Effect of coenzyme Q10 plus nicotinamide adenine dinucleotide supplementation on maximum heart rate after exercise testing in chronic fatigue syndrome - A randomized, controlled, double-blind trial.


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BACKGROUND & AIMS: Chronic Fatigue Syndrome (CFS) is a complex condition, characterized by severe disabling fatigue with no known cause, no established diagnostic tests, and no universally effective treatment. Several studies have proposed symptomatic treatment with coenzyme Q10 (CoQ10) and nicotinamide adenine dinucleotide (NADH) supplementation. The primary endpoint was to assess the effect of CoQ10 plus NADH supplementation on age-predicted maximum heart rate (max HR) during a cycle ergometer test. Secondary measures included fatigue, pain and sleep.

METHODS: A proof-of-concept, 8-week, randomized, controlled, double-blind trial was conducted in 80 CFS patients assigned to receive either CoQ10 plus NADH supplementation or matching placebo twice daily. Maximum HR was evaluated at baseline and at end of the run-in period using an exercise test. Fatigue, pain and sleep were evaluated at baseline, and then reassessed at 4- and 8-weeks through self-reported questionnaires.

RESULTS: The CoQ10 plus NADH group showed a significant reduction in max HR during a cycle ergometer test at week 8 versus baseline (P = 0.022). Perception of fatigue also showed a decrease through all follow-up visits in active group versus placebo (P = 0.03). However, pain and sleep did not improve in the active group. Coenzyme Q10 plus NADH was generally safe and well tolerated.

CONCLUSIONS: Our results suggest that CoQ10 plus NADH supplementation for 8 weeks is safe and potentially effective in reducing max HR during a cycle ergometer test and also on fatigue in CFS. Further additional larger controlled trials are needed to confirm these findings. Clinical trial registrationThis trial was registered at clinicaltrials.gov as NCT02063126.

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