

**Influence of short term antioxidant supplementation on macular function in age related maculopathy: a pilot study including electrophysiologic assessment.**

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**Falsini B, Piccardi M, Iarossi G, Fadda A, Merendino E, Valentini P.**

Istituto di Oftalmologia, Universita Cattolica del S. Cuore, Rome, Italy.

**PURPOSE:** To evaluate the influence of short-term antioxidant supplementation on retinal function in age-related maculopathy (ARM) patients by recording focal electroretinograms (FERGs). **DESIGN:** Nonrandomized, comparative clinical trial. **PARTICIPANTS:** Thirty patients with early ARM and visual acuity  $\geq 20/30$ , divided into two groups, similar for age and disease severity: antioxidant group (ARM-A, n = 17) and no treatment group (ARM-NT, n = 13). Eight age-matched normal subjects divided into antioxidant (N-A, n = 4) or no treatment (N-NT, n = 4) groups.

**METHODS:** ARM-A patients and N-A patients had oral supplementation of lutein, 15 mg; vitamin E, 20 mg; and nicotinamide, 18 mg, daily for 180 days, whereas ARM-NT patients and N-NT patients had no dietary supplementation during the same period. Eight of the 17 ARM-A patients took supplementation for an additional 180-day period. In all patients and normal subjects, FERG assessment was performed at the study entry (baseline) and after 180 days. Further testing was performed at 360 days for the eight ARM-A patients taking supplements and for one ARM-A patient who had discontinued supplementation after 180 days. FERGs were recorded in response to a 41-Hz sinusoidally modulated uniform field (93.5% modulation depth) presented to the macular region (18 degrees ) on a light-adapting background. In a subgroup of patients (11 ARM-A and 5 ARM-NT), whose responses had suitable signal-to-noise ratios, FERGs were also recorded at different stimulus modulation depths between 8.25% and 93.5%. **MAIN OUTCOME AND MEASURES:** Amplitude (in micro V) and phase (in degrees) of the FERG fundamental harmonic component. FERG modulation thresholds, estimated from the value of log modulation depth yielding a criterion response.

**RESULTS:** At 180 days, FERGs of ARM-A patients and N-A patients were increased in amplitude (mean change, 0.11 and 0.15 log micro V, respectively,  $P \leq 0.01$ ) compared with baseline values, whereas no significant changes in FERG amplitudes of ARM-NT patients and N-NT patients were found (mean change, -0.004 and -0.023 log micro V, respectively). In all groups no changes in the FERG phase were found. FERG modulation thresholds decreased with respect to baseline values (mean change, -0.36 log units,  $P < 0.01$ ) in ARM-A patients, whereas no significant change (mean change, 0.07 log units) in ARM-NT patients was seen. At 360 days, FERGs of ARM-A patients taking supplementation were still increased in amplitude with respect to baseline ( $P < 0.05$ ) but did not differ from those recorded at 180 days. In the patient who had discontinued supplementation, FERG amplitude decreased from the 180 days value, approaching that recorded at baseline.

**CONCLUSIONS:** Although this study provides no evidence for the long-term benefit of antioxidants in ARM, the results suggest that increasing the level of retinal antioxidants might influence macular function early in the disease process, as well as in normal aging.

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