

Is Macular Degeneration Slowly Going Away?



What studies say, why this may be, and what it means.

BY BRIAN C. JOONDEPH, MD, MPS

Conventional wisdom says that, as the population ages, degenerative diseases will increase in prevalence, meaning a higher cost to society to treat these diseases. But all may not be what it seems.

In 1935, President Franklin D. Roosevelt's administration created the Social Security Administration, which at the time was a great deal for the government. Workers would pay into the system their entire working lives, but few would live long enough to collect benefits. In the 1930s, life expectancy at birth was 58 years for men and 62 years for women.¹ Thus, a mere century ago, most Americans would never live to an age when macular degeneration became manifest, assuming the ophthalmologists of the time could even make such a diagnosis. Most cases of decreased vision were written off as poor eyesight due to old age.

TIMES HAVE CHANGED

How long are Americans living now? According to the Central Intelligence Agency, life expectancy from birth is now 80 years.² The Social Security Administration, on the other hand, says that a man reaching 65 today can expect to live to age 84, and that women will make it to almost 87 years of age.³ These are ages at which age-related macular degeneration (AMD) is quite common.

Common sense, or conventional wisdom, suggests that AMD will increase dramatically, as everyone seems to be living longer these days. But is that what's really happening?

THE LITERATURE

Two recent papers suggest that conventional wisdom may be similar to modern day political "fake news." One paper published in *Ophthalmology* by the European Eye Epidemiology consortium studied European trends.⁴ A similar study in *JAMA Ophthalmology* using data from the Beaver Dam Eye Study looked at American trends or, more specifically, at a population group in Wisconsin.⁵ Unexpectedly, both papers found a decreasing prevalence of AMD. Not what I would have expected.

Researchers in the European study

said, "We observed a decreasing prevalence of AMD and an improvement in visual acuity in CNV [choroidal neovascularization] occurring over the past 2 decades in Europe."⁴ Researchers in the American study wrote, "The 5-year risk for AMD declined by birth cohorts throughout the 20th century."⁵

Different continents. Different populations. Same findings. Just as the US FDA requires two confirmatory phase 3 studies before approving a new drug, here we have two independent and concurrent studies with the same results.

WHAT DO THESE DATA MEAN?

Statistical mavens can criticize the methodology and results of these studies. They are population-based studies, for one thing. Ethnicity may

AT A GLANCE

- ▶ Two recent studies have reported a decreasing prevalence of AMD in US and European individuals.
- ▶ Neither study was powered to examine why the prevalence of AMD declined over the past century.
- ▶ Various factors could have a hand in the trend, but there is no clear answer; if it continues, it could affect the future practice of retina.

also play a role, especially given the ethnic diversity in the United States and Europe. Pick a different study population and the results may be different. Nevertheless, two distinct studies found similar results.

The question is *why*. These results fly against conventional thinking about the aging population and chronic degenerative diseases. Is it nature or nurture? Genetics or lifestyle? Genes can't change in a few generations, rather than needing thousands of years, or longer, to mutate within a population. That leaves lifestyle or environmental factors.

Neither study was powered to identify why the prevalence of AMD declined over the past century. Both studies drew parallels to dementia and cardiovascular disease, both of which are related to aging and yet are declining, similar to AMD. This should not be surprising, as all three conditions have common risk factors, including atherosclerosis and inflammation.



What About Smoking?

In 1965, nearly half of US adults smoked cigarettes. That rate has dropped by more than half since then, according to the US Centers for Disease Control and Prevention.⁶ Similar trends are seen in the United Kingdom, with fewer smokers

reported now compared with past years.⁷

Think back to the 1950s, when actors and actresses all smoked. When there was a television commercial proclaiming that “Doctors in all branches of medicine” smoked “Camels more than any other cigarette.”⁸ Half a century later, things are far different. It makes sense that smoking-aggravated diseases such as AMD would decline with fewer smokers.



Maybe It's Diet?

The diet section is one of the largest in most bookstores. Many people have access to Whole Foods and Trader Joe's and, to make things more convenient, we can have healthy meals delivered to our doors. People are eating well; even

fast-food restaurants are serving healthier fare. Improved diet and nutrition are likely playing some role in the decline of AMD prevalence.



How About Exercise?

Health clubs are everywhere. Yoga and Pilates studios for those seeking core fitness, and CrossFit and Tough Mudders for the more adventurous. Michelle Obama told everyone, “Let's move!” Fitbits track our steps.

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Phone apps remind us to walk. Not everyone is exercising, but many are, and at a higher intensity than previous generations. This may be another factor lowering the prevalence of AMD and related degenerative diseases.

Then again, obesity rates are increasing, with more than one in three Americans considered obese.⁹ This fact of course contradicts the healthy lifestyle rationale for declining AMD prevalence.



Are Vitamins Playing a Role? Or Anything Else?

The AREDS2 study demonstrated that a particular vitamin combination reduced the risk of developing advanced AMD, but not AMD in general. That doesn't mean, however, that vitamins don't play a role

in preventing AMD. Such a small effect may not be measurable even in the large AREDS2 study.

Almost all of my patients with AMD take vitamins, as do their family members. An uncle with AMD is enough reason for a healthy 40-year-old to take AREDS2 supplements, even if there is no scientific rationale. Might this be playing a role in the reduced prevalence of AMD?

Another factor mentioned in the *JAMA* article referenced earlier is statin use.⁵ According to the American Heart Association, 56 million Americans are eligible to take a statin.¹⁰ Many already are. The jury is out, though, on whether this class of drugs prevents or delays the onset of AMD.¹¹

Interestingly, improved oral hygiene may have a beneficial role in preventing not only AMD but also cardiovascular disease and dementia.¹²

WHAT WE DON'T KNOW

The bottom line is that we don't know why AMD prevalence is decreasing in the United States and in Europe (and likely in other parts of the world). AMD is a multifactorial disease with many risk factors but no single cause. Still, its decline is of interest and important to monitor.

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If the trend of decreasing AMD prevalence continues, it will certainly have manpower and workforce implications for retina surgeons. Will we be injecting eyes all day long for the remainder of our careers, or will the trend crest and eventually decline?

There are also significant policy implications. Medicare and other payers are spending billions of dollars per year on AMD management, particularly on expensive intravitreal injections. Funding is a zero-sum game based on congressional budgets and collected insurance premiums. Money allocated for AMD treatment means payments for other services will be cut. If policymakers believe AMD is on the rise, they will build the budget accordingly, pulling money from our other procedures to make up the shortfall.

There is a big difference in a 10-year health care spending budget that sees the prevalence of AMD doubling (conventional wisdom) and one that sees it being halved (as indicated by the data from these two studies). Although our injection clinics are now bursting at the seams, based on these studies, relief may be in sight. Potentially longer-acting injectable drugs, plus fewer patients with AMD, could free up retina specialists from some of the burden of AMD care.

Reminder: conventional wisdom and so-called settled science may be anything but. Stay tuned. ■

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