



## Evidence Evaluation Report

### The use of antioxidant vitamins and mineral supplements in age-related macular degeneration (AMD)

#### Introduction

Age-related macular degeneration is a condition which affects the central area of the retina (macula). Photoreceptors in this area are subject to oxidative stress due to exposure to light and oxygen. It is proposed that antioxidants may prevent cellular damage in the retina by reacting with free radicals produced in the process of absorbing light. The early stages of the disease are generally asymptomatic, however in the latter stages there may be significant distortion of vision particularly in the central area of retina if left untreated.<sup>1</sup>

#### The role of antioxidants in macular degeneration

The following are considered to be antioxidants present in the retina: vitamin C, vitamin E, carotenoids, selenium and zinc. The macular pigment is made up of three carotenoids, lutein (L), zeaxanthin (Z) and meso-zeaxanthin (MZ). The trials below investigate whether supplementation with antioxidants provide a degree of protection against the oxidative process that leads to AMD.<sup>1</sup>

#### Clinical Evidence on use of antioxidants in macular degeneration

The Age Related Eye Disease Study (AREDS) is the only trial to date to produce long term evidence on the use of antioxidants in AMD. This study analysed the use of vitamin C 500mg, vitamin E 400iu, Beta carotene 15mg and zinc 80mg in the progression of macular degeneration. At the seven year follow up patients experienced a modest delay of 20-25% in progression to advanced AMD.<sup>2</sup> For those who had early AMD, the antioxidants did not slow the progression to intermediate AMD.<sup>1-2</sup>

A follow-up study, AREDS2 was designed to test whether adding carotenoids, lutein 10mg and zeaxanthin 2mg, with the omega-3 long-chain polyunsaturated fatty acids docosahexaenoic acid (DHA) 350mg and eicosapentaenoic acid (EPA) 650mg or both would further reduce the risk of progression to advanced AMD in patients with moderate to high risk of progression. This study concluded that the addition of any formulation to the AREDS primary formulation did not further reduce the risk to advanced AMD.<sup>1&3</sup>

Currently, the Central Retinal Enrichment Supplementation Trial (CREST) is investigating the impact of macular pigment enrichment supplementation with carotenoids L, Z, MZ and antioxidants in patients with and without AMD to identify any changes in visual function.<sup>4</sup>



### **Medicines Management Recommendations**

The Medicines Management Programme (MMP) supports the view of the National Centre of Pharmacoeconomics in that the evidence for dietary carotenoids for the prevention of AMD is inconclusive and therefore does not recommend that products containing these preparations be reimbursed under any community drug scheme including the Hardship Scheme.<sup>5</sup>

Secondly, the NHS recommends review of all patients on lutein and antioxidant vitamins, to discontinue prescribing and not to initiate new prescriptions for these supplements.<sup>6</sup>

Finally, the Cochrane review recommends that further trials are needed to promote the use of antioxidants and their role in the progression of AMD as currently there is little evidence to support their use.<sup>1</sup> Supplementation, if desired, should be obtained by purchasing products over the counter. These products are not licensed medicines and are classed as food supplements.

**THE MMP DOES NOT CURRENTLY RECOMMEND THE REIMBURSEMENT OF SUPPLEMENTS IN THE TREATMENT OF AGE RELATED MACULAR DEGENERATION UNDER ANY COMMUNITY DRUG SCHEME.**

### **References**

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