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Ophthalmology

A STUDY ON FUNDUS FINDINGS IN AGE RELATED MACULAR DEGENERATION IN BUNDELKHAND REGION

Dr. Jitendra Kumar	M.S., Professor and Head of the Department, Department of Ophthalmology, M.L.B. Medical College Jhansi, Uttar Pradesh, India.
Dr. Nistha Singh	Junior Resident, Department of Ophthalmology, M.L.B. Medical College, Jhansi, Uttar Pradesh, India.
Dr Ruby Bala	Junior Resident, Department of Ophthalmology, M.L.B. Medical College, Jhansi, Uttar Pradesh, India.
Dr. Swati Verma	Senior Resident, Department of Ophthalmology, M.L.B. Medical College, Jhansi, Uttar Pradesh, India

ABSTRACT **Purpose:** The aim of this study was to study fundus findings in Age Related Macular Degeneration in the department of Ophthalmology at M.L.B. Medical College, Jhansi. **Materials And Method:** Retrospective study of 20 patients with 32 eyes of ARMD (age related macular degeneration) presented to us in the Department of Ophthalmology at M.L.B. Medical College, Jhansi. **Results** The mean age of presentation to us was 58 years, with 12 patients had bilateral presentation and rest 8 unilateral presentation. Females were affected more than males, with majority had dry ARMD characterised by drusens. Wet ARMD was more sight threatening but less prevalent in the study. In wet ARMD maximum patients were of Choroidal neovascularization. **Conclusion:** Dry ARMD cases require regular follow up to identify early signs of progression to an advanced stage or neovascular ARMD. Best spectacle correction along with low vision aids added with Multivitamins were prescribed for dry ARMD. Amsler grid monitoring was advised. Wet ARMD was treated with Anti- VEGF inhibitors such as Ranibizumab, Aflibercept, laser photocoagulation and Photodynamic therapy.

KEYWORDS : ARMD, age related macular degeneration, pigment epithelial detachment, drusens, geographic atrophy

INTRODUCTION:

Age-related macular degeneration (ARMD) is the most common cause of blindness prevalent in developed countries, particularly in people older than 60 years. Macular degenerative changes involve the central part of the retina that is the fovea. It accounts for 8.7% of all types of blindness worldwide. [1] Risk factors can be classified into a sociodemographic, lifestyle, cardiovascular, hormonal and reproductive, inflammatory, genetic, and ocular. Various studies have demonstrated an increase in prevalence as well as the progression of ARMD with age. [2] It has been classified into two clinical forms dry or non-neovascular and wet or neovascular. Vision loss is gradual if it occurs in the early or intermediate dry stage of ARMD. The examination of fundus reveals yellowish subretinal deposits or drusen and RPE hyperpigmentation or hypopigmentary changes. Drusen can be hard (definite boundaries) or soft (indistinct boundaries), or they may confluence into larger drusen and may evolve into drusenoid RPE detachments (PED). Atrophy of the retinal pigment epithelium occurs in the advanced stage of the disease known as Geographic atrophy. Geographic atrophy on involving the center of the macula leads to significant visual loss. The disease has been staged into four groups based on clinical examination of the macula:[3]

Group 1 (no ARMD): no drusen or 5–15 small drusen (<63 microns in diameter) in the absence of any other stage of ARMD.

Group 2 (early-stage ARMD): more than 15 small drusen or less than 20 medium-sized (63-124 micron in diameter) indistinct soft drusen or pigment abnormalities but not geographic atrophy.

Group 3 (intermediate stage): the presence of at least one large druse (>125 microns in diameter), or presence of numerous medium-sized drusen (approximately 20 or more drusen with indistinct boundaries and 65 or more drusen with distinct boundaries) or presence of non-central geographic atrophy i.e., atrophy not involving the fovea.

Group 4 (advanced stage): central geographic atrophy that involves the fovea or presence of neovascular ARMD.

MATERIALS AND METHODS

This study was a retrospective observational study that involved 32 eyes of 20 patients of Age Related Macular Degeneration complaining of chronic blurring of vision not improving with pinhole, dark or empty areas in the central vision and a gradual loss of color vision. Patients were recruited from the OPD done at the Maharani Laxmi Bai Medical College, Department of Ophthalmology between April 2022 to June 2023. It was performed under the Helsinki Declaration of 1975, as revised in 2000. The necessary from the Ethical and Research Committee was obtained for the study.

Inclusion Criteria

All patients who presented to us with complaining of chronic blurring of vision not improving with pinhole, dark or empty areas in the central vision and a gradual loss of color vision, which later examined using Indirect Ophthalmoscopy and Optical Coherence Tomography 3D Macula.

Exclusion Criteria

1. Patients with advanced glaucoma or cataract.
2. Patients with other retinal disease such as diabetic retinopathy or hypertensive retinopathy.
3. Patients who had already received treatment for ARMD such as Anti VEGF injections, laser therapy or photodynamic therapy.
4. Pregnant or lactating mothers.
5. Patients who had gone recent intraocular surgery.
6. Patients who refused consent.

RESULT

In this study the mean age of presentation to us was 58 years, with 12 patients had bilateral presentation and rest 8 unilateral presentation. The gender predilection was observed to be females with 13 female patients and rest 7 males. Majority of patients with 66% had only small drusens (less than 63 microns). Geographic atrophy was seen in 09% of patients. Thus 75% in total had Dry ARMD. Rest patients had wet ARMD. Choroidal neovascularization was seen in 13% patients, Polypoidal choroidopathy in 6% and Retinal angiomatoses in 6% too.

DISCUSSION

Dry ARMD cases require regular follow up to identify early signs of progression to an advanced stage or neovascular ARMD. Early ARMD in both eyes requires no intervention. Individuals with intermediate ARMD or advanced ARMD in at least one eye should be started on the dietary supplement, as suggested by AREDS.[4][5] Amsler Grid monitoring was advised to pick up early conversion to Wet ARMD. The treatment of wet ARMD (neovascular or exudative ARMD) primarily involves the use of intravitreal injections of anti-vascular endothelial growth factor (anti-VEGF) medications. These medications work by blocking the activity of VEGF, a protein that promotes the growth of abnormal blood vessels in the retina. The first one to be approved by the Food and Drug Administration (FDA) was pegaptanib in 2004. It is an RNA oligonucleotide ligand, also known as

an aptamer that binds VEGF 165.[8] Ranibizumab, Bevacizumab, and Aflibercept have supplanted pegaptanib since then. Ranibizumab is a recombinant humanized antibody fragment (Fab) that binds VEGF. It binds to all isoforms of VEGF. Studies like MARINA, ANCHOR, PIER, and EXCITE have proved that ranibizumab administered in monthly doses causes not only reduced loss of ETDRS letters in treated eyes but also improves visual acuity in treated eyes compared to control eyes. Aflibercept, also known as the VEGF trap, is a protein that acts as a VEGF receptor decoy. It has a combination of ligand binding elements of VEGFR1 and VEGFR2, which is fused to the constant region (Fc) of immunoglobulin IgG. It binds both VEGF and placental growth factor and has good retinal penetration. VIEW 1 and 2 studies have documented that aflibercept is non-inferior to ranibizumab in terms of gain in the number of ETDRS letters while measuring visual acuity at the end of the treatment period. A higher dose of aflibercept administered every two months instead of monthly was also seen to be as effective as a monthly dose of ranibizumab.[9] Laser Photocoagulation is used where lesion sufficiently peripheral to the fovea that presents minimal risk of iatrogenic damage is the one that can undergo laser treatment. Macular photocoagulation studies revealed poor outcomes and high recurrence rates after thermal laser treatment, hence used rarely nowadays.[06] PDT was introduced in 2000 as less destructive phototherapy for treating CNV. It involves the application of light of a specific wavelength to the CNVM after administering drug verteporfin intravenously. The light incites a localized photochemical reaction in the targeted area, resulting in CNV thrombosis. The progression of CNVM is slowed, but the visual prognosis is poor.[07]

Table 1: showing age wise distribution of ARMD

Age(years)	n(%)
30-40	0(0%)
40-50	2(6%)
51-60	12(38%)
61-70	10(31%)
71-80	8(25%)

Table 2: showing various presentation of ARMD

Presentation	n(%)
Drusens only	21(66%)
Geographic atrophy	03(09%)
Choroidal neovascularization (CNV)	04(13%)
Polypoidal choroidal vasculopathy (PCV)	02(6%)
Retinal angiomatous proliferans (RAP)	02(6%)

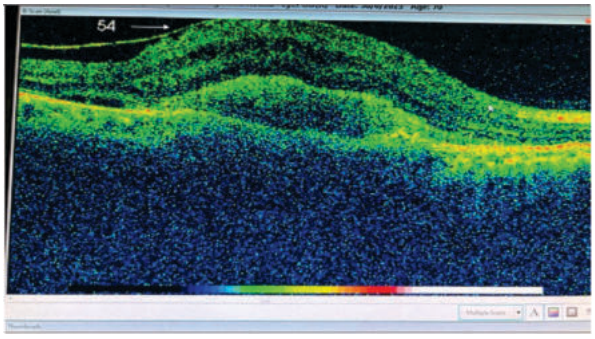

Image 1: OCT picture showing choroidal neovascularization

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