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Cardiovascular mortality and N-terminal-proBNP reduced after combined selenium and coenzyme Q10 supplementation: a 5-year prospective randomized double-blind placebo-controlled trial among elderly Swedish citizens.

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Abstract

BACKGROUND: Selenium and coenzyme Q10 are essential for the cell. Low cardiac contents of selenium and coenzyme Q10 have been shown in patients with cardiomyopathy, but inconsistent results are published on the effect of supplementation of the two components separately. A vital relationship exists between the two substances to obtain optimal function of the cell. However, reports on combined supplements are lacking.

METHODS: A 5-year prospective randomized double-blind placebo-controlled trial among Swedish citizens aged 70 to 88 was performed in 443 participants given combined supplementation of selenium and coenzyme Q10 or a placebo. Clinical examinations, echocardiography and biomarker measurements were performed. Participants were monitored every 6th month throughout the intervention. The cardiac biomarker N-terminal proBNP (NT-proBNP) and echocardiographic changes were monitored and mortalities were registered. End-points of mortality were evaluated by Kaplan-Meier plots and Cox proportional hazard ratios were adjusted for potential confounding factors. Intention-to-treat and per-protocol analyses were applied.

RESULTS: During a follow up time of 5.2 years a significant reduction of cardiovascular mortality was found in the active treatment group vs. the placebo group (5.9% vs. 12.6%; $P=0.015$). NT-proBNP levels were significantly lower in the active group compared with the placebo group

(mean values: 214 ng/L vs. 302 ng/L at 48 months; P=0.014). In echocardiography a significant better cardiac function score was found in the active supplementation compared to the placebo group (P=0.03).

CONCLUSION: Long-term supplementation of selenium/coenzyme Q10 reduces cardiovascular mortality. The positive effects could also be seen in NT-proBNP levels and on echocardiography.

TRIAL REGISTRATION: ClinicalTrials.gov [NCT01443780](https://clinicaltrials.gov/ct2/show/study/NCT01443780).

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KEYWORDS: Cardiovascular mortality; Coenzyme Q10; Dietary supplementation; Elderly; NT-proBNP; Selenium

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