

doi: 10.13241/j.cnki.pmb.2021.13.014

中老年黄斑变性患者跌倒风险与视力的关系及对生存质量的影响 *

章欣怡¹ 郑小薇¹ 谢亮真² 吴锐彬¹ 陈秋杰¹

(1 汕头大学医学院第一附属医院眼科 广东 汕头 515041; 2 南方医科大学南方医院老年科 广东 广州 510515)

摘要 目的:分析中老年黄斑变性患者跌倒风险与视力的关系及其影响因素,并分析其对生存质量的影响。**方法:**研究对象为我院2018年1月~2020年12月期间收治的中老年黄斑变性患者95例,采用修订版社区老年人跌倒危险评估工具(MFROP-COM)评估患者跌倒风险。采用世界卫生组织生存质量量表(WHOQOL-BREF)评价患者的生存质量。采用本院自制的调查问卷获取患者的临床资料。中老年黄斑变性患者跌倒风险的影响因素采用单因素及多因素 Logistic 回归分析。**结果:**本次研究共发放调查问卷95份,回收有效问卷95份,回收率100.00%。其中存在跌倒风险的患者38例(40.00%)。无跌倒风险的患者视力、生存质量各领域评分均优于有跌倒风险的患者($P<0.05$)。单因素分析显示:中老年黄斑变性患者跌倒风险与视力、文化程度、年龄、家中安全行走、婚姻状况、居住方式、日常生活能力、居家环境安全、足部疾病、社区安全行走有关($P<0.05$)。多因素 Logistic 回归分析结果显示:日常生活能力、视力、家中安全行走、足部疾病、社区安全行走、居家环境安全是中老年黄斑变性患者跌倒风险的影响因素($P<0.05$)。**结论:**中老年黄斑变性患者存在跌倒风险的人数占比较高,且跌倒风险受多种因素影响,有跌倒风险的患者生存质量更低,因此临床需积极评估并帮助此类患者建立科学防跌倒生活行为,对改善中老年黄斑变性患者生存质量具有重要意义。

关键词:中老年;黄斑变性;跌倒风险;视力;生存质量

中图分类号:R774.5 **文献标识码:**A **文章编号:**1673-6273(2021)13-2469-05

Relationship between Fall Risk and Visual Acuity in Elderly Patients with Macular Degeneration and Its Impact on Quality of Life*

ZHANG Xin-yi¹, ZHENG Xiao-wei¹, XIE Liang-zhen², WU Rui-bin¹, CHEN Qiu-jie¹

(1 Department of Ophthalmology, The First Affiliated Hospital of Medical College of Shantou University, Shantou, Guangdong, 515041, China; 2 Department of Geriatrics, Nanfang Hospital of Southern Medical University, Guangzhou, Guangdong, 510515, China)

ABSTRACT Objective: To analyze the relationship between fall risk and visual acuity in elderly patients with macular degeneration and its influencing factors, as well as its impact on quality of life. **Methods:** The subjects of the study were 95 elderly patients with macular degeneration who were admitted to our hospital from January 2018 to December 2020. The revised community elderly fall risk assessment tool (MFROP-COM) was used to assess the fall risk of patients. The World Health Organization Quality of life scale (WHOQOL-BREF) was used to evaluate the quality of life of patients. The general information of patients was obtained by self-made questionnaire. Univariate and multivariate Logistic regression analysis were used to analyze the risk factors of falls in elderly patients with macular degeneration. **Results:** In this study, a total of 95 questionnaires were sent out, and 95 were effectively received, with a recovery rate of 100.00%. Among them, 38 patients(40.00%) were at fall risk. The scores of visual acuity and quality of life of patients without fall risk were better than those of patients with fall risk ($P<0.05$). Univariate analysis showed that the fall risk in elderly patients with macular degeneration was related to visual acuity, education level, age, safe walking at home, marital status, living style, daily living ability, safe home environment, foot disease and safe walking in community ($P<0.05$). The results of multivariate Logistic regression analysis showed that daily living ability, visual acuity, safe walking at home, foot disease, safe walking in community and safe home environment were the influencing factors of the fall risk in elderly patients with macular degeneration ($P<0.05$). **Conclusion:** Middle-aged and elderly patients with macular degeneration have a higher risk of falling and risk of falling are affected by a variety of factors, and patients at fall risk have a lower quality of life. Therefore, it is of great significance to actively evaluate and establish scientific fall-prevention life behaviors in clinical practice to improve the quality of life of elderly patients with macular degeneration.

Key words: Elderly; Macular degeneration; Fall risk; Visual acuity; Quality of life

Chinese Library Classification(CLC): R774.5 **Document code:** A

Article ID: 1673-6273(2021)13-2469-05

前言

中老年黄斑变性是指随着年龄的增加,中老年人黄斑区域发生衰老病变,即其视网膜色素上皮细胞降低了对视细胞外界

* 基金项目:广东省科技计划项目(2017ZC0176);汕头市医疗卫生科技计划(自筹经费类)项目(汕府科[2018]78号-6)

作者简介:章欣怡(1980-),女,博士,主治医师,研究方向:眼科疾病诊治,E-mail: zhangxinyi20122017@126.com

(收稿日期:2021-01-31 接受日期:2021-02-27)

盘膜吞噬消化功能,导致盘膜残余小体于基底部细胞原浆中滞留,引起一系列病理改变,从而导致视力下降的疾病^[1-3]。跌倒是中老年人常见的意外伤害,视功能在人体保持平衡、行为动作和跌倒中起着关键作用,而黄斑变性可引起视力下降,一定程度上增加了跌倒风险^[4,5]。此外,由于人口日趋于老龄化,我国黄斑变性的患病人数逐年增加,而跌倒风险的增加无形中威胁着中老年人的日常活动、身心健康,也造成家庭和社会负担的增加^[6]。因此,本研究通过了解中老年黄斑变性患者跌倒风险与视力的关系及对生存质量的影响,旨在为家庭、社区及临床制定相关的预防及干预措施提供依据。

1 资料与方法

1.1 一般资料

研究对象为我院 2018 年 1 月~2020 年 12 月收治的中老年黄斑变性患者 95 例,其中男 61 例,女 34 例,年龄(67.46±5.11)岁;双眼均患病的患者有 23 例,单眼患病患者 72 例,共 118 眼,其中左眼 50 眼,右眼 68 眼。纳入标准:(1)年龄>50 岁;(2)诊断标准参考《常见眼病诊断图谱》^[7],经眼底血管荧光造影和光学相干断层成像确诊为黄斑变性;(3)所有患者均知情研究且签署同意书;(4)无智力障碍,能配合完成本次研究者。排除标准:(1)合并白内障等其他眼部疾病(由眼科医生评估);(2)依从性差或正参与其他研究者;(3)合并其他严重器质性疾病者。研究方案通过我院医学伦理学委员会批准。

1.2 方法

1.2.1 跌倒风险 患者跌倒风险采用修订版社区老年人跌倒危险评估工具(MFROP-COM)^[8]评估。MFROP-COM 共有 19 条目,其中躯体感觉异常、听力异常、夜间是否如厕≥3 次、视力异常、有无影响步行的足部疾病、大小便能否控制这 6 条目采取 2 类计分法,得分分别为 0 分和 1 分。剩余的 13 条目采取 4 类计分法,得分分别为 0 分、1 分、2 分、3 分。量表总分 45 分,分数越高跌倒风险越高。其中无跌倒风险 0~12 分,有跌倒风险

>12 分。

1.2.2 生存质量 患者的生存质量采用世界卫生组织生存质量量表(WHOQOL-BREF)^[9]评价,内容包括社会关系领域、独立性领域、心理领域、环境领域、生理领域、精神支柱领域,每个领域评分 100 分,生存质量越好的患者其分数越高。

1.2.3 临床资料 采用本院自制的调查问卷收集患者临床资料,所有参加调查的工作人员(均为眼科医生)均进行问卷调查培训且经考察合格。调查问卷发放前,需向患者详细介绍本次研究的目的、内容和临床意义,患者充分了解清楚后开始填写调查问卷,不能自主填写的由患者口述,工作人员代为填写。问卷内容包括:性别、年龄、文化程度、婚姻状况、日常生活能力、居住方式、居家环境安全、视力、足部疾病、家中安全行走、社区安全行走。由指定专人用标准对数视力表检查患者视力。调查问卷当场发放,当场回收,对搜集的调查资料由专人进行调查过程的质量控制,并由专人核查后录入数据库,并进行逻辑核对。

1.3 统计学方法

应用 EpiData3.02 进行数据双录入,应用 SPSS24.0 软件分析数据。计量资料均符合正态分布,以($\bar{x} \pm s$)表示,行独立样本 t 检验。用率表示计数资料,采用 χ^2 检验。中老年黄斑变性患者跌倒风险的影响因素采用单因素及多因素 Logistic 回归分析。检验水准 $\alpha=0.05$ 。

2 结果

2.1 中老年黄斑变性患者跌倒风险情况

本次研究共发放调查问卷 95 份,回收有效问卷 95 份,回收率 100.00%。其中无跌倒风险的患者 57 例(60.00%),有跌倒风险的患者 38 例(40.00%)。

2.2 有跌倒风险和跌倒风险患者的生存质量对比

有跌倒风险的患者 WHOQOL-BREF 各领域评分均较无跌倒风险患者低($P<0.05$),详见表 1。

表 1 有跌倒风险和跌倒风险患者的生存质量对比($\bar{x} \pm s$, 分)

Table 1 Comparison of quality of life between patients with and without fall risk($\bar{x} \pm s$, scores)

Groups	Psychological field	Physiological field	Social relations	Environmental field	Spiritual pillar	Independence field
Without fall risk (n=57)	62.35± 8.26	67.15± 9.33	63.28± 8.38	68.97± 9.18	72.18± 9.32	66.09± 8.24
With fall risk (n=38)	51.56± 7.31	48.66± 9.34	51.73± 7.28	57.69± 8.22	61.67± 10.25	54.58± 7.36
t	6.525	9.459	6.928	6.113	5.173	6.955
P	0.000	0.000	0.000	0.000	0.000	0.000

2.3 中老年黄斑变性患者跌倒风险影响因素的单因素分析

单因素分析结果显示:中老年黄斑变性患者跌倒风险与文化程度、年龄、视力、家中安全行走、婚姻状况、居住方式、日常生活能力、居家环境安全、足部疾病、社区安全行走有关($P<0.05$),而与性别无关($P>0.05$),具体见表 2。

2.4 中老年黄斑变性患者跌倒风险影响因素的多因素 Logistic 回归分析

以中老年黄斑变性患者跌倒风险为因变量,以年龄、婚姻状况、文化程度、日常生活能力、居家环境安全、居住方式、视力、家中安全行走、足部疾病、社区安全行走为自变量,进行多因素 Logistic 回归分析。各变量赋值见表 3。结果显示:视力、日常生活能力、足部疾病、社区安全行走、家中安全行走、居家环境安全是中老年黄斑变性患者跌倒风险的影响因素($P<0.05$),详见表 4。

表 2 中老年黄斑变性患者跌倒风险影响因素的单因素分析

Table 2 Univariate analysis of factors influencing fall risk in elderly patients with macular degeneration

Factors	n	Without fall risk (n=57)	With fall risk (n=38)	χ^2/t	P
Gender					
Male	61	33(57.89%)	28(73.68%)	2.473	0.116
Female	34	24(42.11%)	10(26.32%)		
Age(years)					
≤ 65	46	35(61.40%)	11(28.95%)	9.623	0.001
>65	49	22(38.60%)	27(71.05%)		
Visual acuity	95	0.84± 0.13	0.57± 0.11	10.530	0.000
Education level					
Primary school and below	42	13(22.81%)	29(76.32%)	29.875	0.000
Junior high school	28	20(35.09%)	8(21.05%)		
High school or technical secondary school	17	16(28.07%)	1(2.63%)		
College degree or above	8	8(14.04%)	0(0.00%)		
Marital status					
Widowed	38	16(28.07%)	22(57.89%)	37.576	0.000
Divorce	15	2(3.51%)	13(34.21%)		
Married	42	39(68.42%)	3(7.89%)		
Daily living ability					
Normal	42	36(63.16%)	6(15.79%)	30.218	0.000
Mild or moderate damage	38	20(35.09%)	18(47.37%)		
Severe damage	15	1(1.75%)	14(36.84%)		
Living style					
Empty nest	41	15(26.32%)	26(68.42%)	16.477	0.000
Non empty nest	54	42(73.68%)	12(31.58%)		
Safe home environment					
Safe	38	34(59.65%)	4(10.53%)	28.136	0.000
Mild or moderate hazard	40	20(35.09%)	20(52.63%)		
Severe hazard	17	3(5.26%)	14(36.84%)		
Foot disease					
No	56	48(84.21%)	8(21.05%)	37.581	0.000
Yes	39	9(15.79%)	30(78.95%)		
Safe walking at home					
Can	52	38(66.67%)	14(36.84%)	8.197	0.004
Cannot	43	19(33.33%)	24(63.16%)		
Safe walking in community					
Can	49	38(66.67%)	11(28.95%)	12.994	0.000
Cannot	46	19(33.33%)	27(71.05%)		

3 讨论

黄斑是维持人眼色觉、形觉及立体视觉等中心视力最重要

的部位,中老年黄斑变性患者可单眼发病或双眼相继发生疾病,其损伤具有不可逆性,一般可分为2种类型,一种为干性黄斑变性,此类患者视力下降过程缓慢^[10-12];另一种为湿性黄斑变

表 3 自变量赋值

Table 3 Assignment of independent variables

Variables	Assignment
Age	0= ≤ 65 years, 1= >65 years
Marital status	0=married, 1=divorce, 2=widowed
Education level	0=college degree or above, 1=high school or technical, 2=junior high school, 3=primary school and below
Living style	0=non empty nest, 1=empty nest
Daily living ability	0=normal, 1=mild or moderate damage, 2=severe damage
Visual acuity	Original value input
Safe walking at home	0=can, 1=cannot
Foot disease	0=no, 1=yes
Safe walking in community	0=can, 1=cannot
Safe home environment	0=safe, 1=mild or moderate hazard, 2=severe hazard

表 4 中老年黄斑变性患者跌倒风险影响因素的多因素 Logistic 回归分析

Table 4 Multivariate logistic regression analysis of fall risk factors in elderly patients with macular degeneration

Variables	β	SE	Wald χ^2	OR	P	95%CI
Daily living ability	1.486	0.275	25.461	4.369	0.000	2.769~8.106
Visual acuity	2.318	0.562	16.941	8.624	0.000	2.852~21.037
Safe walking at home	1.738	0.613	8.109	5.924	0.004	2.516~16.349
Foot disease	2.516	0.507	23.418	10.942	0.000	4.169~13.725
Safe walking in community	2.297	0.622	11.823	8.964	0.000	5.125~13.627
Safe home environment	1.457	0.379	12.039	4.098	0.000	1.315~8.726

性,主要是由新生血管引发的出血渗出,可引起视力迅速下降,这类型的黄斑变性病情进展迅速,失明风险增加^[13,14]。由此可见,不管干性黄斑变性还是湿性黄斑变性,均存在视力下降的症状。而视力的减退也可能为中老年患者的生活带来不便,如使其更易跌倒^[15,16]。跌倒是指人体无意中倒在地面或其他较低水平处的事件^[17]。中老年人群跌倒后最常见的并发症为骨折以及脑组织损伤,可间接或直接提高其死亡风险。有研究报道^[18],每年因跌倒致死的中老年人约有 64.6 万。由于跌倒对中老年群体危害极大,故有必要对跌倒风险与视力的关系及其影响因素进行探讨,这将有利于建立良好的跌倒预防措施。

本次研究结果显示,中老年黄斑变性患者存在跌倒风险的人数占比较高,具体为 40.00%。与韩俊莹等学者^[19]报道的 98.1%差异较大,本次研究的对象为中老年患者,而非高龄患者,高龄群体本身亦存在视功能损害,导致其日常生活能力及活动能力的下降,加上高龄群体骨骼脆性更强,灵敏度更差,大脑对意外事件的反应性更差,因此导致与本研究存在跌倒风险的人数占比存在差异性^[20-22]。单因素及多因素 Logistic 回归分析结果显示:中老年黄斑变性患者跌倒风险的影响因素较多,包括日常生活能力、视力、家中安全行走、足部疾病、社区安全行走、居家环境安全。其中日常生活能力差者跌倒风险高,日常生活能力可反映人们在家庭和生活的基本自理能力,中老年黄斑变性患者属于特殊群体,无论是中老年群体还是眼疾患者

的身份,均可导致其无法自如的完成日常生活活动,增加其跌倒风险^[23,24]。视力较差的患者跌倒风险高,主要是因为视力下降会导致视物模糊,同时视觉异常可导致患者平衡能力降低,无法顺利规避风险,发生跌倒的风险增大^[25,26]。家中安全行走、社区安全行走在一定程度上也代表着患者日常生活能力的强弱,故而也影响着跌倒的发生^[27]。有足部疾病的患者因疼痛、刺激等原因导致平衡功能较差、步态不稳、注意力分散,增加其跌倒风险^[28]。居家环境安全与否决定了中老年黄斑变性患者是否有良好的适应环境,如果患者处于较差的适应环境,则环境因素和内在因素可共同作用增加中老年人跌倒风险^[29,30]。随着居民期望寿命的延长、生活水平的提高,世界卫生组织也号召各国应以“健康老龄化”为目标以应对人口老龄化危机,而在本次研究中有跌倒风险的患者其生存质量各领域评分均低于无跌倒风险的患者,可见有跌倒风险的患者生存质量通常较低。鉴于跌倒风险对中老年黄斑变性患者生存质量的影响,建议相关机构应以中老年黄斑变性患者为干预对象,采取针对性的综合措施,为实现此类患者的“健康老龄化”提供助力^[31]。

综上所述,中老年黄斑变性患者有跌倒风险的人数占比较高,且跌倒风险受多种因素影响,有跌倒风险的患者生存质量较低。黄斑变性是目前全球主要致盲性疾病之一,此次的调查研究结果表明在保护中老年黄斑变性患者视力的前提下,也要重视外在环境因素对中老年黄斑变性患者的影响,应积极从个

人、家庭、社区等多方面针对其实施综合性的预防措施,预防跌倒的发生,提高中老年黄斑变性患者的生存质量。

参考文献(References)

- [1] Vogl WD, Bogunović H, Waldstein SM, et al. Spatio-temporal alterations in retinal and choroidal layers in the progression of age-related macular degeneration (AMD) in optical coherence tomography[J]. *Sci Rep*, 2021, 11(1): 5743
- [2] Yip JLY, Muthy Z, Peto T, et al. Socioeconomic risk factors and age-related macular degeneration in the UK Biobank study [J]. *BMJ Open Ophthalmol*, 2021, 6(1): e000585
- [3] Qiu Y, Sun T, Xu F, et al. Correlation of vascular change and cognitive impairment in age-related macular degeneration patients [J]. *Am J Transl Res*, 2021, 13(1): 336-348
- [4] Sii S, Aspinall P, Borooah S, et al. Exploring factors predicting changes in patients' expectations and psychosocial issues during the course of treatment with intravitreal injections for wet age-related macular degeneration[J]. *Eye (Lond)*, 2018, 32(4): 673-678
- [5] Alexander MS, Lajoie K, Neima DR, et al. Effect of ambient light and age-related macular degeneration on precision walking[J]. *Optom Vis Sci*, 2014, 91(8): 990-999
- [6] 王君璐, 帅娜露, 李嘉, 等. 雷珠单抗联合复方血栓通与单独雷珠单抗治疗渗出老年性黄斑变性的前瞻性随机对照试验研究[J]. *现代生物医学进展*, 2019, 19(20): 3982-3986, 3992
- [7] 闵寒毅. 常见眼病诊断图谱[M]. 北京: 人民卫生出版社, 2011: 118
- [8] Hirase T, Inokuchi S, Matsusaka N, et al. A modified fall risk assessment tool that is specific to physical function predicts falls in community-dwelling elderly people [J]. *J Geriatr Phys Ther*, 2014, 37(4): 159-165
- [9] Skevington SM, Lotfy M, WHOQOL Group. The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group[J]. *Qual Life Res*, 2004, 13(2): 299-310
- [10] Chen L, Messinger JD, Kar D, et al. Biometrics, Impact, and Significance of Basal Linear Deposit and Subretinal Drusenoid Deposit in Age-Related Macular Degeneration [J]. *Invest Ophthalmol Vis Sci*, 2021, 62(1): 33
- [11] Belgio B, Boschetti F, Mantero S. Towards an In Vitro Retinal Model to Study and Develop New Therapies for Age-Related Macular Degeneration[J]. *Bioengineering (Basel)*, 2021, 8(2): 18
- [12] Blitzer AL, Ham SA, Colby KA, et al. Association of Metformin Use With Age-Related Macular Degeneration: A Case-Control Study[J]. *JAMA Ophthalmol*, 2021, 139(3): 302-309
- [13] 丁小燕, 王志容, 孙立梅. 创造向未来: 湿性 AMD 治疗进展及展望 [J]. *中华实验眼科杂志*, 2019, 37(1): 63-68
- [14] 仇雅洁, 魏会宇, 任新军. 3 种视网膜新生血管抑制药治疗湿性 AMD 的临床对比研究[J]. *中国医院药学杂志*, 2018, 38(4): 412-415
- [15] Dillon L, Gandhi S, Tang D, et al. Perspectives of people with late age-related macular degeneration on mental health and mental well-being programmes: a qualitative study [J]. *Ophthalmic Physiol Opt*, 2021, 41(2): 255-265
- [16] Wang K, Hsieh MJ, Chien HW, et al. Medical Compliance of Fibrates and the Decreased Risk of Age-Related Macular Degeneration in Dyslipidemia-Related Diseases: A Population-Based Cohort Study[J]. *Int J Environ Res Public Health*, 2021, 18(1): 301
- [17] Gourgouli K, Gourgouli I, Tsaousis G, et al. Investigation of genetic base in the treatment of age-related macular degeneration[J]. *Int Ophthalmol*, 2020, 40(4): 985-997
- [18] 刘萍, 尹迪. 女性老年住院患者跌倒相关因素研究进展[J]. *河北医药*, 2020, 42(5): 769-773
- [19] 韩俊莹, 安思琪, 陈长香, 等. 高龄眼疾老年人跌倒风险的影响因素调查研究[J]. *中国康复*, 2017, 32(6): 492-495
- [20] Hou XW, Wang Y, Pan CW. Metabolomics in Age-Related Macular Degeneration: A Systematic Review [J]. *Invest Ophthalmol Vis Sci*, 2020, 61(14): 13
- [21] Higgins BE, Taylor DJ, Bi W, et al. Novel computer-based assessments of everyday visual function in people with age-related macular degeneration[J]. *PLoS One*, 2020, 15(12): e0243578
- [22] Borrelli E, Sacconi R, Zuccaro B, et al. Photoreceptor alteration in intermediate age-related macular degeneration[J]. *Sci Rep*, 2020, 10(1): 21036
- [23] Heinemann M, Welker SG, Li JQ, et al. Awareness of Age-Related Macular Degeneration in Community-Dwelling Elderly Persons in Germany[J]. *Ophthalmic Epidemiol*, 2019, 26(4): 238-243
- [24] Taylor DJ, Smith ND, Binns AM, et al. The effect of non-neovascular age-related macular degeneration on face recognition performance[J]. *Graefes Arch Clin Exp Ophthalmol*, 2018, 256(4): 815-821
- [25] 徐伟, 万秋萍, 吴益生, 等. 社区老年人跌倒危险因素调查[J]. *环境与职业医学*, 2010, 27(12): 707-710
- [26] 张迪, 何耀, 刘森, 等. 北京市农村社区老年人跌倒情况调查及影响因素研究[J]. *中华流行病学杂志*, 2016, 37(5): 624-628
- [27] 林小斌, 吴文华, 林晓聪, 等. 老年人行走时躯干冠状面运动学变化对稳定性的影响及其与跌倒的关联性 [J]. *中国康复医学杂志*, 2016, 31(8): 889-894
- [28] Iseli RK, Duncan G, Lee EK, et al. Incorporating foot assessment in the comprehensive geriatric assessment[J]. *BMC Geriatr*, 2021, 21(1): 223
- [29] 潘俊如, 余其林, 张述, 等. 老年性黄斑变性病因研究新进展 [J]. *国际眼科杂志*, 2013, 13(5): 905-908
- [30] Colijn JM, Meester-Smoor M, Verzijden T, et al. Genetic Risk, Lifestyle, and Age-Related Macular Degeneration in Europe: The EYE-RISK Consortium [J]. *Ophthalmology*, 2020, S0161-6420(20): 31119-2
- [31] Garcia-Onrubia L, Valentín-Bravo FJ, Coco-Martin RM, et al. Matrix Metalloproteinases in Age-Related Macular Degeneration (AMD)[J]. *Int J Mol Sci*, 2020, 21(16): 5934