

Abstract

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Acetyl-L-carnitine and alpha-lipoic acid: possible neurotherapeutic agents for mood disorders?

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BACKGROUND: Mood disorders are associated with decrements in cognitive function, which are insufficiently treated with contemporary pharmacotherapies.

OBJECTIVES: To evaluate the putative neurotherapeutic effects of the mitochondrial cofactors, L-carnitine, acetyl-L-carnitine, and alpha-lipoic acid; and to provide a rationale for investigating their efficacy in the treatment of neurocognitive deficits associated with mood disorders.

METHODS: A PubMed search of English-language articles published between January 1966 and March 2007 was conducted using the search terms carnitine and lipoic acid.

RESULTS: L-carnitine and alpha-lipoic acid may offer neurotherapeutic effects (e.g., neurocognitive enhancement) via disparate mechanisms including antioxidant, anti-inflammatory, and metabolic regulation. Preliminary controlled trials in depressed geriatric populations also suggest an antidepressant effect with acetyl-L-carnitine.

CONCLUSIONS: L-carnitine and alpha-lipoic acid are pleiotropic agents capable of offering neuroprotective and possibly cognitive-enhancing effects for neuropsychiatric disorders in which cognitive deficits are an integral feature.

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