Global prevalence of age-related macular degeneration

Published Online
January 3, 2014
http://dx.doi.org/10.1016/S2214-109X(13)70163-3

See Articles page e106

The Global Burden of Disease Study 2010 revealed that increasing population sizes, substantial increases in the average age in most world regions, and falling death rates have all led to a transition in the burden of disease towards disorders that cause disability but not substantial mortality.[1-4] Age-related macular degeneration is one of these disabling and degenerative diseases, mostly targeting elderly people. In 2010, an estimated 32·4 million people were blind (defined as presenting visual acuity of less than 3/60), and roughly 191 million people had moderate-to-severe vision impairment (defined as presenting visual acuity of less than 6/18 but equal to or better than 3/60).[5] Although the age-standardised prevalence of blindness for older adults decreased from 3·0% in 1990 to 1·9% in 2010, and visual impairment decreased from 14·3% to 10·4%, the number of blind people increased by 0·6 million and the number of visually impaired people increased by 19 million. This tendency was due to the increase in the global population size and mean population age.[5] In both 1990 and 2010, macular degeneration—mainly age-related—was the third most common cause of blindness (6·6% of all cases in 2010).[6] It was also the third most common cause for visual impairment, accounting for 3·1% of all cases.[6] From 1990 to 2010, the prevalence of blindness and visual impairment due to macular degeneration increased, a trend that will further continue until a prophylaxis or a markedly effective therapy has been developed.

The study by Wan Ling Wong and colleagues[7] examines the overall prevalence of age-related macular degeneration. In agreement with previous studies, Wong and colleagues have projected that 196 million people will be affected by age-related macular degeneration in 2020, increasing to 288 million by 2040.[7] Their meta-analysis contributes to existing evidence by summarising and critically weighing up all available and reliable information on prevalence. However, questions still remain. Although the prevalence of a disease is interesting, it is not as important as knowing the overall disease burden. The authors do not report on visual acuity or the effect of vision loss on the quality of vision and quality of life. This aspect might be addressed in a future study. Another question refers to the factors associated with age-related macular degeneration and whether spectrum and influence of these factors differs between countries. In a similar manner, the question arises of why its prevalence varies between regions. The answers to these questions could help in the prevention of the disease, in elucidating the pathogenesis, and could give hints for the development of new therapeutic procedures.

As with any study, this investigation has its limitations. A major inevitable limitation of such a study is that polypoidal vascular choroidopathy cannot reliably be differentiated from the exudative (wet) form of age-related macular degeneration.[8] Since polypoidal vascular choroidopathy is markedly more common in Asia than in Europe, the prevalence of the exudative (late) form might have been overestimated for the Asian regions in Wong and colleagues´ meta-analysis, a point that is discussed by the authors. Therefore, rates of the both early and late type of age-related macular degeneration were possibly less frequent in the Asian populations than in the European populations assessed. Another limitation is that optical coherence tomography, a fairly new technique, was not applied in the preceding studies underlying the meta-analysis. Since optical coherence tomography is more precise in detecting morphological changes in the macula than the conventional procedure of examining fundus photographs, the prevalence of age-related macular degeneration might have been underestimated. Another unavoidable limitation of the study is that future developments might provide new therapies or prophylactic procedures that will reduce the number of patients affected by age-related macular degeneration. Finally, although macular degeneration, mainly age-related, was estimated to be the cause of 7% of blindness and 3% visual impairment worldwide, cataract and undercorrection of refractive error represented more than 50% of all cases. As devastating as the effect that age-related macular degeneration has on the quality of vision and quality of life, global public health measures that provide glasses and cataract surgery are by far more successful, safer, and more cost-effective than any therapy previously available for age-related macular degeneration.

Jost B Jonas
Department of Ophthalmology, Medical Faculty Mannheim of the Ruprecht-Karls-University of Heidelberg, Germany
Jost.Jonas@medma.uni-heidelberg.de

I declare that I have no conflicts of interest.

1 Lim SS, Vos T, Flaxman AD, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2012; **380:** 2224–60.

2 Murray CJ, Vos T, Lozano R, et al. Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2012; **380:** 2197–223.

3 Vos T, Flaxman AD, Naghavi M, et al. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2012; **380:** 2163–96.

4 Salomon JA, Vos T, Hogan DR, et al. Common values in assessing health outcomes from disease and injury: disability weights measurement study for the Global Burden of Disease Study 2010. *Lancet* 2012; **380:** 2129–43.

5 Stevens G, White R, Flaxman SR, et al. Global prevalence of visual impairment and blindness: magnitude and temporal trends, 1990–2010. *Ophthalmology* 2013; **120:** 2377–84.

6 Bourne RRA, Stevens GA, White RA, et al. Causes of vision loss worldwide, 1990–2010: a systematic analysis. *Lancet Glob Health* 2013; **1:** e339–49.

7 Wong WL, Su X, Li X, et al. Global prevalence of age-related macular degeneration and disease burden projection for 2020 and 2040: a systematic review and meta-analysis. *Lancet Glob Health* 2014; published online Jan 3. http://dx.doi.org/10.1016/S2214-109X(13)70145-1.

8 Yannuzzi LA, Sorenson J, Spaide RF, Lipson B. Idiopathic polypoidal choroidal vasculopathy (IPCV). *Retina* 1990; **10:** 1–8.