

Age-related Macular Degeneration: An Emerging Challenge for Eye Care and Public Health Professionals in the Asia Pacific Region

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Age-related macular degeneration (AMD) is a severe ocular disease characterised by progressive deterioration of the macula, the most sensitive central back portion of the retina. Choroidal neovascularisation (wet AMD) leading to haemorrhage and scar formation beneath the central retina accounts for most cases of legal blindness from AMD (80% to 90%), and atrophic macular changes (dry AMD) for the remainder. The World Health Organisation's global data on visual impairment in the year 2002 show that AMD ranks third after cataract and glaucoma as a leading cause of blindness worldwide.¹ Although cataract remains the principal cause of blindness in most of the world, AMD takes the top spot in the most developed countries due in part to the growing number of people aged over 70 years.

Both directly and indirectly, visual impairment interferes with daily living. A blind person and his family face major social constraints. Less recognised is the fact that even moderate visual impairment, i.e., a visual acuity worse than 6/12, significantly decreases the enjoyment of healthy ageing. Difficulties in daily living are increased two-fold, while ease of social functioning and religious participation decrease by half through this modest reduction in visual acuity.^{2,3}

Not only is there social isolation, but this moderate visual impairment carries significant morbidity.² Poor vision in older persons is associated with myriad problems, including falls, hip fractures, family stress, and depression.⁴⁻⁷ Visual disabilities are also a safety risk to all vehicle drivers and passengers.⁸ Probably of greatest importance is the doubling in mortality attributable to moderate visual loss, even after adjusting for other morbidity risks that can be measured in population-based studies.^{2,9-11} Moreover, visual impairment and blindness from AMD have important socio-economic implications,^{12,13} of which the costs of care and rehabilitation are the most apparent. Equally important are the indirect costs resulting from loss of productivity.¹⁴

Although there are promising new scientific approaches

on the horizon that have the potential to reduce the devastating effects of wet AMD, there is no definitive curative treatment. Certain treatments, such as thermal laser photocoagulation, photodynamic therapy, and anti-vascular endothelial growth factor injection, have been shown to be efficacious in certain subsets of patients, but they tend to halt or retard the progression of the wet form of the disease rather than reverse any vision loss that has already occurred.¹⁵

The increasing impact of AMD, coupled with the limitations of treatment, have led many investigators to search for factors that might be modified to prevent the onset, or alter the natural history, of AMD. The identification and modification of risk factors may have greater public health impact on AMD morbidity than the few treatment modalities available. We now know some risk factors for AMD, and while more research is required, this knowledge can help to reduce blindness from AMD through primary and secondary prevention.^{16,17} For example, cigarette smoking increases the risk of AMD two- to three-fold.¹⁸ Weaker associations have been found with obesity, hypertension, macrovascular disease, raised plasma cholesterol and fibrinogen levels, cumulative light exposure, and cataract surgery.^{16,19} There is also evidence from a large randomised controlled trial that high-dose dietary supplements of vitamins C and E, beta-carotene, and zinc can reduce the risk of progression from moderate AMD to advanced AMD.²⁰

As countries in the Asia Pacific region become more developed and the longevity of their population increases, the expected increase in prevalence of AMD will pose a major public health problem. Reducing the disability caused by AMD is challenging for many reasons.

First, the magnitude of the problem of AMD in the Asia Pacific region is not completely known. While the epidemiology of AMD in many developed countries in North America, Europe and Australia has been studied in

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great detail, data on this sight-threatening disorder are limited for populations in the Asia Pacific region.^{21,22} This lack of data occurs largely because collecting accurate and meaningful data is expensive. Data from blindness registries are notoriously incomplete and, because they are usually not community-based, cannot be extrapolated to the population in general. In addition, the difficulty of studying AMD in this region is likely to be compounded by the existence of polypoidal choroidal vasculopathy, another degenerative condition of the macula which seems to preferentially affect more darkly pigmented individuals.^{23,24}

Second, to prevent vision loss, AMD should be detected by careful and regular examinations before obvious vision loss develops. Comprehensive dilated eye examinations for this purpose is best performed by eye care specialists such as ophthalmologists and, in some countries, optometrists. Unfortunately, many developing Asia Pacific countries do not have enough eye care specialists, and the often imbalanced geographical distribution of eye care specialists means that rural areas, for instance, are often under-served.

Third, current treatment options such as photodynamic therapy are costly, putting them out of reach of most of the poorer people in the Asia Pacific region. Because many of these countries are also combating cataract, glaucoma, and diabetic retinopathy, not all of them have the additional resources needed to also cover AMD.

Fourth, the awareness of AMD in the Asia Pacific population is exceedingly low. For example, amongst Hong Kong Chinese persons aged 40 years and above, fewer than 1% knew the symptoms of AMD compared to the 22.9% and 10.2% who could correctly describe cataract and glaucoma symptoms, respectively.²⁵ The AMD Global Report 2005, which surveyed more than 15,000 people in 14 countries, showed that the highest awareness occurred in the United States, Canada, and Australia, with 21% to 30% of respondents stating they were very familiar or somewhat familiar with AMD.²⁶ In the 2 Asian countries (Hong Kong and Japan) in the survey, awareness levels were among the lowest, with only about 1 in 20 respondents aware of the condition. Because it is easy for the public to assume, erroneously, that a test of visual acuity when obtaining glasses will detect sight-threatening conditions, more effort should be directed at increasing awareness of the importance of regular, thorough eye checks to detect such conditions as AMD. The health education message that smoking increases the risk of AMD and causes blindness is a particularly effective tool for raising awareness of this condition.¹⁸

In response to the emerging challenge of AMD in the Asia Pacific region, it is heartening to note that the AMD Alliance International, a non-profit coalition of vision,

research and seniors' organisations working to combat blindness from AMD, will set up its Asia Pacific office this year. The alliance, which currently has 55 member organisations from 21 countries, aims to raise awareness of AMD, its treatment and rehabilitation options, and the importance of early detection.

In summary, we need to know more about the epidemiology of AMD and to provide better access to eye care and vision support services among the various populations in the Asia Pacific region. To decrease AMD morbidity, eye care specialists and public health professionals must increase the public awareness of AMD and its possible prevention, and integrate the timely screening, diagnosis and treatment of the disease.

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