

Positive effect of high dose micronutrient supplementation on quality-of-life and left ventricular function in elderly patients with chronic heart failure.

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The effect of micronutrient supplementation on quality-of-life and left ventricular function in elderly patients with chronic heart failure.

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AIMS: Chronic heart failure (CHF) is a common and leading cause of death in industrialized countries. The potential benefits of micronutrient supplementation in CHF are extensive. Therefore, we examined the influence of long-term multiple micronutrient supplementation on left ventricular (LV) function, levels of pro-inflammatory cytokines, and quality-of-life (QoL) in elderly patients with CHF. METHODS AND RESULTS: Thirty CHF patients [age 75.4 (0.7), mean (SEM), LV ejection fraction (LVEF) $\leq 35\%$] *were randomized to receive capsules containing a combination of high-dose micronutrients (calcium, magnesium, zinc, copper, selenium, vitamin A, thiamine, riboflavin, vitamin B6, folate, vitamin B12, vitamin C, vitamin E, vitamin D, and Coenzyme Q10)* or placebo for 9 months in a double-blind fashion. All subjects were on stable optimal medical therapy for at least 3 months before enrolment. At randomization and at study end, tumour necrosis factor-alpha and its soluble receptors TNFR-1 and TNFR-2 were measured and six-minute walk test and QoL were assessed. Cardiac magnetic resonance scanning was performed to evaluate cardiac dimensions and LVEF. Two patients died during follow-up. The remaining patients (14 randomized to placebo and 14 to micronutrients) were well matched for LV function, symptoms, and exercise capacity. At the end of the follow-up period, LV volumes were reduced in the intervention group with no change in the placebo group [-13.1 (17.1)% vs. +3.8 (10.0)%; $P < 0.05$]. LVEF increased by 5.3 \pm 1.4% in the intervention group and was unchanged in the placebo group ($P < 0.05$). *Patients taking micronutrients also had a significant improvement in QoL score between enrolment and study end [+9.5 (1.6)%; $P < 0.05$], whereas those taking placebo had a slight deterioration [-1.1 (0.8)%; $P = 0.12$].* Six-minute walk test and inflammatory cytokine levels remained unchanged in both groups. **CONCLUSION: Long-term multiple micronutrient supplementation can improve LV volumes and LVEF and QoL scores in elderly patients with heart failure due to LV systolic dysfunction.**

