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Original Research Paper

Ophthalomology

A HOSPITAL BASED STUDY OF AGE AND RISK OF AGE RELATED MACULAR DEGENERATION

Dr Bhup Singh* Ophthalmologist ZH MANDI Himachal Pradesh *Corresponding Author

Dr Umang Thakur Ophthalmologist ZH MANDI Himachal Pradesh

ABSTRACT The present study was aimed to study the age and risk of age related macular degeneration. Age-related macular degeneration(AMD) is one of the main socioeconomical health issues worldwide. This is prospective study include all patients of age related macular degeneration above 50 years of age presenting in the Department of Ophthalmology at Dr.RPGMC Tanda. There were total 86 patients with age ranging from 50 to 90 years.Most of the patients were in early ARMD group(n=55) and maximum were in the age group of 61-70 years(n=37).Finding showed that with increasing age number of patients with intermediate/exudative form of ARMD also increases.

KEYWORDS : Age, Age-related Macular Degeneration.

1. INTRODUCTION

Age related macular degeneration (ARMD) represents a spectrum of gradual ageing resulting in degenerative changes in the human macula. It is a major cause of blindness and severe visual loss in older people in developed countries[1].

In India, the prevalence of ARMD ranges between 1.4% to 1.8% in different epidemiological studies. It results in progressive and irreversible loss of central vision affecting the macula of the eye and involve the retinal pigment epithelium (RPE), Bruch`s membrane (BM) and choriocapillaries[2].

Macular degenerative changes have typically been classified into two clinical forms, dry or wet, both of which can lead to visual loss. In the dry form visual loss is usually gradual. Ophthalmoscopy reveals yellow subretinal deposits called drusen, or retinal pigment epithelial irregularities, including hyperpigmentation or hypopigmentary changes. Larger drusen may become confluent and evolve into drusenoid retinal pigment epithelial detachments (PEDs). These drusenoid RPE detachments often progress to geographic atrophy and less frequently to neovascular ARMD. Geographic atrophy involving the centre of the macula leads to visual loss. Each of these signs can be further subdivided according to the number and size of the lesions.[3]

In the wet (exudative) form, vision loss can occur suddenly, when a choroidal neovascular membrane leaks fluid or blood into the sub pigment epithelial or sub retinal space. Serous RPE detachments with or without coexisting choroidal neovascularization (CNV) are also classified as the wet form. According to international classification and grading system[4], early age related maculopathy (ARM) is defined as the presence of drusen and RPE irregularities, and the terms late ARM and AMD are limited to the occurrence of geographic atrophy and neovascular disease.[3]

Prevalence, incidence, and progression of all forms of ARMD rise steeply with increasing age.

ARMD is associated with elevated level of white blood cells, fibrinogen, low-density lipoproteins, cholesterol, homocystein and C-reactive protein[5,6,7].

Lipids are deposited in Bruch's membrane possibly from failure of the retinal pigment epithelium to process cellular debris. Only later in the disease process are drusen visible. Drusen that elevate the RPE reveal that they contain lipid, amyloid, complement factors and additional cellular components. The appearance of drusen is preceded by thickening of Bruch's membrane, degeneration of elastin and collagen with in Bruch's membrane with calcification of Bruch's membrane with increased level of advanced glycation end products and accumulation of lipids and exogenous proteins. These changes lead to hydrophobic barrier to impede the passage of fluid and nutrients between the choroid and outer retina resulting in relative ischemia.[8]

Treatment for ARMD includes dietary supplementation of anti-oxidants, laser therapy (thermal photocoagulation, photodynamic therapy and surgery), anti-vascular endothelial growth factor (VEGF) and combination therapy (laser along with anti-VEGF treatment). These treatments are offered depending on the clinical phenotype to retard progression of the disease, as complete reversal is not possible.

3. Methods

Place of Study: Department of Ophthamlology, Dr. RPGMC, Tanda.

Study Population: All patients of age related macular degeneration above 50 years of age presenting in the Department of Ophthalmology at Dr.RPGMC Tanda.

Study Design: Prospective study.

Study Period: One year.

Inclusion Criteria

- All the patients of age related macular degeneration of age above 50 years presenting in Department of Ophthalmology, Dr. RPGMC Tanda.

Exclusion Criteria

- Patients with predominantly other types of retinopathies.
- Patients who refuse to give consent.
- Patients with dense corneal and lenticular opacities.

Study Procedure

All the patients of age-related degeneration attending the Out Patient Department of Ophthalmology at Dr. RPGMC Kangra at Tanda whether symptomatic (i.e. complaining of diminished vision, scotoma,micropsia or macropsia) or asymptomatic (i.e. with ophthalmoscopic features suggestive of ARMD) were included in the study. Patients particulars like name, age, sex and address was recorded. A detailed ocular history from all the patients was recorded.

Family history along with personal history of smoking was taken. They were enquired about the number of packs/years he/she had been smoking.

Packs/years were calculated by multiplying the number of packs with years of smoking. The number of bidis taken by the patient per day were converted to cigarettes as four bidis are equal to one cigarette. One pack of cigarette is equal to twenty cigarettes. In India a packet has 10 cigarettes rather than 20 so the number of packs were divided by two.[9]

Detailed local examination of both the eyes was done, which included the following:-

- Visual acuity using Snellen's chart.
- Retinoscopy using Self-illuminated retinoscope was done after full dilatation of pupil using Tropicamide 1% eye drops.
- Detailed examination of anterior segment with slit lamp was performed.
- Amsler grid chart was used to detect micropsia, macropsia and metamorphosia.Type-1 Amsler grid chart was used to evaluate 10^0 of visual field surrounding fixation.Type-1 chart comprised of 10 cm square containing 400 small squares each of size 5 mm which when viewed at one-third of meter subtends an angle of 1^0.
- Direct ophthalmoscopy with 90D and Indirect ophthalmoscopy was done after full dilatation of pupil with Tropicamide 1% eye drops.

Following Criteria Were Used to Define ARMD and Drusen Size:

Small Drusen: Drusen which were less than 63um.

Medium: Drusen which were of the size of 63um to125um.

Large: Drusen which were 125um in size or more i.e. the width of a ratinal vein as it crosses the optic nerve head.[10]

4. RESULTS:

The present study was aimed to study risk factors for age related macular degeneration. All patients of age related macular degeneration above 50 years of age presenting in the Department of Ophthalmology Dr. RPGMC Tanda during the period of one year were included in the study. Total 86 patients were examined.

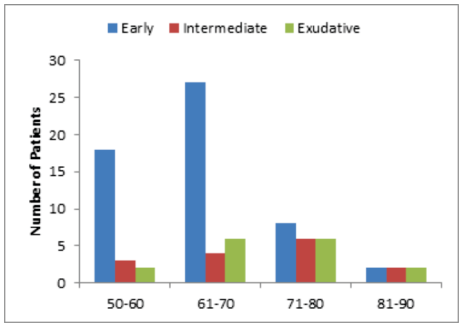

Fig Distribution of age group with Early, Intermediate and Exudative ARMD.

Age

There were total 86 patients with age ranging from 50 to 90 years. Most of the patients were in early ARMD group (n=55).The distribution of age group with early, intermediate and exudative ARMD is shown in table, fig.There was significant association between number of patients in age-groups with ARMD (P=0.014).

Table. Distribution of Age-group with Early, Intermediate and Exudative ARMD

Age group (Years)	Diagnosis			Total	P Value
	Early	Intermediate	Exudative		
50-60	18 (20.93%)	3 (3.48%)	2 (2.32%)	23 (26.74%)	(0. 014)
61-70	27 (31.39%)	4 (4.65%)	6 (6.97%)	37 (43%)	
71-80	8 (9.3%)	6 (6.97%)	6 (6.97%)	20 (23.25%)	
81-90	2 (2.32%)	2 (2.32%)	2 (2.32%)	6 (6.97%)	
Total	55	15	16	86	

5. DISCUSSION

The aim of the present study was to ascertain risk factors for age related macular degeneration. All patients of ARMD above 50 years of age presenting in the Department of Ophthalmology Dr. RPGMC Tanda for one year were included in the study. In the present study which included a total of 86 patients , ranging from 50 to 90 years. We found that early ARMD was more common in the age group of 61-70 years (31.39%).It was also observed that intermediate and exudative form of ARMD was more common in the age group of 71-80 years (6.98% each). We found equal distribution of early, intermediate and exudative ARMD (2.32% each) in the age group 81-90 years. Thus, the age distribution among ARMD patients shows that the number of patients with ARMD increase with age and the incidence of intermediate/ exudative form of ARMD in particular, is more above the age of 70 years. It was found statistically significant (p=0.014)

Smith et al studied risk factors for ARMD and found that its prevalence was strongly age related. Overall, ARMD was present in 0.2% of the combined population aged 55 to 64 years, rising to 13% of the population older than 85 years. Prevalence of neovascular (NV) ARMD increased from 0.17% among aged 55 to 64 years to 5.8% for those older than 85 years[11]. The Tromso Study about Age –related macular degeneration: an another cross sectional study by Gran Erke found that late ARMD was present in 10.9% of subjects aged 80 years and older. However age was a strong risk factor for large drusen and late ARMD[12].

Jonasson et al in their study about prevalence of age –related macular degeneration in old persons, found prevalence of early ARMD was 12.4% for those 66 to 74 years old and 36% for those 85 years and older[13]. Geirdottir et al in their study found that with increasing age a gradually large proportion of participants had advanced form of ARMD, 54% of all those 75 years and older had advanced ARMD ,64% of all those 85 years and older, 74% of all those 95 years and older and all 100 years and older had advanced ARMD[14].

The present study is similar to above mentioned studies where advanced form of ARMD is more common with increasing age particularly more than 70 years.

6. CONCLUSIONS

This study shows that with increasing age number of patients with intermediate/exudative form of ARMD also increases.

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