Macular vitamins in the UK: A preliminary analysis of AREDS2 supplements

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Introduction

- Age-related macular degeneration (AMD) is a sight threatening condition accounting for 8.7% of blindness globally.[1]
- AMD can be classified into 'dry' and 'wet', termed 'nonexudative' and 'exudative' by the ICD-10-CM respectively.
- Wet AMD classically presents with a subacute onset, compared to the much gradual, longer progression observed in dry AMD.[2]
- VEGF has been implicated to drive neovascularisation in wet AMD and hence anti-VEGF therapies have proven highly useful in its treatment.[3]
- There are limited therapeutic options for dry AMD.
- Patients with intermediate or advanced AMD may wish to consider taking age-related eye disease study 2 (AREDS2) formulation supplements, which have been shown to reduce the risk of progression to advanced AMD.[4]
- There is no existing UK-based research comparing macular vitamin formulations.

What is AREDS?

- A multicentre, prospective, double-blind, randomised study looking at the efficacy of vitamin and mineral supplements in preventing AMD and cataracts.[3]
- The formulation was chosen based on recommendations by expert nutritionists, ophthalmologists and biochemists.
- AREDS2 was a study between 2006-2012 which concluded a revised formulation, removing beta-carotene and adding in two xanthophyll carotenoids (lutein and zeaxanthin)
- The AREDS2 formulation contains 80mg zinc, 2mg copper, 500mg vitamin C, 400 IU vitamin E, 10mg lutein and 2mg zeaxanthin.

Methodology

Aim: To review the UK market for oral macular supplements and to evaluate AREDS2 compliance.

Methods:

- 42 oral supplements identified
- Sources: searching UK in-store and online retailers for macular vitamins
- Data extracted: ingredients, dosages of various ingredients, cost, vegetarian status, number of tablets required per day

Results

- 26 out of 42 supplements (61.9%) contained components of the AREDS formulation
- Only 2 were fully AREDS2-compliant: Bausch & Lomb PreserVision, MacuSan A2

Common modifications:

- 24 out of the remaining 26 modified dosages; the most common reason for failing to meet AREDS2 compliance was insufficient zinc
- Zinc
  - 23 of the 26 supplements (88.5%) contained 3.64mg-40mg zinc
  - 12 of these 23 (52.2%) contained at least 25mg
- 12 out of the 26 (46.2%) were vegetarian
- Average cost per day: £0.65

Meso-zeaxanthin:

- 7 out of the 26 (26.9%) contained it
  - 4 contained 10mg, whereas 2 contained a much lower dose at 0.11875mg
- Some products also had beta-carotene

Discussion & Conclusion

- Only 2 AREDS2-compliant products
  - Patients should be made aware of dosage modifications of other supplements
- Cost can potentially present a significant barrier given long duration of disease
- Other factors to consider: cost, vegetarian status, number of tablets per day.

Meso-zeaxanthin:

- Strong antioxidant potential
- Needs more research

Conclusion:

- AREDS2 is best evidenced option for intermediate-advanced dry AMD
- Educate patients on differences
- Consider cost, tablets/day, vegetarian status

References

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