RISK FACTORS IN AGE RELATED MACULAR DEGENERATION

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Abstract: *Introduction: Age related macular degeneration is a condition of advanced age which presents a multifactorial pathogenesis Purpose: The present work aims at making correlations between ARMD and the following risk factors: age, sex, hyperopia, iris colour, smoking, eye protection. Methods: This is a prospective study, including 51 patients with ARMD. The followings were evaluated: age; sex; iris colour; smoker/non-smoker status; eye protection; Refractive status. Results: The age of the 51 patients ranged between 47 and 89 years, with a mean age of 70,05 years. In the present study, 15 of patients were men and 36 women. The majority of the patients were non-smokers, hyperopes, did not use ocular protection and presented light coloured irides. Discussion: Smoking and ocular protection are modifiable risk factors that can be controlled by the patients. Conclusion: The results obtained in this study are in accordance with those found in the medical literature.*

Keywords: *age related macular degeneration, study*

Rezumat: *Introducere Degenerescenţa maculară senilă (DMS) este o afecţiune a vârstei înaintate ce prezintă o patogeneză multifactorială. Scopul lucrării Lucrarea de faţă îşi propune efectuarea unei corelări între DMS şi următorii facrori de risc: vârstă, sex, hipermetropie, culoarea irisului, fumat, utilizarea unei forme de protecţie oculară. Material şi metodă Studiu prospectiv efectuat pe 51 de pacienţi cu DMS. S-au efectuat următoarele evaluări: vârsta; sexul; culoarea irisului; fumător/nefumător; utilizarea de ochelari de soare sau pălării; statusul refractiv al pacienţilor fachici. Rezultate Din cei 51 de pacienţi urmăriţi vârsta a fost cuprinsă între 47 şi 89 de ani cu o medie de 70,05 ani. Repartiţia pe sexe a pacienţilor a fost: 15 bărbaţi şi 36 de femei. Majoritatea pacienţilor au fost nefumători, nu au utilizat protecţii oculare, au prezentat iris de culoare deschisă şi au fost hipermetropi. Discuţii Factorii de risc modificabili şi care se află sub controlul pacienţilor sunt reprezentaţi de fumat şi protecţia oculară. Concluzie Rezultatele obţinute sunt în concordanţă cu cele găsite în alte studii din literatua de specialitate.*

Cuvinte cheie: *degenerescenţa maculară senilă, studiu*

INTRODUCTION

Age related macular degeneration (ARMD) is the most common cause of vision impairment in most developed countries. We do not know how to prevent ARMD, and treatment is only partially effective for a few patients with AMD.(1)

PURPOSE OF THE STUDY

The present work is trying to make a correlation between ARMD and the following risk factors: age, sex, hyperopia, iris colour, smoking, eye protection.

METHODS

This is a prospective study of 51 patients with ARMD. The diagnostic was established by means of clinical evaluation of the eye, fluorescein angiography (FA) and optical coherence tomography (OCT). The stages of age-related macular degeneration are categorized as early stage, characterized by the presence of a few (<20) medium-size drusen or retinal pigmentary abnormalities. Intermediate age-related macular degeneration is characterized by at least one large drusen, numerous medium-size drusen, or geographic atrophy that does not extend to the center of the macula. Advanced or late age-related macular degeneration can be either non-neovascular (dry, atrophic, or nonexudative) or neovascular (wet or exudative). Advanced non-neovascular age-related macular degeneration is characterized by drusen and geographic atrophy extending to the center of the macula. Advanced neovascular age-related macular degeneration is characterized by choroidal neovascularization and its sequelae.

The followings were evaluated:

- Age
- Sex
- Iris colour
- Smoker/non-smoker
- Eye protection
- Refractive status of phakic patients evaluated with Topcon autorefractometer

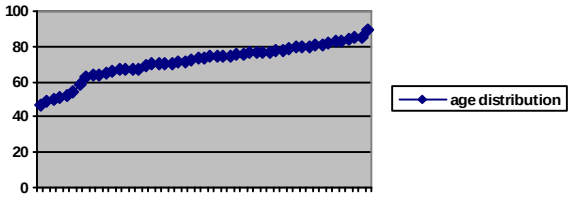
FAs were performed using Zeiss Visucam and intravenous injection of 5cc 10% natrium fluorescein. OCTs were performed using Stratus OCT, after pupil dilation using 0.5% tropicamide. Macular thickness maps were analyzed.

RESULTS

The age of the 51 patients ranged between 47

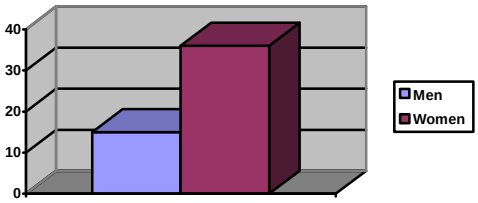
and 89 years, with a mean age of 70,05 years (picture no. 1).

Picture no. 1. Age distribution of the studied batch



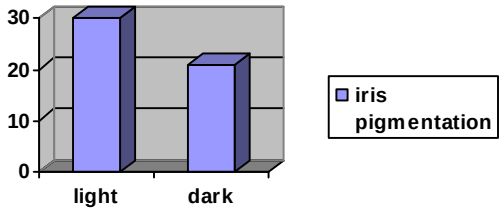
In the present study 15 of patients were men and 36 women (picture no. 2).

Picture no.2. Sex distribution of the studied batch



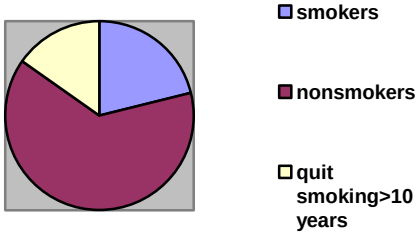
Iris colour evaluation revealed 30 patients with light iris pigmentation and 21 patients with dark pigmentation (picture no. 3)

Picture no. 3. Batch distribution according to iris pigmentation



After interviewing the patients, 10 of them stated they were current smokers, 33 have never smoked, 8 of them have quit smoking for more then 10 years (picture no. 4.).

Picture no. 4. Batch distribution according to smoker/non-smoker status >10 ani



17 of the patients have been wearing ocular protection (i.e. sunglasses or hats), 25 of patients never used any kind of ocular protection and 9 of them used only occasionally one of the protection forms.

Regarding the refractive status, 27 patients presented hyperopia higher than +0.75 D, 22 of patients being emetropes or miopes.

DISCUSSION

Even though the inferior age limit was 47 years, the average age was 70 years. The „Beaver Dam Eye Study"(2) found a higher incidence of ARMD in patients over 70. The „Blue Mountain Eye Study"(3) analyzed the incidence of early and late forms of ARMD, revealing a powerful association between both forms of the disease and age. A study conducted in India on 3000 patients with ARMD found that 95% of them were over the age of 60.(4) Therefore, all studies indicate an association between ARMD and advanced age.

After the assessment of gender, 29.41% were men and 70.58% women, which indicated a higher frequency of ARMD in women. FES and New Zealand studies found a higher frequency of the disease in women than men at all ages, excepting highest age categories in the New Zealand study. In contrast the NHANES-I study, found no differences in the frequencies of the disease related to sex, in the same age category.(5)

According to iris pigmentation, 58.82% presented light coloured irides compared with 41.17% dark coloured irides. Light coloured irides were considered: blue, green, light brown and dark coloured irides: dark brown. Weiter and colab.(6) found a lower frequency of ARMD in patients with dark irides. Sandberg and colab.(6) found more widespread lesions in patients with light coloured irides than in patients with dark irides. In contrast Vinding, Eye Disease Case Control Study Group, and the Beaver Dam Wisconsin study found no relation between iris pigmentation and the presence or severity of ARMD.(6)

Among the 10 smokers 6 were women and 4 men. One woman is passive smoker for 20 years. Among those who quit smoking 6 were men and 2 women. Among those who have never smoked 5 were men and 28 were women. Related to the entire group of men and women 22.66% of men are active smokers in comparison to 16.66% of active women smokers. 33.33% of men have never smoked in comparison to 77.77% of women that have never smoked. Therefore, given this age category women are found to smoke less than men. Different studies had concluded that smokers have 1.9-2 times higher risk of developing ARMD than non smokers, and those who have had quit smoking have 1.7 times higher risk of developing ARMD than nonsmokers. Stopping smoking is associated with lower risk of ARMD and patients who stopped smoking for more than 20 years have the same risk of developing ARMD as nonsmokers.(7,8,9,10,11)

33.33% of patients used regularly one of the ocular protection methods, 17.64% used these methods

occasionally and 50.99% never wore any of the protection methods. A study conducted in Beaver Dam found a protective effect of wearing eyeglasses, sunglasses, hats and high retinal pigmentation in exudative ARMD and late maculopathy.(12) Another study conducted in France, found that the regular wear of sunglasses lowers the risk of soft drusen development.(13)

Because 2 of the patients were pseudophakic with no evidence of preoperative refraction, they were excluded from the assessment of the refractive status. 55.10% of patients presented hyperopia and 44.89% of patients presented emetropia or miopia. Sandberg(14) conducted a study on 327 patients with ARMD and found a higher risk of choroidal neovascularization in patients with hyperopia of +0.75 D or higher. Another study conducted by JJ Wang (15) did not find any relation between late ARMD and refractive status, but did find a relation between hyperopia and early ARMD. Miopia did not relate with ARMD.

Smoking and ocular protection are modifiable risk factors that can be controlled by the patients.

CONCLUSION

The results obtained in this study are in accordance with those found in the medical literature.

The results presented are preliminary and were obtained by analyzing data of a part of the patients taken into the research study that analyzes the epidemiological factors of ARMD, study initiated in 2005.

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