

RESEARCH ARTICLE

CLINICAL TYPES OF AGE-RELATED MACULAR DEGENERATION IN PATIENTS ATTENDING MAKKAH EYE HOSPITAL, ADEN, YEMEN

Ibtihal Aidroos Zain Gaffer^{1,*}, and Reem Alkhadher Saleh²¹ Dept. of Special Surgery, Eye Unit, Faculty of Medicine, University of Aden, Yemen.² Dept. of Special Surgery, Eye Unit, Faculty of Medicine, University of Aden, Yemen. E-mail: reemalkhadher78@gmail.com

*Corresponding author: Ibtihal Aidroos Zain Gaffer; E-mail: ibtihalzain2018@gmail.com

Received: 16 February 2024 / Accepted: 30 April 2025 / Published online: 30 June 2025

Abstract

Age-related macular degeneration (AMD) is a dreadful vision disease mainly affecting older people and causing permanent blindness. To study the clinical profile, risk factors, types, comorbid diseases, and visual impairment in patients of age-related macular degeneration at Makkah Eyes Hospital in Aden, Yemen. This study designed as an observational, retrospective study. The study conducted at Makkah eye hospital in Aden. We reviewed all medical files of the patients who diagnosed with AMD and treated in the hospital during the period January to December 2022. The collected variables were sex, age, residence area, visual acuity, visual impairment, corrected VA, cataract, pseudophakia and AMD. The collected data were processed by the SPSS version 22 and statistical analysis was done by estimating rates, means and standard deviations. Chi-square test was used and p -value < 0.05 was considered as statistically significant. The total study patients were 122 who attended the hospital and diagnosed with AMD and they were (55.74%) males and (44.26%) females. Their age ranged between 27 to 92 years with a mean age of 64.5 ± 10.9 years. The age group 61-70 years were predominant with (35.24%). Most patients were from urban areas (54.10%). Patients with dry AMD were predominant with (77.87%) and wet AMD (22.13%). Hypertension found in (32.79%) patients, diabetes mellitus in (18.03%) patients and cardiac problems only in (3.28%). The most common visual acuity groups were severe visual impairment (0.05-0.1) in both eyes with (35.24%) in the right eyes and (25.41%) in the left eyes. Unilateral cataract was found in (14.8%) and bilateral in (62.2%). In addition, unilateral pseudophakia, was in (13.9%) and in bilateral (13.1%). Males more affected than females and age is the major risk factor for development and progression of AMD. Dry AMD were predominant. Further studies are needed to determine the magnitude of the disease among the elderly population in our country.

Keywords: Age-related macular degeneration, Clinical types, Makkah hospital, Aden, Yemen.

Introduction:

Age-related macular degeneration (AMD) is a progressive retinal disease that involves the macula and might lead to irreversible visual impairment [1,2]. The vision impairment and blindness caused by AMD are avoidable if diagnosed early [3,4]. The development of AMD may be influenced by various demographic and environmental factors, including aging, Cigarette smoking, and family history [5]. Consideration of these risk factors could help to better understand the variations in disease prevalence across different countries. In addition to its notable prevalence, effectively managing

AMD requires significant time and resources, leading to increased demand for services and financial reimbursements [6].

In other study it accounts for (8,7%) of all blindness worldwide and is the most common cause of blindness in developed countries [7,8], particularly in people older than 60 years.

Exudative AMD involves choroidal neovascularization, which is the formation of new abnormal blood vessels in the choriocapillaries through Bruch's membrane. These vessels have a greater tendency of leakage and bleeding into the macula, ultimately leading to irreversible

damage to the photoreceptors if left untreated [9]. Hence, the exudative form accounts for most cases of significant visual loss from AMD [10]. AMD is the leading cause of irreversible blindness apart from cataract and glaucoma especially in elderly population. The disease adversely affects quality of life and the activities of daily life, causing many affected individuals to lose their independence in their retirement years [11].

Objective:

To study the clinical profile, risk factors, types, comorbid diseases, and visual impairment in patients with age-related macular degeneration.

Materials and methods:

This study designed as an observational and a retrospective study. The study was conducted at Makkah eyes hospital in Aden, Yemen.

We reviewed all medical files of the patients who diagnosed with AMD and treated in the eye hospital during the period January to December 2022. The collected variables were sex, age, residence area, visual acuity, visual impairment, corrected VA, cataract, pseudophakia and AMD. The collected data were processed by the statistical software package SPSS version 22 and statistical analysis was done by estimating rates, means and standard deviations. Chi-square test was used and p -value < 0.05 was considered as statistically significant.

Results:

We enrolled 122 patients in our retrospective study who suffered of macular degeneration and who attended Makkah eyes hospital in Aden. The study patients included 68 (55.74%) males and 54 (44.26%) females with a ratio of male to female of 1.26:1, as shown in Table 1, Figure 1.

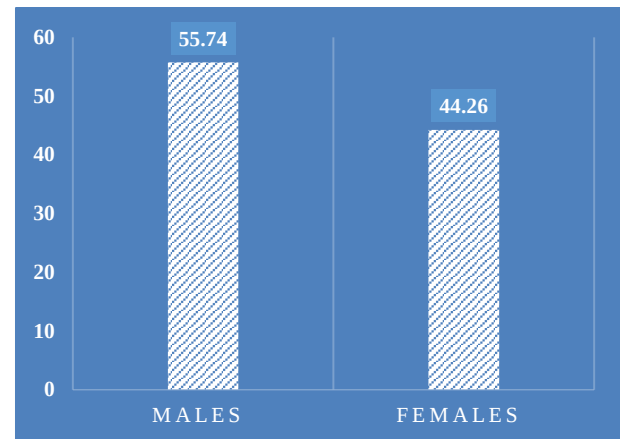


Fig. 1: Proportion of study patients related to sex

The age of the patients ranged between 27 to 92 years. The age of male patients ranged between 44 to 92 years and for female patients ranged between 27 to 82 years. The mean age of patients was 64.5 ± 10.9 years. The mean age of female patients was 59.3 ± 9.9 years and the mean age of male patients was 68.5 ± 10.1 years. The difference between means related to sex shows statistically highly significant ($p = 0.000$).

The patients of the age group 61-70 years were predominant with 43 (35.24%) then the age group 51-60 years and 71-80 years with each group 31 (25.41%). The difference between values of the age groups related to sex shows statistically significant, as shown in Table 1.

Most of the patients were from urban areas 66 (54.10%), the difference between values of residence areas related to sex showed statistically significant ($p = 0.010$) as shown in Table 1.

In Table 2 and Figure 2, we found dry AMD in 95 (77.87%) patients and wet AMD in 27 (22.13%) patients.

Hypertension was found in 40 (32.79%) AMD patients. Diabetes mellitus was found in 22 (18.03%) AMD patients. Cardiac problems were found only in 4 (3.28%).

Table 1: Distribution of demographic characteristics of the study patients (n=122)

Characteristics	Females		Males		Total		P-value
	No	(%)	No	(%)	No	(%)	
Sex	54	(44.26)	68	(55.74)	122	(100)	
Mean age (years)	59.3 ± 9.9		68.5 ± 10.1		64.5 ± 10.9		0.000
Age group (years):							0.001
≤ 50	7	(5.74)	2	(1.64)	9	(7.38)	
51-60	18	(14.75)	13	(10.66)	31	(25.41)	
61-70	22	(18.03)	21	(17.21)	43	(35.24)	
71-80	6	(4.92)	25	(20.49)	31	(25.41)	
> 80	1	(0.82)	7	(5.74)	8	(6.56)	
Residency:							0.010
Urban	36	(29.51)	30	(24.59)	66	(54.10)	
Rural	18	(14.75)	38	(31.15)	56	(45.90)	

Table 2: Distribution of types of AMD and the risk factors (N=122)

Variables	No	Percent
AMD:		
Dry	95	77.87
Wet	27	22.13
Hypertension:		
Yes	40	32.79
No	82	67.21
Diabetes mellitus:		
Yes	22	18.03
No	100	81.97
Cardiac problems:		
Yes	4	3.28
No	118	96.72

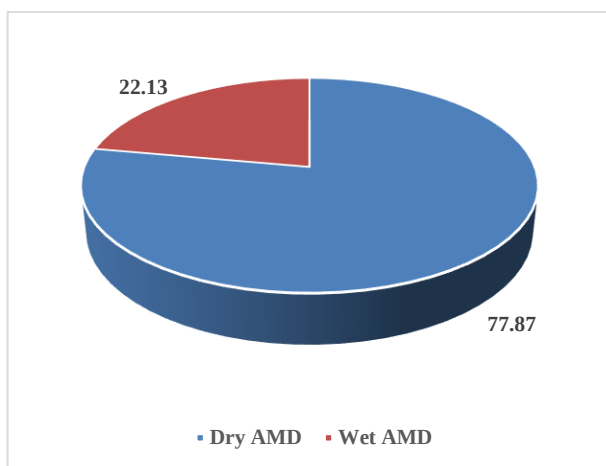
**Fig. 2:** Proportion of dry and wet AMD

Table 3 reveals the distribution of corrected and non-corrected visual acuity as eye examination of the study patients related to right and left eyes.

The most common visual acuity groups were severe visual impairment (0.05-0.1) in both eyes with 43 (35.24%) in the right eyes and 31 (25.41%) in the left eyes. Followed by moderate visual impairment (0.2-0.3) with 24 (19.68%) in the right eyes and 28 (22.95%) in the left eyes, mild visual impairment (0.4 – 0.6), distributed 21 (17.21%) in the right eyes and 26 (21.31%) in the left eyes. Counting finger were found in right eyes 22 (18.03%) and 25 (20.49%) in the left eyes.

Hand movement was found 2 (1.64%) in the right eyes and 1 (0.82%) in the left eyes. Light and no light perception were not found in the non-corrected visual acuity.

In addition, Table 3 shows the corrected VA among the study AMD patients.

We found mild visual impairment (0.4 – 0.6) were predominant with 36 (29.51%) in the right eyes and 33 (27.05%) in the left eyes, followed by moderate visual impairment (0.2 – 0.3) with 24 (19.68%) in the right eyes and 27 (22.14%) in the left eyes. Severe visual impairment (0.05 – 0.1) were 23 (18.85%) in the right eyes and 22 (18.0%) in the left eyes.

The group of corrected VA (0.7 – 1.0) represented with 20 (16.4%) in the right eyes and 22 (18.03%) in the left eyes, followed by counting finger group with 18 (14.75%) in the right eyes and 16 (13.11%) in the left eyes. No light perception was found in the left eyes with 1 (0.82%).

Table 3: Distribution of corrected and non-corrected visual acuity as eye examination related to right and left eyes.

Variables	Side of impairment			
	Right		Left	
	No	(%)	No	(%)
Visual acuity groups:				
0.7 – 1.0				
0.4 – 0.6 (mild visual impairment)	10	(8.19)	11	(9.02)
0.2 – 0.3 (moderate visual impairment)	21	(17.21)	26	(21.31)
0.05 – 0.1 (severe visual impairment)	24	(19.68)	28	(22.95)
Counting finger	43	(35.24)	31	(25.41)
Hand movement	22	(18.03)	25	(20.49)
Light perception	2	(1.64)	1	(0.82)
No light perception	0	(0.0)	0	(0.0)
Corrected VA group:				
0.7 – 1.0				
0.4 – 0.6 (mild visual impairment)	20	(16.39)	22	(18.03)
0.2 – 0.3 (moderate visual impairment)	36	(29.51)	33	(27.05)
0.05 – 0.1 (severe visual impairment)	24	(19.68)	27	(22.14)
Counting finger	23	(18.85)	22	(18.03)
Hand movement	18	(14.75)	16	(13.11)
Light perception	1	(0.82)	1	(0.82)
No light perception	0	(0.0)	0	(0.0)

Table 4 reveals the frequency of cataract, which found among the patients with AMD. They were 18 (14.8%) unilateral and 76 (62.2%) bilateral. In addition, the Table 4 shows the pseudophakia, which were 17 (13.9%) unilateral and 16 (13.1%) bilateral.

Table 4: Distribution of cataract and pseudophakia related to the sides of effected eyes (n = 122)

Variables	Frequency	%
Anterior Segment		
Cataract:		
Unilateral	18	14.8
Bilateral	76	62.2
No cataract	28	23.0
Pseudophakia:		
Unilateral	17	13.9
Bilateral	16	13.1
No pseudophakia	89	73.0

Discussion:

Lim et al [1] reported that AMD is a degenerative ocular condition and a leading cause of blindness and visual impairment worldwide with an estimated global prevalence of 8.69%.

In the present study, the male patients were 68 (55.74%) and the females were 54 (44.26%) with a ratio of male to female of 1.26:1.

This finding is in agreement with other published studies. In Egypt Fadel et al [12] reported that in their study AMD was more common in males. In the Los Angeles Latino Eye Study [13], males were at an approximately two-fold increased risk of any or early AMD. In addition, the Rotterdam Study [14] reported a lower prevalence in females. Studies [15,16] in Asian populations have reported higher late AMD prevalence among male patients compared with female patients.

Other study from Egypt by Kisk et al [17] reported that in their study, they had 105 patients with AMD with predominant of females (66.7%) while males were (33.3%).

According to the National Institute of Health, USA, two-thirds of the worst affected patients with AMD are women [18]. Age-related eye diseases study (AREDS) also showed that females are doubly affected by AMD than males [19]. Females had significantly higher affection for developing AMD than males [18,20].

In the present study the age of the patients ranged between 27 to 92 years. The mean age of patients was 64.5 ± 10.9 years.

The mean age of female patients was 59.3 ± 9.9 years and the mean age of male patients was 68.5 ± 10.1 years. The difference between means related to sex shows statistically highly significant ($p = 0.000$).

The patients of the age group 61-70 years were predominant with (35.2%) then the age group 51-60 years and 71-80 years with each group (25.4%). The difference between values of the age groups statistically significant ($p = 0.001$). Our study results is not in agreement with reported study finding which reported that the risk of acquiring AMD increases more than three folds in patients older than 75 years compared to patients between 65 and 74 years [21].

Most of the patients were from urban areas 66 (54.1%), the difference between values of residence areas related to sex statistically significant ($p = 0.010$).

We included the variables of residence areas to our study due to the importance of this variables. People living in poorer areas (rural areas), from less affluent backgrounds, have a higher risk of morbidity and mortality. There is substantial evidence that lower socioeconomic status is associated with visual impairment [22,23], higher prevalence and incidence of eye disease [24] and ocular risk factors [25].

Hamati et al [26] result was similar to our finding, they reported in their published study in India that 65% patients with AMD were from urban districts and metropolitan regions.

Most patients in our study had dry AMD (77.9%), followed by wet AMD (22.1%). Similarly, a study from Spain found that dry AMD is more prevalent than wet

AMD [27]. However, the prevalence of wet AMD is twice as high as that of dry AMD in some other studies [28,29].

Gottlieb [30] mentioned that 2 types of degeneration were recognized: dry (the most prevalent, atrophic) and wet AMD (exudative neovascular). Both forms are characterized by damage to the central retina, which results in severely impaired vision [31].

Wet or exudative AMD progresses more rapidly than does the dry form and presents a far greater threat to sight [30,32,33]. Nearly 90% of patients with severe vision loss due to AMD have exudative AMD [33]. Wet AMD is the main cause of severe and irreversible vision loss in Western developed countries [32,34]. Cardiac problems were found only in dry AMD patients with 4 (3.3%) ($p > 0.05$).

Sapan et al [35] reported in their published study, that the prevalence of hypertension in patients with AMD was found to be 19%.

Hypertension has been significantly associated with early and advanced AMD in several studies [36,37,38]. In the Framingham Study [36], hypertension was significantly associated with AMD. In the Beaver Dam Eye Study [37], individuals with uncontrolled hypertension had over a three-fold risk of developing exudative AMD.

Diabetes mellitus was found in (18.03%) AMD patients and cardiac problems were found only in 4 (3.28%).

Fadel et al [12] reported in their study, that out of the 67 patients with diabetes, only four had AMD. Only a few studies have shown that diabetes is correlated to late AMD [39,40].

Results from various studies have differed regarding an association between cardiovascular disease, and AMD [38].

In our present study, we found the most common visual acuity groups among AMD patients were severe visual impairment (0.05-0.1) in both eyes with (35.2%) in the right eyes and (25.4%) in the left eyes.

Counting finger were found in right eyes (18.0%) and (20.5%) in the left eyes.

Hand movement was found (1.6%) in the right eyes and (0.8%) in the left eyes. No light perception was found only in the left eyes with (0.8%).

Srinivasan et al [41] from India reported in their study that the prevalence of severe visual impairment, mild and legal blindness in subjects with AMD was 0.8%, 13.1%, and 1.1%, respectively.

In India, a study conducted in a population aged 50 years or older observed that all cases of advanced AMD were

visually impaired with visual acuity worse than 0.25, which is defined as moderate visual impairment [42].

In other study conducted in a population aged 50 years or older in west India, the prevalence of legal blindness (visual acuity worse than 0.05) was 4.2% in AMD [43]. The prevalence of blindness in other Asian countries such as Pakistan, Bangladesh and Nepal are reported to vary from 2.1 to 8.7% for all blindness attributable to AMD [44].

In the current study, we summarized the corrected VA group. We found mild visual impairment (0.4 – 0.6) were predominant with (29.51%) in the right eyes and (27.05%) in the left eyes, followed by moderate visual impairment (0.2 – 0.3) with (19.68%) in the right eyes and 27 (22.14%) in the left eyes. Severe visual impairment (0.05 – 0.1) were (18.85%) in the right eyes and 22 (18.03%) in the left eyes.

The group of corrected VA (0.7 – 1.0) represented with (16.39%) in the right eyes and (18.03%) in the left eyes, followed by counting finger group with (14.75%) in the right eyes and (13.11%) in the left eyes.

In our study we found that unilateral cataract represent 18 (14.8%) cases with AMD while bilateral cataract represent 76 (62.2%).

Bhandari et al [45] reported that epidemiological studies have reported that a history of cataract surgery increased the risk of AMD.

A meta-analysis of the pooled data from the cross-sectional data from the Salisbury Eye Evaluation, Proyecto Project Vision, Evaluation, Research, and the Baltimore Eye Survey found an increased prevalence of late AMD in those with a history of cataract surgery [46].

Cataract and AMD are the leading causes of visual impairment and blindness worldwide [47,48]. Given the aging population, cataract and AMD have emerged as public health concerns during the last decade [47,48]. Because both conditions are quite common and often coexist, concerns have been raised that cataract may be associated with the occurrence and progression of AMD [49]. However, contradictory results from previous studies have investigated the association between cataract surgery and AMD have puzzled clinicians: early cohort and case-control studies suggested an association [50,51], whereas other studies did not [52].

In the present study, we found the unilateral pseudophakia (13.9%) and (13.1%) in bilateral pseudophakia.

The prevalence of pseudophakia in our study is higher than that reported in other countries e.g., the Singapore Malay Eye Study (4.7%) [53], the Australian Blue Mountains Eye Study (6.0%) [54], and the Central India

Eye and Medical Study (5.0%) [55]. Other Indian study of urban region have reported figure to some extent similar to our result [56]. Schuster et al [57] from Germany reported in their study population (1.55%) had unilateral pseudophakia, while (3.08%) had bilateral pseudophakia.

Conclusion:

Age-related macular degeneration is a common and potential cause of blindness in elderly population. Early detection of cases is important to reduce the progression. We found males more affected than females. Age is the major risk factor for development and progression of AMD. Dry AMD were predominant. The most common visual acuity groups among AMD patients were severe visual impairment in both eyes.

The frequency of cataract among the patients were more common on bilateral sides. The prevalence of pseudophakia in our study is higher than that reported in other countries. Further studies are needed to determine the magnitude of the disease among the elderly population in our country.

References:

- [1] L.S. Lim, P. Mitchell, J.M. Seddon, F.G. Holz, T.Y. Wong. Age-related macular degeneration. *Lancet*, vol. 379, no. 9827, pp. 1728–38, 2012
- [2] N.V. Palejwala, Y. Jia, S.S. Gao, L. Liu, C.J. Flaxel, T.S. Hwang, et al. Detection of nonexudative choroidal neovascularization in age-related macular degeneration with optical coherence tomography angiography. *Retina*, vol. 35, no. 11, pp. 2204–11, 2015.
- [3] J.D. Steinmetz, R.R. Bourne, P.S. Briant, S.R. Flaxman, H.R. Taylor, J.B. Jonas, et al. Causes of blindness and vision impairment in 2020 and trends over 30 years, and prevalence of avoidable blindness in relation to VISION 2020: the right to Sight: an analysis for the global burden of Disease Study. *The Lancet Global Health*, vol. 9, no. 2, pp. e144–e60, 2021.
- [4] E. Di-Carlo, A.J. Augustin, Prevention of the Onset of Age-Related Macular Degeneration. *J Clin Med*, vol. 10, no. 15, 2021.
- [5] T.J. Heesterbeek, L.Lorés-Motta, C.B. Hoyng, Y.T. Lechanteur Y.T, A.I. Den Hollander. Risk factors for progression of age-related macular degeneration. *Ophthalmic Physiol Opt*, vol. 40, no. 2, pp. 140–70, 2020.

- [6] J.L. Prenner, L.S. Halperin, C. Rycroft, S. Hogue, Z.W. Liu, R. Seibert. Disease burden in the treatment of age-related macular degeneration: findings from a time-and-motion study. *Am J Ophthalmol.*, vol. 160, no. 4, pp. 725–31, 2015.
- [7] C.C. Klaver, J.J. Assink, R. van Leeuwen. Incidence and progression rates of age-related maculopathy: the Rotterdam Study. *Invest Ophthalmol Vis Sci.*, vol. 42, pp. 2237–2241, 2001.
- [8] T.Y. Wong, U. Chakravarthy, R. Klein, P. Mitchell, G. Zlateva, et al. The natural history and prognosis of neovascular age-related macular degeneration: a systematic review of the literature and meta-analysis. *Ophthalmology*, vol. 115, pp. 116–126, 2008.
- [9] S.L. Fine, J. W. Berger, M. G. Maguire, et al. Age-related macular degeneration. *N Engl J Med.*, vol. 342, pp. 483–92, 2000.
- [10] T.A. Ciulla, A Harris, B.J. Martin. Ocular perfusion and age related macular degeneration. *Acta Ophthalmol Scand.*, vol. 79, pp. 108–15, 2001.
- [11] S.R. Flaxman, R.R. Bourne, S. Resnikoff, P. Ackland, T. Braithwaite, M.V. Cicinelli, et al. Global causes of blindness and distance vision impairment 1990–2020: a systematic review and meta-analysis. *The Lancet Global Health*, vol. 5, no. 12, pp. 1221–e34, 2017.
- [12] A.M. Fadel, H.M. El Hennawi, N.H. Bayoumi, et al. Prevalence of age-related macular degeneration among elderly patients attending Alexandria Main University Hospital. *Delta J Ophthalmology*, vol. 17, no. 2, pp. 91–96, 2016.
- [13] S. Fraser-Bell, J. Donofrio, J. Wu, R. Klein, S.P. Azen, R. Varma. Los Angeles Latino Eye Study Group Sociodemographic factors and age-related macular degeneration in Latinos: the Los Angeles Latino Eye Study *Am J Ophthalmol.*, vol. 139, pp.30–38, 2005.
- [14] J.R. Vingerling, I. Dielemans, A. Hofman, D.E. Grobbee, M. Hijmering, C.F. Kramer, P.T. De Jong, The prevalence of age-related maculopathy in the Rotterdam Study *Ophthalmology*, vol. 102, pp. 205–210, 1995.
- [15] R. Kawasaki, J.J. Wang, T. Aung, D.T. Tan, P. Mitchell, M Sandar, et al. Singapore Malay Eye Study Group Prevalence of age-related macular degeneration in a Malay population: the Singapore Malay Eye Study *Ophthalmology*, vol. 115, pp. 1735–1741, 2008.
- [16] R. Kawasaki, J.J. Wang, G. T. Ji, B. Taylor, T. Oizumi, M. Daimon, et al. Prevalence and risk factors for age-related macular degeneration in an adult Japanese population: the Fungata study. *Ophthalmology*, vol. 115, pp. 1376–1381, 2008.
- [17] H.M. Kishk, H. Abouelkheir, R. Kamel, M.A. Mouftah. Demographic and clinical features of age related macular degeneration in patients attending Mansoura University Ophthalmic Center. *Egyptian Journal of Ophthalmology (MOC)*, vol. 3, no. 4, pp.193–201, 2023.
- [18] K. Mehta, S. Daigavane. A study of correlates of Age-Related Macular Degeneration in patients attending a Tertiary Hospital. *Cureus*, vol.14, no. 7, pp. e27443, 2022.
- [19] S. Njirić, T. Misljenović, M. Mikulčić, L. Pavicević. Incidence of age related macular degeneration in correlation with age, sex and occupation. *Coll Antropol.*, suppl. 1, pp.107–10, 2007.
- [20] A. Arnarsson, T. Sverrisson, E. Stefánsson, H. Sigurdsson, H. Sasaki, K. Sasaki, et al. Risk factors for five-year incident age-related macular degeneration: the eykjavik Eye Study. *Am J Ophthalmol.*, vol. 142, pp.419–428, 2006.
- [21] W.M. Al-Zamil, S.A. Yassin. Recent developments in agerelated macular degeneration: a review. *Clinical Interventions in Aging*, vol. 12, pp.1313, 2017.
- [22] R. Varma, M. Ying-Lai, R. Klein, S. P. Azen. Prevalence and risk indicators of visual impairment and blindness in Latinos: the Los Angeles Latino Eye Study. *Ophthalmology*, vol. 111, pp. 1132–1140, 2004.
- [23] L. Dandona, R. Dandona, M. Srinivas, P. Giridhar, K. Vilas, M.N. Prasad. Blindness in the Indian state of Andhra Pradesh. *Invest Ophthalmol Vis Sci.*, vol. 42, pp.908–916, 2001.
- [24] X. Zhang, M.F. Cotch, A. Ryskulova, S.A. Primo, P. Nair, C.F. Chou. Vision health disparities in the United States by race/ethnicity, education, and economic status: findings from two nationally representative surveys. *Am J Ophthalmol.*, vol., 154, no. 6, pp. 53–62, Dec. 2012.
- [25] S. Fraser, C. Bunce, R. Wormald, E. Brunner. Deprivation and late presentation of glaucoma: case-control study. *BMJ.*, vol. 322, pp. 639–643, 2001.

- [26] J. Hamati, S. Prashanthi, R. Narayanan, et al. Prevalence of age-related macular degeneration and associated factors in Indian cohort in a tertiary care setting. *Indian J Ophthalmol.*, vol. 71, no. 10, pp. 3361-3366, 2023.
- [27] J. Cai, M. Wu, K.C. Nelson, et al. Oxidant-induced apoptosis in cultured human retinal pigment epithelial cells. *Invest Ophthalmol Vis Sci.*, vol. 40, pp.959-66, 1999.
- [28] C.A. Curcio, C.L. Millican, T. Bailey, et al. Accumulation of cholesterol with age in human Bruch's membrane. *Invest Ophthalmol Vis Sci.*, vol. 42, pp.265-74, 2001.
- [29] P. T. De Jong. Age related macular degeneration. *N Engl J Med.*, vol. 355, pp. 1474-85, 2006.
- [30] J.L. Gottlieb. Age-related macular degeneration. *JAMA.*, vol. 288, no. 18, pp.2233- 2236, 2002.
- [31] R. Klein, B.E. Klein, S.E. Moss. Age-related eye disease and survival: the Beaver Dam Eye Study. *Arch Ophthalmol.*, vol. 113, no.3, pp.333- 339, 1995.
- [32] G. Coscas. Age related macular degeneration and subretinal neovessels: primary cause of acquired blindness in adults [in French]. *Rev Prat.*, vol. 41, no. 23, pp.2320- 2322, 1991.
- [33] F.L. Ferris, L. Hyman. Age-related macular degeneration and blindness due to neovascular maculopathy. *Arch Ophthalmol.*, vol.102, no.11, pp.1640-1642, 1984.
- [34] H. Buch, N. V. Nielsen, T. Vinding, G. B. Jensen. et al. 14-year incidence, progression, and visual morbidity of age-related maculopathy: the Copenhagen City Eye Study. *Ophthalmology*, vol. 112, no. 5, pp.787- 798, 2005.
- [35] J. Sapan, R. Priyanka, K. Mala, G. Aditi. Clinical Study of Age-Related Macular Degeneration-Incidence, Visual Acuity Assessment, and Risk Factors. *Journal of Datta Meghe Institute of Medical Sciences University*, vol. 16, no.1, pp.42-46, 2021.
- [36] R.D. Sperduto, R. Hiller. Systemic hypertension and age-related maculopathy in the Framingham Study *Arch Ophthalmol.*, vol. 104, pp.216-219, 1986.
- [37] R. Klein, B.E. Klein, S.C. Jensen. The relation of cardiovascular disease and its risk factors to the 5-year incidence of age-related maculopathy: the Beaver Dam Eye Study *Ophthalmology*, vol.104, pp. 1804-1812, 1997.
- [38] L. Hyman, A.P. Schachat, Q. He, M.C. Leske. Hypertension, cardiovascular disease, and age-related macular degeneration. Age-Related Macular Degeneration Risk Factors Study Group *Arch Ophthalmol.*, vol. 118, pp.351-358, 2000.
- [39] R. Klein, B.E. Klein, S.E. Moss. Diabetes, hyperglycemia, and age-related maculopathy. The Beaver Dam Eye Study *Ophthalmology*, vol. 99, pp.1527-1534, 1992.
- [40] P. Mitchell, J.J. Wang. Diabetes, fasting blood glucose and age-related maculopathy: the Blue Mountains Eye Study. *Aust NZJ Ophthalmol.*, vol. 27, pp.197-199, 1999.
- [41] S. Srinivasan, G. Swaminathan, V. Kulothungan, et al. Prevalence and the risk factors for visual impairment in age-related macular degeneration. *Eye*, vol. 31, pp.846-855, 2017.
- [42] S. K. Gupta, G.V. Murthy, N. Morrison, G.M. Price, M. Dherani, N. John N, et al. Prevalence of early and late age-related macular degeneration in a rural population in northern India: the INDEYE feasibility study. *Invest Ophthalmol Vis Sci.*, vol. 48, pp.1007-1011, 2007.
- [43] S.R. Kulkarni, S.R. Aghashe, R.B. Khandekar, M.D. Deshpande. Prevalence and determinants of age-related macular degeneration in the 50 years and older population: a hospital based study in Maharashtra, India. *Indian J Ophthalmol.*, vol. 61, pp.196-201, 2013.
- [44] J.H. Woo, S. Sanjay, K.G. Au-Eong. The epidemiology of age-related macular degeneration in the Indian subcontinent. *Acta Ophthalmol.*, vol. 87, pp.262-269, 2009.
- [45] S. Bhandari, S. Vitale, E. Agron, T.E. Clemons, E.Y. Chew. Cataract Surgery and the Risk of Developing Late Age-Related Macular Degeneration. *Ophthalmology*, vol. 129, no. 4, pp.414-420, 2021.
- [46] E.E. Freeman, B. Munoz, S.K. West, et al. Is there an association between cataract surgery and age-related macular degeneration? Data from three population-based studies. *Am J Ophthalmol.*, vol. 135, pp.849-856, 2003.
- [47] D. Pascolini, S.P. Mariotti. Global estimates of visual impairment. *Br J Ophthalmol.*, vol. 96, no.5, pp.614-618, 2012.
- [48] P.P. Lee, Z.W. Feldman, J. Ostermann, D.S. Brown, F.A. Sloan. Longitudinal prevalence of major eye diseases. *Arch Ophthalmol.*, vol. 121, no.9, pp.1303-1310, 2003.

- [49] S.J. Park, J.H. Lee, S. Ahn, K.H. Park. Cataract Surgery and Age-Related Macular Degeneration in the 2008-2012 Korea National Health and Nutrition Examination Survey. *JAMA Ophthalmol.*, vol. 134, no. 6, pp.621–626, 2016.
- [50] S. Cugati, P. Mitchell, E. Rochtchina, A.G. Tan, W. Smith, J.J. Wang. Cataract surgery and the 10-year incidence of age-related maculopathy: the Blue Mountains Eye Study. *Ophthalmology*, vol. 113, no. 11, pp.2020-2025, 2006.
- [51] S. Fraser-Bell, F. Choudhury, R. Klein, S. Azen, R. Varma; Los Angeles Latino Eye Study Group. Ocular risk factors for age-related macular degeneration: the Los Angeles Latino Eye Study. *Am J Ophthalmol.*, vol. 149, no.5, pp.735-740, 2010.
- [52] J.J. Wang, C.S. Fong, E. Rochtchina, et al. Risk of age-related macular degeneration 3 years after cataract surgery: paired eye comparisons. *Ophthalmology*, vol. 119, no. 11, pp.2298-2303, 2012.
- [53] R. Lavanya, T. Y. Wong, T. Aung, D. T. Tan, S. M. Saw, W. T. Tay, et al. Prevalence of cataract surgery and post-surgical visual outcomes in an urban Asian population: the Singapore Malay Eye Study. *Br J Ophthalmol.*, vol. 93, pp.299–304, 2009.
- [54] P. Mitchell, R.G. Cumming, K. Attebo, J. Panchapakesan. Prevalence of cataract in Australia: the Blue Mountains eye study. *Ophthalmology*, vol. 104, pp.581–588, 1997.
- [55] V. Nangia, J.B. Jonas, R. Gupta, A. Khare, A. Sinha. Prevalence of cataract surgery and postoperative visual outcome in rural central India Central India Eye and Medical Study. *J Cataract Refract Surg.*, vol. 37, pp.1932–38, 2011.
- [56] P. Vashist, B. Talwar, M. Gogoi, G. Maraini, M. Camparini, R.D. Ravindran, G.V. Murthy, et al. Prevalence of cataract in an older population in India: the India study of age-related eye disease. *Ophthalmology*, vol. 118, pp.272-278, 2011.
- [57] A.K. Schuster, N. Pfeiffer, A. Schulz, S. Nickels, R. Höhn, P. S. Wild, et al. The impact of pseudophakia on vision-related quality of life in the general population – The Gutenberg Health Study. *Aging (Albany NY).*, vol. 9, pp.1030-1040, 2017.

مقالة بحثية

الأنواع السريرية لضمور البقعة الصفراء المرتبط بالعمر لدى المرضى الذين يراجعون مستشفى مكة للعيون، عدن، اليمن

ابتهاال عيدروس زين جعفر^{1*}، ريم الخضر صالح²

¹ قسم الجراحة التخصصي، كلية الطب، جامعة عدن، اليمن.

² قسم الجراحة التخصصي، كلية الطب، جامعة عدن، اليمن؛ البريد الإلكتروني: reemalkhadher78@gmail.com

* الباحث الممثل: ابتهاال عيدروس زين جعفر؛ البريد الإلكتروني: ibtihalzain2018@gmail.com

استلم في: 16 فبراير 2025 / قبل في: 30 أبريل 2025 / نشر في: 30 يونيو 2025

المُلخَص

الضمور البقعي المرتبط بالعمر هو مرض بصري مروع يصيب كبار السن بشكل رئيسي ويسبب العمى الدائم. وهدف هذه الدراسة هو دراسة الملفات السريرية وعوامل الخطر وأنواعها والأمراض المصاحبة لضعف البصر لدى مرضى الضمور البقعي المرتبط بالعمر. تم تصميم هذه الدراسة كدراسة رصدية بأثر رجعي، وأجريت الدراسة في مستشفى مكة للعيون في عدن، حيث قمنا بمراجعة جميع الملفات الطبية للمرضى الذين تم تشخيصهم بمرض الضمور البقعي المرتبط بالعمر وتلقوا العلاج في المستشفى خلال الفترة من يناير إلى ديسمبر 2022. إن المتغيرات التي تم جمعها هي الجنس والعمر ومكان الإقامة وحدة الإبصار بعد التصحيح وضعف البصر والعدسة البؤرية المصححة وإعتام عدسة العين وزوائد العدسة والضمور البقعي المرتبط بالعمر. وتمت معالجة البيانات وتحليلها بواسطة برنامج اس بي اس 22 الإحصائي. وتم تقدير المعدلات والمتوسطات والانحرافات المعيارية. وتم استخدام اختبار مربع كاي واعتبار القيمة $p < 0.05$ ذات دلالة إحصائية. بلغ إجمالي عدد مرضى الدراسة 122 مريضاً حضروا إلى المستشفى وتم تشخيصهم بالضمور البقعي المرتبط بالعمر وكانوا (55.74%) من الذكور و(44.26%) من الإناث. تراوحت أعمارهم بين 27 إلى 92 سنة بمتوسط عمر 64.5 ± 10.9 سنة. كانت الفئة العمرية 61-70 سنة هي الغالبة بنسبة (35.24%). وكان معظم المرضى من المناطق الحضرية (54.10%). كان المرضى الذين يعانون من الضمور البقعي الجاف هم الغالبية بنسبة (77.87%) والضمور البقعي الرطب بنسبة (22.13%). وجد ارتفاع ضغط الدم لدى (32.79%) من المرضى، ومرض السكري لدى (18.03%) من المرضى، ومشاكل القلب فقط لدى (3.28%). وكانت أكثر مجموعات حدة البصر شيوعاً هي ضعف البصر الشديد (0.05-0.1) في كلتا العينين بنسبة (35.24%) في العين اليمنى و (25.41%) في العين اليسرى. بلغت نسبة حدوث إعتام عدسة العين بين مرضى الضمور البقعي المرتبط بالعمر (14.8%) في احادي الجانب و (62.2%) في ثنائي الجانب. بالإضافة إلى ذلك، كانت نسبة الالتصاق الكاذب (13.9%) في احادي الجانب و (13.1%) في ثنائي الجانب. يُصاب الذكور أكثر من الإناث، كما يُعد العمر عامل الخطر الرئيسي لنمو وتطور مرض الضمور البقعي المرتبط بالعمر. وهناك حاجة إلى مزيد من الدراسات لتحديد حجم المرض بين كبار السن في بلدنا.

الكلمات المفتاحية: الضمور البقعي المرتبط بالعمر، الأنواع السريرية، مستشفى مكة، عدن، اليمن.

How to cite this article:

I. A. Z. Gaffer, and R. A. Saleh, "CLINICAL TYPES OF AGE-RELATED MACULAR DEGENERATION IN PATIENTS ATTENDING MAKKAH EYE HOSPITAL, ADEN, YEMEN", *Electron. J. Univ. Aden Basic Appl. Sci.*, vol. 6, no. 2, pp. 83-91, June. 2025. DOI: <https://doi.org/10.47372/ejua-ba.2025.2.443>



Copyright © 2025 by the Author(s). Licensee EJUA, Aden, Yemen. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY-NC 4.0) license.