

Clinical Use of Coenzyme Q10 and Selenium Combined Reduces Cardiovascular Mortality: Effects and Mechanisms over a 12 Years Perspective

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The trace element Selenium is an essential element for all living cells. As there is low selenium concentration in the European soil, there is a need to give supplements.

Coenzyme Q10 is also needed for a normal cellular function. Selenium and coenzyme Q10 needs presence of each other in order to function optimally.

The endogenous production of coenzyme Q10 decreases as the person becomes older.

We have supplemented 443 healthy elderly persons with selenium and coenzyme Q10 during 4 years in a prospective double-blind placebo-controlled study, the KiSel-10 study. The result showed a significant reduction in cardiovascular death, increased cardiac function and less production of the cardiac stress biomarker – NT-proBNP.

In further analyses in order to better understand the mechanisms behind the surprising clinical effects we have shown less inflammation, reduced oxidative stress as one of the explanations.

In evaluations using metabolomics we could show significant effects in different metabolic pathways as a result of the intervention.

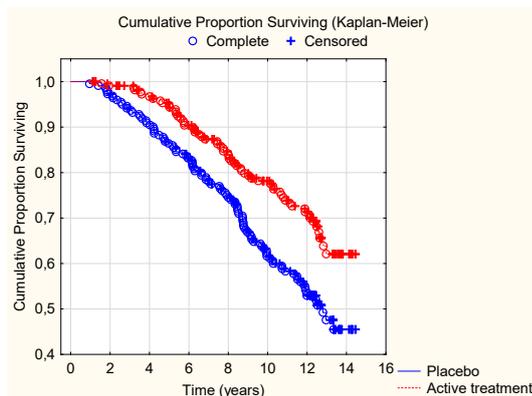
We have also analyzed the different expressions of microRNA as these are the keys to the protein production in the cell. We could demonstrate highly significant differences in those receiving supplementation with selenium and coenzyme Q10 compared with those on placebo.

We have now more than 12 years of follow-up, and could still demonstrate positive effects of the intervention in terms of reduced risk for cardiovascular mortality.

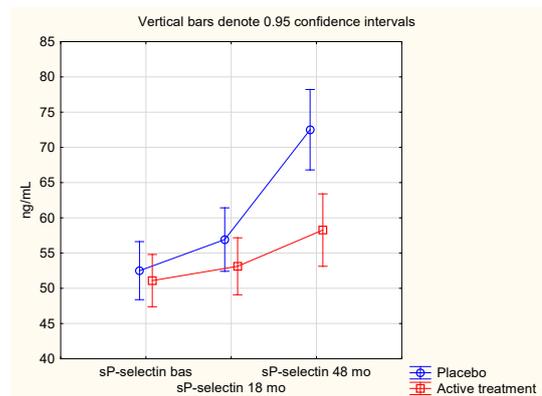
Finally, we could demonstrate better health related quality-of-life and less health resource costs for the participants on treatment with selenium and coenzyme Q10 compared with those on placebo.

Bottom-line, we have indications that supplementation with selenium and coenzyme Q10 has positive effects for elderly persons, both those with overt heart disease, as well as those without heart disease, as reported in 14 different publications from our group.

CV mortality – 12 years



Plasma concentration s-P-selectin – biomarker for inflammation



Biography:

Dr. Urban Alehagen is Professor in Cardiology from University of Linköping, Sweden. He is specialist in internal medicine, cardiology and Odontology. During the last 15 years pioneer research of the effect of supplementation with selenium and coenzyme Q10 has been performed. From first demonstrating the clinical positive effects, further research has been performed. Dr. Urban's research group has investigated effects on oxidative stress and on inflammation by the supplementation, and the results are reported and published. Metabolomics studies, protein profile analyses, and micro-RNA influence by the intervention have been performed. And also demonstrated positive effects on the fibrosis tendency in the cardiovascular system as an indicator of aging by the intervention of selenium and coenzyme Q10.