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Treatment of Alzheimer's disease with stabilized oral nicotinamide adenine dinucleotide: a randomized, double-blind study

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Abstract

This study was designed to evaluate the effect of stabilized oral reduced nicotinamide adenine dinucleotide (NADH) on cognitive functioning in patients with Alzheimer's disease (AD). NADH is a coenzyme that plays a key role in cellular energy production and stimulates dopamine production. In previous trials NADH has been shown to improve cognitive functioning in patients with Parkinson's disease, depression and AD. The present trial was a randomized, placebo-controlled, matched-pairs, double-blind, 6-month clinical study. Patients with probable AD (n = 26) were randomized to receive either stabilized oral NADH (10 mg/day) or placebo. Twelve pairs of subjects were matched for age and baseline total score on the Mattis Dementia Rating Scale (MDRS) and the Mini Mental State Examination. After 6 months of treatment, subjects treated with NADH showed no evidence of progressive cognitive deterioration and had significantly higher total scores on the MDRS compared with subjects treated with placebo ($p < 0.05$). Analysis of MDRS subscales revealed significantly better performance by NADH subjects on measures of verbal fluency ($p = 0.019$), visual-constructional ability ($p = 0.038$) and a trend ($p = 0.08$) to better performance on a measure of abstract verbal reasoning. There were no differences between groups in measures of attention, memory, or in clinician ratings of dementia severity (Clinical Dementia Rating). Consistent with earlier studies, the present findings support NADH as a treatment for AD.