Abstract


Skeletal muscle disorders associated with selenium deficiency in humans.

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BACKGROUND: Skeletal muscle disorders manifested by muscle pain, fatigue, proximal weakness, and serum creatine kinase (CK) elevation have been reported in patients with selenium deficiency.

OBJECTIVE: The object of this report was to review the conditions in which selenium deficiency is associated with human skeletal muscle disorders and to evaluate the importance of mitochondrial alterations in these disorders.

METHODS: A systematic literature review using the Medline database and Cochrane Library provided 38 relevant articles.

RESULTS: The main conditions associated with selenium deficiency fell into three categories: (1) insufficient selenium intake in low soil-selenium areas; (2) parenteral or enteral nutrition, or malabsorption; and (3) chronic conditions associated with oxidative stress, such as chronic alcohol abuse and human immunodeficiency virus (HIV) infection. In low soil-selenium areas, reversibility of muscle symptoms was similar after selenium supplementation and placebo administration, suggesting a role for other factors in the development of disease. In parenteral or enteral nutrition, or malabsorption, muscle symptoms improved after selenium supplementation in 18 of 19 patients (median delay: 4 weeks).

CONCLUSIONS: The reason that only a minority of selenium-deficient patients present with skeletal muscle disorders is unclear and is possibly related to cofactors, such as viral infections and drugs. Prospective studies of selenium-deficient myopathies would be useful in critically ill patients, alcohol abusers, and HIV-infected patients.

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