



## PIC QUESTION OF THE WEEK: 01/29/07

Q: What role does vitamin supplementation play in macular degeneration?

A: In recent years macular degeneration has become a major topic due to our ever-aging population. While the cause of macular degeneration is unknown, the result is progressive loss of central vision. The primary risk factor for macular degeneration is aging, thus the reason it is often referred to as age-related macular degeneration (AMD). Proposed mechanisms for the development and progression of this disease include damage due to oxidative stress and genetic predisposition. Women, individuals with light colored eyes, Caucasians, and those with a family history of AMD appear to be at greater risk. Lifestyle factors have also been implicated in increasing oxidative stress, especially cigarette smoking and obesity. It has been theorized that a diet high in antioxidants may prevent or delay progression of this disease. The Age-Related Eye Disease Study (AREDS) published in 2001 concluded that a combination of vitamins A, C, and E along with zinc and copper are able slow the progression of the disease. This effect was only observed in those considered to have intermediate or advanced disease who had already suffered some loss of vision. Those who had early stage AMD or who were not diagnosed with the disease did not show sufficient benefit to warrant continued vitamin supplementation. A similar conclusion was reflected in a review of the topic published in The Medical Letter in 2003. The on-going AREDS2 study is currently evaluating the possible benefits of the retinal pigments lutein and zeaxanthin along with omega-3 fatty acids in AMD. While a number of products that are on the market contain these ingredients, the FDA still advises there is no credible evidence lutein or zeaxanthin play any role in the treatment of AMD. The benefit of omega-3 fatty acids in AMD has also not been determined. Vitamin supplementation produces few adverse effects; however one study identified a possible increased risk of lung cancer in those taking high doses of vitamins A and E. The major recommendation for prevention of AMD is that patients have regularly scheduled ophthalmic examinations to identify early disease. Additional measures to prevent or delay progression of AMD include smoking cessation, a low-fat diet rich in leafy greens, fruits, and other vegetables, and adequate measures to protect the eyes from sunlight.

### References:

- Trumbo PR, Ellwood KC. Lutein and zeaxanthin intakes and risk of age-related macular degeneration and cataracts: an evaluation using the Food and Drug Administration's evidence-based review system for health-claims. *Am J Clin Nutr* 2006;84:971-4.
- Antioxidant vitamins and zinc for macular degeneration. *Med Lett Drugs Ther* 2003;45:45-6.
- MayoClinic.com. Macular degeneration. <http://www.mayoclinic.com> (accessed 2007 Jan 22)

Renee R. Tis and Michael R. Schmitt, Pharmacy Clerkship Students

**The PIC Question of the Week is a publication of the Pharmaceutical Information Center, Mylan School of Pharmacy, Duquesne University, Pittsburgh, PA 15282**