The Roche European American Cataract Trial (REACT)

A number of studies over the past decade have suggested that antioxidant vitamins C & E and carotenoids reduce the risk of age-related cataract. REACT was a multi-centered, prospective, double-blind and placebo controlled trial conducted in the U.K. and U.S. to examine whether an antioxidant mixture could slow the progression of early age-related cortical, nuclear, or posterior subcapsular cataract.

After a three-month placebo run-in period, 297 patients were randomized to one of three clinical centers in Boston, Bradford and Oxford England. The subjects were stratified by cataract type and randomly chosen to receive placebo or antioxidants (750 mg C, 600 IU E, and 18 mg beta-carotene). Clinic visits occurred about every four months and patients were followed, on average, for three years.

Cataract severity was documented by serial digital retro-illumination imagery of the lens. Cataract progression, the primary outcome, was measured by image analysis of the increase in area of opacity. This change in area was assessed by “increase in percent pixels opaque” called IPO.

When the combined treatment groups in both countries were compared to all placebo takers after three years, a statistically significant reduction in opacity was found in the group getting vitamins (1.66% IPO vitamin vs. 3.27% IPO placebo). The beneficial effect was more pronounced when looking only at the US participants, particularly in sub-groups with early or no cataract. However in their British counterparts, in whom cataracts were more mature at baseline, treatment and placebo groups were not significantly different. The observed reductions in opacity were not specific to one type of cataract.

While the slowing in cataract progression among the antioxidant takers was modest, it could be very important in the long term, according to the authors. The extent of lens opacification was 1.61% less in the antioxidant treated group over the three-year period. The investigators point out that if antioxidants were supplemented for ten to twenty years, the observed reduction in progression would translate into a clinically important 5-10% reduction—a slowing that could have a sizable impact on the burden of providing cataract surgery.

This projected benefit is strengthened by the findings of the Vision and Nutrition Project where long-term use—ten years or more—of antioxidants like vitamin C, reduced cataract risk markedly (1). Other longitudinal studies have noted risk reduction in those with higher plasma levels of vitamin E (2). Recent studies have also linked lutein, rather than beta-carotene, to reduced risk (3). Since early cataract probably begins at about age 45, people in their 30’s and 40’s might potentially delay the onset or progression of lens opacity by improving their antioxidant status.

### References:

1. The REACT Group. The Roche European American Cataract Trial (REACT): A randomized clinical trial to investigate the efficacy of an oral antioxidant micronutrient mixture to slow progression of age-related cataract. Ophthalmic Epidemiology; 9:49-80, Feb. 2002

### Primary image-derived endpoint

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<th>Retro Data Anterior</th>
<th>Group</th>
<th>Baseline Value mean, CI</th>
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Difference in mean change between groups of 1.612 IPO