TITLE: Lutein for Age-Related Macular Degeneration: Clinical Effectiveness

DATE: 15 January 2010

RESEARCH QUESTION:

What is the clinical effectiveness of the addition of lutein to multivitamin/multimineral formulations for treatment of age-related macular degeneration?

METHODS:

A limited literature search was conducted on key health technology assessment resources, including PubMed, the Cochrane Library (Issue 3, 2009), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI, EuroScan, international health technology agencies, and a focused Internet search. The search was limited to English language articles published between 2005 and December 2010. Filters were applied to limit the retrieval to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, controlled clinical trials, and observational studies. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

RESULTS:

HTIS reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, controlled clinical trials, and observational studies.

Three randomized controlled trials and one controlled clinical trial were identified pertaining to the clinical effectiveness (i.e., clinical benefit and harm) of using of lutein-containing multivitamin/multimineral supplements for the treatment of age-related macular degeneration. No relevant health technology assessment reports, systematic reviews, meta-analyses or
observational studies were identified. Additional information that may be of interest has been included in the appendix.

OVERALL SUMMARY OF FINDINGS:

Three randomized controlled trials and one controlled clinical trial were identified that compared patients taking lutein-containing multivitamin/multimineral supplements with controls.\(^1\)\(^-\)\(^4\) One randomized controlled trial found that a daily multivitamin/multimineral supplement containing 6 milligrams (mg) of lutein had no benefit in patients with age-related macular disease but authors suggested that further research was required to establish optimum dosage.\(^1\) The two other randomized controlled trials both used multivitamin/multimineral supplements containing 10 mg of lutein.\(^2\),\(^3\) After 12 months of supplementation, lutein-containing supplements,\(^2\),\(^3\) as well as lutein on its own,\(^2\) were associated with increased macular pigment optical density (MPOD)\(^2\) and stabilization of visual acuity.\(^3\) The authors of one trial stated that a larger trial was needed to confirm the results.\(^3\) The controlled clinical trial compared subjects taking a multivitamin/multimineral supplement containing 12 mg of lutein with non-supplemented subjects.\(^4\) After six months of supplementation, most subjects taking the lutein-containing supplement had increased MPOD. Elevated serum concentration of lutein was not associated with increased MPOD for all participants; the authors suggested that the malabsorption of carotenoids such as lutein may be responsible for lack of response to supplement therapy in some individuals.\(^4\)

Overall, the evidence indicated that multivitamin/multimineral supplements that contained at least 10 mg of lutein were associated with increased MPOD,\(^2\),\(^4\) stabilized visual acuity,\(^3\) and increased vision related quality of life\(^3\) in patients with age-related macular degeneration. No evidence for harm was found in any of the included studies.
REFERENCES SUMMARIZED:

Health technology assessments
No literature identified.

Systematic reviews and meta-analyses
No literature identified.

Randomized controlled trials


Controlled clinical trials


Observational studies
No literature identified.

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APPENDIX – FURTHER INFORMATION:

Systematic reviews and meta-analyses


Randomized controlled trials


Randomized controlled trials- ongoing


Observational studies


Review articles


Additional references

