

Reducing the risk of progression of age-related macular degeneration: a five-year follow-up study in Ukraine and Moldova

AMD

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Purpose

The study **aimed** to evaluate the dynamics of the progression of early and intermediate age-related macular degeneration (AMD) against the background of continuous use of the nutraceutical formula, based on AREDS2, with omega-3 PUFAs, vitamin D, resveratrol in combination with and photobiomodulation over a 5-year follow-up in patients from Ukraine and Moldova.

Setting/Venue

SI "The Filatov Institute of Eye Diseases and Tissue Therapy of the National Academy of Medical Sciences of Ukraine", Odesa, Ukraine Odesa National Medical University, Odesa, Ukraine Khark?v National Medical University, Kharkiv, Ukraine Nicolae Testemitanu State University of Medicine and Pharmacy of the Republic of Moldova

Methods

We examined and treated 163 patients (304 eyes) with early and intermediate AMD (5-year follow-up). 212 eyes (70%) were diagnosed with early-stage (AREDS1) and 92 eyes (30%) with intermediate-stage (AREDS2) AMD. There were 56 (34%) males in the study. The mean age of the patients was 66.0 (60-70) years. Patients were divided into two groups: Group 1 - 79 (149 eyes) and Group 2 - 84 (155 eyes). Group 1 patients were prescribed a nutraceutical formula, based on AREDS2, with omega-3 PUFAs, vitamin D and resveratrol (Nutrof®Forte 1 capsule once a day continuously). The second group included patients who were prescribed the same formula, but instead, they took various vitamin-antioxidant complexes irregularly. All patients underwent photobiomodulation (PBM) of the retina every 6 months using diode laser SM-4.3 ($\lambda=650$ nm, $W=0.4$ mW/cm², exposure 300 s, course 10 days). No side effects were noted in any patient during the entire follow-up period.

Results

We analyzed the prevalence of AMD for five years (2019-2023) in Ukraine and Moldova. The epidemiological data of 126400 patients, who sought different ophthalmological care, were analyzed. According to the data of different ophthalmologic centers the prevalence of dry AMD over five years was in Odesa - 7.1% (5260/74200), in Kharkiv - 6.6% (3450/52200), and in Moldova - 6.3% (3240/51300) of patients. In multivariate Cox regression analysis showed a 1.22-fold increase in the relative risk of AMD progression with age (HR 1.22 [95% CI 1.01-1.41], $p=0.001$). The fundus changes (increased drusen size/number, intraretinal fluid) during the follow-up period had a significant possible risk of disease progression (HR 2.78 [95% CI 1.31-5.92], $p=0.008$). Progression of AMD was noted in patients with thinner choroid ($p=0.000$). In multivariate Cox regression analysis, we found that the progression of AMD over 5 years for not regularly consuming various nutraceuticals had a 3.24-fold increase in relative risk [95% CI 2.15-4.79], $p=0.000$ compared to the group who took the recommended nutraceutical regularly, after accounting for several clinical factors: age ($p=0.007$), fundus change over the follow-up period ($p=0.008$), central choroidal thickness ($p=0.000$) and the presence of cardiovascular pathology ($p=0.04$).

Conclusions

The five-year prevalence of early and intermediate AMD was assessed using data from leading

ophthalmologic centers in Ukraine (Odesa - 7.1%, Kharkiv - 6.6%) and Moldova (6.3%). The progression of AMD in a multivariate Cox regression model over five years shows a 3.24-fold reduction in relative risk (95% CI: 2.15-4.79, $p=0.000$) for patients with early and intermediate AMD who regularly take the recommended nutraceutical (compared to those who irregularly take various vitamin-antioxidant complexes). This finding takes into account several clinical and morphological factors, including age ($p=0.007$), fundus changes ($p=0.008$), central choroidal thickness ($p=0.000$), and the presence of cardiovascular pathology ($p=0.04$). Patients with early and intermediate AMD are advised to undergo courses of PBM every six months. Additionally, it is important to address cardiovascular issues and consistently use the AREDS2-based nutraceutical formula, which includes omega-3 PUFAs, vitamin D, and resveratrol. Following these recommendations can reduce the likelihood of disease progression by at least 3.24 times over the next five years.

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