Original article

The factors associated with age related macular degeneration and quality of life of the patients in a tertiary-level ophthalmic center in Kathmandu

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Abstract

Introduction: Age-related macular degeneration (ARMD) is a leading cause of blindness in the elderly population.

Objective:To frame a profile of patients with ARMD and find out the factors associated with it

Materials and methods: A cross-sectional study was carried out including a total of 75 patients with ARMD presenting to the out-patient department of a tertiary level ophthalmic center in Kathmandu. The data pertaining to their demography, ocular and systemic history and the findings of clinical examination and laboratory investigations were analyzed. The quality of life was assessed based on their dependability on the others for daily activity.

Results: Mean age of presentation of ARMD was 73 years ±7.93. Of the total, 44 were male and 31 female. Smoking was significantly associated with ARMD ($p<0.01$). 47 of the subjects had a sedentary lifestyle and 28 a non-sedentary lifestyle. Sedentary life style was significantly associated with ARMD ($p=0.028$). 48 subjects were hypertensive. Systemic hypertension was significantly associated with ARMD ($p = 0.015$). 45 had dry ARMD, 21 had wet ARMD and 9 of them had a mixed variety. Thirteen out of the 75 study subjects were leading a normal life while 45 of them had some limitation (self-care only) and 17 of them were dependent on the others for their daily activity. The quality of life was not significantly different between dry and wet ARMD ($p = 0.40$).

Conclusion: Sedentary life style, smoking and hypertension are the modifiable factors that are associated with ARMD. A significant number of people with the ARMD have a compromised quality of life.

Keywords: ARMD, associated factors, quality of life, macular degeneration

Introduction

Age-related macular degeneration (ARMD) is the leading cause of visual impairment in the elderly and the most common cause of blindness in Western countries. The pathogenesis of age-related macular degeneration is poorly understood. As with other late-onset chronic diseases, susceptibility is influenced by age, ethnic background, and a combination of environmental and genetic factors. Smoking status and family history are well-established risk factors (de Jong PTMV, 2006). ARMD is a common ophthalmological disorder that can significantly impair a patient's ability to function independently and potentially have a dramatic impact on health-related quality of life. This study was conducted in view of finding out risk factors that can be modified and how much burden this disease imposes on patients in their day-to-day life.

Materials and methods

A cross-sectional study was carried out among 75 successive patients of ARMD attending the out-patient department of the B P Koirala Lion's Center for

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Ophthalmic Studies (BPKLCOS OPD) from 2007 to June 2008. A structured questionnaire and format were used. An informed consent was obtained from the subjects included for the study. The data pertaining to their demography, ocular and systemic history and the findings of clinical examination and laboratory investigations were analyzed. The quality of life was assessed based on their dependability on the others for daily activity. The lifestyle was broadly divided into sedentary and non-sedentary.

Statistics

Data analysis was done using the latest version of SPSS 11.5 and MS Excel. The p value was said to be significant when it was <0.05. Confidence interval (CI) was set at 95%.

Results

Mean age of presentation of ARMD was 73 ± 7.93 years. The age ranged from 90 to 60 years.

Of 75 subjects, 44 (59%) were male and 31 (41%) female (Table 1). The gender was not significantly (p =0.133) associated with ARMD. Among them, 47 had a sedentary lifestyle and 28 non-sedentary. Sedentary life style was significantly associated with ARMD (p=0.028).

Table 1
Occupation Distribution

Occupation	Ex-army	Ex-service	Farmer	Teacher	House wife	Social worker
Male	3	16	15	5	0	5
Female	0	6	10	1	14	0

Of the total 75 study participants, 53 (70.66 %) of them were smokers. Smoking was significantly associated with ARMD (p<0.01). People who smoked had ARMD at the average age of 72 years compared to 77 years for those who did not smoke. Mean age of presentation was significantly different (P <0.001) between smokers and nonsmokers.

The ocular disease most commonly associated with ARMD was cataract, which was present in 34 of the total. Two of them had cataract as well as glaucoma. Presence of other ocular diseases was not significantly associated with any form of ARMD. History of ocular disease was also not significantly associated with the poorer quality of life in patients of ARMD (P =0.49).

Of 75, 48 (64 %) were found to be hypertensive. Hypertension was significantly associated with ARMD (p = 0.015). Eight study participants were diabetic. Diabetes was not significantly associated with ARMD.

Diminution of visual acuity was the most common presenting symptom of ARMD. Visual acuity was not significantly different between dry and wet ARMD (p = 0.34).

Lens opacity was the most common ocular disease found on examination. Almost all of the study participants had either some form of cataract or were pseudophakic. Nuclear cataract of more than grade II together with ARMD was significantly associated with the poor quality of life (p = 0.018).

Type of ARMD

Forty-five (60%) subjects had dry ARMD, 21(28%) of them had wet ARMD and 9 (12%) of them had a mixed variety. The male subjects had dry, wet and mixed ARMD in a frequency of 24, 14 and 6 respectively. While for females, this was 21, 7 and 3 respectively. Sex was not significantly associated with any form of ARMD (p=0.083).

Thirteen out of 75 study participants were leading a normal life while 45 of them had some limitation (self-care only) and 17 of them were dependent on others for their daily activities. Quality of life was not significantly different between dry and wet ARMD (p = 0.40). Likewise quality of life was not significantly different between male and female (p =0.49).

Discussion

ARMD is the leading cause of blindness in the elderly worldwide, affecting 30–50 million individuals. The prevalence of blindness is increasing significantly in Asian countries, which could be due to urbanization of the populations, westernization of lifestyles and increasing disease awareness (Wong TY et al, 2006). World Health Organization (WHO) statistics from the most recent WHO global eye disease surveys conducted in 2002 revealed that 8.7% of world-wide blindness is due to ARMD (World Health Organization, 2004), the third leading cause of world-wide blindness after cataract and glaucoma. Conservatively, the WHO estimated that 14 million persons worldwide are blind or severely visually impaired because of ARMD. Even though figures on the prevalence of ARMD vary greatly

depending on the definition used, it is clear that the likelihood of developing the condition increases considerably with age. In a study done by Seddon J (2008), the prevalence increased from 12.2 per cent in people aged 55-64 years to 18.3 per cent in those aged 65-74 years and 29.7 per cent in people aged over 74.

In our study, sex was not significantly (p =0.133) associated with ARMD. Male participants presented at mean age of 75 years and females presented at mean age of 71 years. Sex was not a risk factor for ARMD. In some of the studies (Klein R et al, 2006), it has been seen that more women are affected than men. However, the evidence is not strong since the larger number of women with ARMD may simply be a reflection of their greater longevity. Generally, there does not seem a significantly increased risk for women as compared to men (Smith W et al 2001). It is also worth noting that a study in Japan has found the prevalence of ARMD to be higher in men than in women (Miyazaki M et al 2003).

In our study, sedentary life style was significantly associated with ARMD (p=0.028). This is in par with the AREDS study (Age-Related Eye Disease Study Group, 2001) which showed that as body mass index (BMI) increased, so did the risk for ARMD. Further work needs to be completed before definitive conclusions can be made in this regard (AMD Special Report CME Newsletter, 2006).

In the present study, smoking was significantly associated with ARMD (p<0.01). Most of the smokers had smoked 5-10 cigarettes or more than 10 cigarettes per day. Most of the smokers smoked for more than 10 years. People who smoked had ARMD at the average age of 72 years compared to 77 years for those who did not smoke. Mean age of presentation was significantly different (p <0.001) between smokers and non-smokers. Regarding sex difference in smoking, 77% of the male patients were smokers compared to 67% of female patients. This shows the same results as of some other studies which report that the most important avoidable risk factor for ARMD is smoking. Evans et al (2005) studied more than 4,000 Britons aged 75 and older and showed that those who smoked were twice as likely to have age-related macular degeneration as those who did not. Numerous epidemiological studies have demonstrated the risk of smoking with regard to ARMD. Hayman et al (2000) showed a 2.6 relative risk for male smokers, but no significant risk for female smokers.

Of the 75 ARMD patients included in our study, 48 were found to be hypertensive. Hypertension was significantly associated with ARMD (p = 0.015). Studies on hypertension and cardiovascular diseases and its association with ARMD have been inconsistent. In a case-control study, Fred et al (2000) suggested that neovascular ARMD was associated with moderate to severe hypertension. However, non-neovascular ARMD was unrelated to hypertension in the same study. The Framingham Study (Dawber TR et al, 1951) also indicated an association of ARMD with systemic hypertension. However, the Beaver Dam Eye Study (Klein R et al 2002) showed no correlation between hypertension, cardiovascular diseases and ARMD.

Conclusion

A sedentary life style, smoking and systemic hypertension are the factors associated with ARMD. Further studies are required to confirm the cause and effect relationship of these findings.

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