Antioxidative Activity Evaluation Of Different Lutein Supplements Used In Age Related Maculopathy

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Because ARM (age related maculopathy) is one of the leading causes of irreversible visual loss among people aged 45 - 65 years in the world and as well in Romania, the aim of this paper is to reveal any differences of therapy response which might be related to different antioxidative activity of lutein supplements (capsules). These supplements contain only lutein ester 10 – 20 mg or lutein associated with vitamin C 60 mg, vitamin E 10 mg, zinc 15 mg, copper 1 mg, omega 3 fatty acids 400 mg [1].

We chose lutein as active principle because it is a powerful antioxidant compound that neutralizes reactive oxygen species resulted during metabolic processes at eye level.

For this reason we used 3 groups of 20 persons of each one divided after gender (males and females) and age (45 – 65 years) and different diseases (one third with diabetic maculopathy) and two thirds with specific maculopathy types (juveniles and seniles). From these 3 groups one was the control one, that received no treatment. The patients from the experimental groups received one capsule per day over one year.

Clinical evaluation of these lutein supplements action was done by Amsler ophthalmologic test, visual acuity, visual field, ophthalmoscopic aspect of the fundus of the eye, before and after the treatment.

The antioxidative activity of these different used lutein supplements was determined by a photochemiluminescence method (PCL), based on the multiple acceleration of a natural reaction leading to the generation of a superoxide anion radical. The measuring principle is based on the fact, that the antioxidants present in the sample eliminate part of the radicals in the measurement solution and thus reduce the intensity of fluorescence. The thus measured antioxidative capacity is then quantified by comparison with a standard substance used for calibration, ascorbic acid (in ACW method) or Trolox as tocopherol analog (in ACL method) using a PHOTOCHEM, Analytic Jena apparatus [2 - 3].

The antioxidative capacity results show that after the treatment based on different lutein supplements, some of visual parameters improved or at least remained the same compared to control group without treatment, in which the ophthalmologic situation got worse, more or less. The obtained results were statistically evaluated by "t" Student test, at a p<0,05 significance level confidence [4].

References