

# CNS SPECTRUMS®

FIRST IN APPLIED NEUROSCIENCE

JANUARY 2010 • VOL. 15 • NO. 1 • SUPPL. 1

## EXPERT REVIEW SUPPLEMENT

# EXPLORING NOVEL TREATMENT OPTIONS: *COGNITIVE DECLINE IN ALZHEIMER'S DISEASE*

### AUTHORS

Andrew McCaddon, MD

Peter R. Hudson, PhD

Jeffrey L. Cummings, MD

### **ABSTRACT**

Alzheimer's disease (AD) and dementia have enormous financial and social impacts on society. It is predicted that almost 36 million people will have dementia in 2010, a figure which is anticipated to double every 20 years as the world population ages. Prevention of AD or slowing of the progression of AD would provide significant benefits. There are multiple ways in which vitamin B<sub>12</sub>, vitamin B<sub>6</sub>, folate, and homocysteine (Hcy) play a role in the pathogenesis of AD. Vitamin B<sub>12</sub>, vitamin B<sub>6</sub>, and folate deficiencies are associated with various cognitive disorders, including dementia. Neuroinflammatory oxidative stress occurs early in AD pathology. Total blood Hcy levels are utilized as a marker to assist in diagnosing such deficiencies. Hcy contributes to pathological cascades involving amyloid plaques and neurofibrillary tangles (NFTs). This review provides a thorough description of several factors involved in the development of the pathological changes associated with AD, such as neuroinflammatory oxidative stress and methylation, apoptosis, NFTs, amyloid plaques, and cerebrospinal fluid biomarkers. The review also considers the rationale for a combined B-vitamin and antioxidant supplement (Cerefolin NAC) in treating and slowing AD-related cognitive decline.

In this Expert Review Supplement, Andrew McCaddon, MD, and Peter R. Hudson, PhD provide a comprehensive review of factors involved in AD pathology as well as evidence supporting the use of a combined B-vitamin and antioxidant supplement (Cerefolin NAC) for AD-related cognitive decline. A commentary on this article is provided by leading AD expert Jeffrey L. Cummings, MD.