

Abstract

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Coenzyme Q10 deficiency in myalgic encephalomyelitis / chronic fatigue syndrome (ME/CFS) is related to fatigue, autonomic and neurocognitive symptoms and is another risk factor explaining the early mortality in ME/CFS due to cardi.

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BACKGROUND: Myalgic encephalomyelitis / chronic fatigue syndrome (ME/CFS) is a medical illness characterized by disorders in inflammatory and oxidative and nitrosative (IO&NS) pathways.

OBJECTIVE: This paper examines the role of Coenzyme Q10 (CoQ10), a mitochondrial nutrient which acts as an essential cofactor for the production of ATP in mitochondria and which displays significant antioxidant activities.

METHODS: Plasma CoQ10 has been assayed in 58 patients with ME/CFS and in 22 normal controls; the relationships between CoQ10 and the severity of ME/CFS as measured by means of the FibroFatigue (FF) scale were measured.

RESULTS: Plasma CoQ10 was significantly ($p=0.00001$) lower in ME/CFS patients than in normal controls. Up to 44.8% of patients with ME/CFS had values beneath the lowest plasma CoQ10 value detected in the normal controls, i.e. 490 mug/L. In ME/CFS, there were significant and inverse relationships between CoQ10 and the total score on the FF scale, fatigue and autonomic symptoms. Patients with very low CoQ10 (<390 mug/L) suffered significantly more from concentration and memory disturbances. The results show that lowered levels of CoQ10 play a role in the pathophysiology of ME/CFS and that symptoms, such as fatigue, and autonomic and neurocognitive symptoms may be caused by CoQ10 depletion.

CONCLUSIONS: Our results suggest that patients with ME/CFS would benefit from CoQ10 supplementation in order to normalize the low CoQ10 syndrome and the IO&NS disorders. The findings that lower CoQ10 is an independent predictor of chronic heart failure (CHF) and mortality due to CHF may explain previous reports that the mean age of ME/CFS patients dying from CHF is 25 years younger than the age of those dying from CHF in the general population. Since statins significantly decrease plasma CoQ10, ME/CFS should be regarded as a relative contraindication for treatment with statins without CoQ10 supplementation.

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