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Assessment of various presentations of Age-related macular degeneration in a Tertiary care Centre in south Gujarat

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Abstract

Purpose: To assess various presentations of ARMD (age-related macular degeneration) in a tertiary care Centre in South Gujarat. Design: The study design was cross-sectional Study.

Materials and Methods: It was a cross-sectional study which included patients coming to New Civil Hospital Surat from March 2021 to June 2022.

Results: Total 50 patients (100 eyes) having ARMD were included in present study. Maximum number of patients belonged to age group of 50-59 years (38%). Minimum number of patients belonged to age group of 70-79 years (26%). Out of 50 study participants, 30(60%) were males and 20(40%) were females. Ratio of male to female is 1.5:1. Dry ARMD was found in 66 eyes (80.48%) and wet ARMD was found in 16 eyes (19.52%). Maximum number of patients was found in AREDS (Age-related eye disease studies) category 4 group (36%) and minimum number of patients were found in AREDS categpory 3 group (13%). Hypertension was found in 16 (32%) patients having ARMD. Diabetes was found in 8 (16%) patients having ARMD. Out of 50 patients, 8 (16%) of patients were smokers, 8 (4%) of patients were alcoholics, 8 (4%) of patients were tobacco-chewers. ORT found in 1 eye of dry ARMD and 5 eyes of wet ARMD.

Conclusion: Patients should be screened for various risk factors; OCT can be used for early diagnosis.

Keywords: ARMD, OCT

Introduction

Age-related macular degeneration is a prevalent cause of vision loss in elderly population characterized by progressive loss of central vision. ARMD accounts for 8.7% of total blindness globally. In industrialized countries, ARMD is becoming one of the primary cause of visual impairment. World Health Organization has

included ARMD in its action plan, to address avoidable blindness in VISION 2020 program. It manifests as two forms: dry (atrophic) and wet (exudative) form of age-related macular degeneration.

Dry form is more common than wet form. It is seen in 90% cases of patients diagnosed with ARMD while rest 10% has wet or exudative form of ARMD. Though uncommon form it has more serious complications including blindness.

OCT (Optical coherence tomography) allows high-resolution cross-sectional (tomographic) images of the neurosensory retina and deeper structures to be obtained in a non-invasive manner. CT works by measuring the properties of light waves reflected from and scattered by tissue (similar to measurement of sound waves in ultrasonography test). As the wavelength of light is much shorter than that of sound, OCT produces images with much higher resolution than that of ultrasound.

Multiple OCT based signs are reported that may be difficult to appreciate and identify clinically. There are other OCT signs associated with ARMD such as: Outer retinal tubulation (ORT), Hyperreflective spots or dots (HRD), Focal choroidal excavation (FCE), Pearl necklace sign, Cystoid foveal degeneration (CFD). The presence of ORT structures indicates disorganized outer retinal layers, irreversible photoreceptor damage, and a worse visual prognosis.

The ability to accurately interpret OCT images is thus critical for retina specialists and important for comprehensive ophthalmologists. OCT image interpretation in patients with ARMD can best be applied to the management of these patients in clinical practice.

Sampling Technique & Site

Purposive sampling: All relevant cases fulfilling inclusion and exclusion criteria coming to hospital

Site

Ophthalmology OPD, tertiary health Centre, South Gujarat

Total Study Period

(Data Collection period + Analysis and Writing) 24 months

(18 months data collection period + 6 months for analysis and writing the results)

Inclusion criteria

1) All patients who give written consent to participate in study

2) All patients above 50 years of age having ARMD visiting ophthalmology OPD

Exclusion criteria

1) Pathological myopia

2) Diabetic macular edema

3) Patients having old healed central chorioretinitis

4) Traumatic maculopathy

5) Patients with pre-existing ocular diseases like glaucoma,corneal opacity

6) Central serous retinopathy

Study method

All patients above 50 years of age having ARMD attending ophthalmology OPD in tertiary health Centre,South Gujarat were evaluated in the following manner. As a part of routine ophthalmic evaluation, first clinical history will be taken.

The patients were examined as per protocol in which unaided visual acuity with Snellen's chart with pinhole was taken. Best corrected Visual acuity taken. Then Amsler's grid test was done. Patient was evaluated with Slit lamp biomicroscopy with 78 D lens after dilatation.

Then Fundus examination with direct and indirect ophthalmoloscope was done. Optical coherence Tomography (OCT) done.

Observation and results

Table 1: Age-wise distribution of patients of ARMD. (n=50)

Age group	Number of patients	% Of patients
50 - 59	19	38 %
60- 69	18	36%
70-79	13	26%

Table 2: Gender-wise distribution of ARMD. (n=50)

Gender	Number of Patients	% Of Patients
Male	30	60
Female	20	40

Table 3: Distribution of DRY and WET ARMD (n=50)

	Total number of eyes and percentage
Dry ARMD	66 (80.48%)
Wet ARMD	16 (19.52%)

Chart 1: ARMD classification according to AREDS.

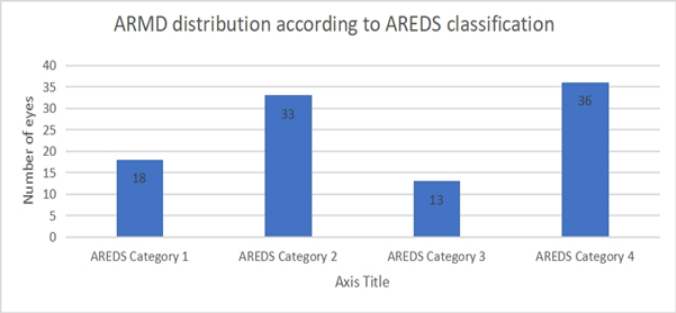

Table 4: Distribution of systemic illness in ARMD. (n=50)

Systemic illness	Number of Patients
Hypertension	14
Diabetes	6
Hypertension + Diabetes	2
None	28

Table 5: Distribution of addiction in ARMD. (n=50)

History of addiction	Number of patients	% Of patients
Alcohol	2	4
Smoking	8	16
Tobacco	2	4
None	38	76

Table 6: Distribution of ORT in patients with dry and wet ARMD (n=50)

OCT sign	Eyes with DRY ARMD	Eyes with WET ARMD
ORT	1	5

Discussion

The present study was conducted in a tertiary care hospital in south Gujarat.

A total of fifty patients diagnosed with age-related macular degeneration participated in this study the maximum number of patients being in the age group of 50-59 age followed by 60 -69 years of age group and 70-79 age group. There were no patients above 80 years of age in our study. Out of 50 study participants, 30(60%) were males and 20(40%) were females.

In India, males are the working and dominant members of the family and so more involved in outdoor activities whereas females are likely to be deprived of health care and less attitude towards health seeking may be the reason for less reporting of female patients in the health care system. Out of 50 participants (100 eyes tested),if present study excludes normal eyes(18) , Dry ARMD was found in 66 (80.48%) eyes and Wet ARMD was found in 16(19.52%) .

According to AREDS classification of ARMD we classified, out of 100 eyes tested, 18 eyes had No ARMD, 33 eyes showed Early ARMD, 13 eyes showed

Intermediate ARMD and 36 eyes showed Advanced ARMD.

As patients are not aware of regular health check-up so patients come with advanced stages of ARMD in one eye. As long as the patient can see from the other eye, some patients are not aware about of their eye with less visual acuity.

Out of 50 patients, 14 patients were Hypertensive, 6 patients were Diabetic and 2 patients were both Hypertensive and Diabetic. So a total of 16 patients were hypertensive, and a total of 8 patients were Diabetic.Jayshree MP et al in 2019studied 120 eyes having ARMD in which 62(51.6%) patients were Hypertensive and 58 (48.3%) were non-Hypertensive. So it was found to be a risk factor of ARMD. Jayshree MP et al in 2019 studied 120 eyes having ARMD in which 33 (27.5%) patients were Diabetic and 87 (72.5%) patients were non-diabetic. Out of 100 eyes examined, ORT was found in 1 eye having dry ARMD 5 eyes having wet ARMD.

Arrigo A et aldetected completely formed ORT in 26/70 eyes (37%), subdivided as follows: 20 eyes with wet AMD and 6 eyes with dry AMD. Present study correlates with this study, ORT found more in wet ARMD.

Conclusion

Present study identifies the various signs of age-related macular degeneration on OCT such as drusens, outer retinal tubulations, hyper-reflective dots. In present study the number of male patients were more than females. The number of patients in dry ARMD is more than wet ARMD. Patients should be screened for various risk factors; OCT can be used for early diagnosis so proper intervention can be taken to prevent subsequent progression to advance stages and visual morbidity.

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