

Michele Marinò¹

ANTIOXIDATIVE APPROACH

Moderate-to-severe and active forms of Graves orbitopathy (GO) can be effectively treated with glucocorticoids, orbital irradiation, or both. However, patients with milder forms of GO, which to some extent can improve spontaneously, are generally not given any treatments, except for local measures (i.e., artificial tears, ointments, and prisms). Nevertheless, similar to those with moderate-to-severe GO, also patients with mild GO have a substantial impairment in their quality of life, as shown either by general health-related quality-of-life questionnaires as well as by a GO-specific quality-of-life questionnaire (GO-QOL). In addition, although a discrete proportion of patients with mild GO experience a spontaneous improvement of eye symptoms, a small proportion of them (~15%) progress to a moderate-to-severe disease. Because of these reasons, some kind of treatment should be offered also to patients with mild GO, in whom the benefits of high dose glucocorticoids are not sufficient to justify the risks that the treatment carries. An ideal treatment for mild GO should be affordable, well tolerated, and widely available. A recent study has provided evidence that selenium fulfils these requirements. Selenium is a trace mineral and an essential nutrient for selenocysteine synthesis. The latter is incorporated into several selenoproteins, most of which are enzymes. Within selenoproteins, selenium acts as a reduction-oxidation center and exerts antioxidant actions. In this regard, several *in vitro* studies have shown that increased generation of oxygen free radicals plays a role in the pathogenesis of GO. To investigate whether selenium has a beneficial effect in GO, Marcocci et al. carried out a multicenter, randomized, double-blind, placebo-controlled trial selenium vs placebo, and found that treatment with selenium is associated with an improvement of eye signs and symptoms and of the quality of life of patients with mild GO. The beneficial effects of selenium in GO may reflect either a direct effect in orbital tissues, where selenium may counteract oxidative stress, or an effect on the immune system, which has been shown to take place both in GD and autoimmune thyroiditis.

¹ Michele Marinò, Department of Clinical and Experimental Medicine, Endocrinology Unit I, University of Pisa and University Hospital of Pisa, Via Paradisa 2, 56124, Pisa, Italy