

Vitamins for age-related macular degeneration demonstrate minimal differences

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Clinical question

Does taking ocular vitamins (including antioxidants and zinc) decrease the progression of age-related macular degeneration (AMD)?

Bottom line

Ocular vitamins only slow visual loss in AMD patients with intermediate and severe retinal findings (number needed to treat [NNT]=13). Progression to advanced AMD is rare in patients with minimal AMD, and ocular vitamins do not prevent AMD in those without AMD. Components of ocular vitamins are potentially harmful and should be used only in selected patients.

Evidence

The largest multicentre, double-blind, placebo-controlled RCT of 4757 patients with AMD¹ examined the effects of antioxidants (500 mg of vitamin C, 400 IU of vitamin E, and 15 mg of beta-carotene); zinc (80 mg of zinc oxide); and antioxidants in combination with zinc on AMD progression.

- Mean age 69 years; 56% females; 6.3 years follow-up.
- Baseline retinal photography classified patients in categories 1 (minimal) to 4 (advanced).

Outcomes:

- For 15-letter visual acuity loss:
 - Pooled together, category 2, 3, and 4 patients had no significant improvement with any intervention.
 - Category 3 and 4 patients had statistically significantly reduced visual loss for antioxidants with zinc (23% versus placebo (29%); NNT=17 ($P=.008$).
- For progression to advanced AMD (predominantly neovascularization):
 - Category 3 and 4 patients had statistically significantly reduced progression with zinc (NNT=17, $P=.008$) and antioxidants with zinc (NNT=13, $P=.001$).

Limitations:

- Category 1 patients (23% of sample) were excluded, reporting was selective, adjustments were made for baseline characteristics, and the trial was industry supported.
- Inconsistent results seen in shorter, smaller studies.²

Context

- In developed countries AMD is a common cause of visual loss.³ Neovascular AMD accounts for more than 80% of AMD visual loss, but less than 15% develop neovascular AMD (<1% of category 1 or 2 patients).^{1,4}
- Risk factors for AMD include being white, advanced age, smoking, obesity, and family history.⁴⁻⁶

- For patients without AMD, vitamin E or beta-carotene alone do not prevent AMD,⁷ and Canadian retina specialists recommend taking ocular vitamins.⁸
- Antioxidants increase adverse events including overall mortality (relative risk of 1.04, 95% CI 1.01 to 1.07).⁹

Implementation

Visual impairment affects 23% of US patients older than 80 years,³ most commonly from cataracts, AMD, and glaucoma.³ Ocular vitamins for AMD cost about \$20 per month and do not prevent or slow the progression of cataracts.¹⁰ Intravitreal injections of vascular endothelial growth factor inhibitors ranibizumab or bevacizumab decrease the risk of further visual loss and might improve visual acuity in AMD patients who progress to neovascularization.¹¹ Bevacizumab (off-label use) has been shown to be clinically noninferior to ranibizumab and is substantially cheaper. 🌿

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The opinions expressed in Tools for Practice articles are those of the authors and do not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.

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