macular degeneration is one of the leading causes for blindness worldwide. It is more common in developed countries and its incidence increases with advancing age. In India, occurrence of ARMD is around 1.8% to 4.7%. End stage blinding AMD occurs in 1.7% of persons over 50 years and 18% over 85 years. In late stages of ARMD, central vision is lost [1].

Age related maculopathy (ARM) is characterized by discrete yellow lesions at the macula called drusen and hyperpigmentation or depigmentation of retinal pigment epithelium [2].

Age Related Macular degeneration (ARMD) is characterized by geographic atrophy of RPE with visible choroid vessels, PED with/without neurosensory detachment, Sub retinal/sub RPE CNV and fibro glial scar tissue, haemorrhage and exudates.

Early ARMD is characterized by large (more than 125micrometer of diameter) and soft drusen in the

macula and retinal pigmentary changes and late ARMD included geographical atrophy and endovascular ARMD.

Risk factors for ARMD include smoking, diabetes mellitus, hypertension, dyslipidemia, advancing age, obesity and family history [3].

MATERIALS AND METHODS

This was a cross-sectional descriptive study. Written informed consent was obtained from all patients. Institutional ethical committee approval was obtained before the study. 500 patients aged over 50years who attended the ophthalmology OPD from 1st August 2020 to 1st January 2021 were included in the study.

All patients aged more than 50years, with defective vision, patients with hypertension, diabetes, dyslipidemia, history of smoking and alcoholism were included in the study.

Exclusion criteria included (1).age less than 50 years. (2).patients with other retinal pathologies, uveitis, dense cataract, vitreous haemorrhage and any other cause of defective vision.

Detailed history was taken from all patients including history of smoking, alcoholism, hypertension, diabetes, dyslipidemia, diet and family history of defective vision. A complete ocular examination was done. Vision was tested

with Snellen's chart for distant vision and Jaeger's chart for near vision. For distant vision, patient was placed at 6m from the Snellen's chart and each eye was tested separately. For near vision, Jaeger's chart was placed at 25-33cm from the patient. Amsler's grid chart was tested separately for each eye. Anterior segment was examined with slitlamp bio microscope and fundus was examined with +90D Volk lens. Macular edema was identified with a slit beam. Red free filter helped in differentiating drusen from haemorrhage and exudates. Indirect ophthalmoscope was used to examine the fundus in the presence of central lenticular opacity. Blood pressure was recorded for patients with hypertension. Blood glucose

level and lipid profile was checked for patients with diabetes and dyslipidemia respectively. Body mass index was calculated for all patients with the formula weight (kg) / height (in meters).

RESULTS

During the study period, 500 patients aged more than 50 years attended the OPD with various ocular complaints. Of which 15 patients were diagnosed with ARMD. ARMD was seen more in males (53.33%) than females (46.66%) (Table 1).

Table 1: ARMD.

Gender	Number of patients
Male	8
Female	7

4 patients (26.66%) had unilateral ARMD and 11 patients (73.33%) had bilateral ARMD. 8 patients were males and 7 were females. 2 patients were in the age group 51-60

years, 2 were in the age group of 61-70 and 4 were in the age group 71-80 and 10 out of 15 patients (66.6%) were above 80 years of age (Table 2).

Table 2: Age distribution.

Age group	Number of patients
51-60	2
61-70	2
71-80	4
>80	10

7 patients (46.66%) had a history of chronic smoking. 8 patients (53.33%) were hypertensive of which 6 had coexisting type II diabetes mellitus and were on regular

treatment and 2 were not on regular treatment. 2 patients (13%) were on treatment for dyslipidemia. 3 patients were obese with BMI >30 (Table 3).

Table 3: History of patients.

Risk factors	Number of patients
Smoking	7
Hypertension	8
Dyslipidemia	2
Obesity	3
Advanced age (>80)	10

Among the 15 patients with ARMD, 12 patients had only drusen in the macular area and the remaining 3 patients had associated retinal pigmentary changes.

Dry type of ARMD was seen in 6 patients, 8 patients had choroidal neovascularisation and 1 patient (6.66%) had a macular scar in both eyes.

The patient with macular scar had vision less than 3/60 in both eyes. 5 patients (33.33%) had a visual acuity of 6/24 to 6/60, 9 patients (60%) had 6/18 to 6/12.

DISCUSSION

ARMD is a primary cause of blindness especially in the developed countries. With increasing population in India, the numbers of cases developing ARMD are increasing. With increase in life expectancy, more patients are diagnosed with ARMD. Various known risk factors include advancing age, smoking, hypertension, dyslipidemia, diabetes, obesity and alcoholism.

In our study, out of 500 patients, 15(3%) were diagnosed with ARMD. Males were slightly more affected than females. This could probably be due to increased

incidence of smoking among males as compared to females. A strong association exists between ARMD and cigarette smoking. 66.6% of patients were more than 80 years of age in our study. This shows that with advancing age, there is a higher risk of developing ARMD.

The overall proportion of ARMD was 3% which was similar to other studies. 4 patients (26.66%) had unilateral ARMD and 11 patients (73.33%) had bilateral ARMD. Out of the 4 patients, 3 had right eye involvement and 1 had left eye involvement. This suggests that ARMD is usually bilateral.

In our study, 8 patients were hypertensives. This was similar to a study by Hyman et al.

Obesity was associated with ARMD. In our study 3 patients had a BMI >30 signifying the role of obesity in the development of ARMD. 2 patients who developed ARMD had dyslipidemia and were on treatment.

Only 1 patient had bilateral blindness. Pokharel et al., has noted that 15% of ARMD cases with less than 3/60 visual acuity in Nepal [4].

Central vision is lost in ARMD due to deposition of drusen in the Bruch membrane. Drusen is derived from RPE and its accumulation is due to failure of clearance of debris. Drusen is located between inner collagenous layer of Bruch membrane and basal lamina of RPE [5]. One patient had bilateral blindness due to macular scarring which was similar to previous studies.

No dietary variations were seen in this study correlating with the development of ARMD. No positive family history of ARMD was seen in our study.

Early and prompt diagnosis and treatment of ARMD will help in delaying the progression of the disease. Fundus fluorescein angiography helps in delineating the drusen better and also aids in the management of ARMD. Visual outcome is poorer with delay in treatment and increased number of risk factors.

The limitation of this study was its smaller sample size as compared to the other studies.

CONCLUSION

This study was done to emphasize the role of advancing age and other risk factors in the development of ARMD. Smoking, hypertension and dyslipidemia have been found to be strongly associated with ARMD. Routine screening for ARMD changes in elderly patients helps in early diagnosis and management. Control of risk factors helps in preventing the development of ARMD.

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