Vitamins in Dementia

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Among essential nutrients, vitamins (e.g., vitamin E, D, B12, and folate) have biological properties that are relevant for neuroprotection. Several observational studies suggest a protective association between these vitamins and late life dementia. However, results from clinical trials (RCTs) are controversial. Such inconsistency can be explained by different factors, including type and dosage of vitamin supplements used in the RCTs, as well as selection of the target population and the choice of the outcome measures. For instance, most investigations of vitamin E in relation to dementia has focused primarily only on $\alpha$-tocopherol, with conflicting findings. However, increasing knowledge regarding the biological properties of vitamin E provides a strong rationale that other forms of vitamin E may be important for dementia prevention. Vitamin B12 and folate modulate plasma levels of homocysteine. Holotranscobalamin, the active form of vitamin B12, appears to be a more sensitive assay of B12 status. Recent findings from observational studies as well as RCTs on the impact of homocysteine/B-vitamins on the rate of brain tissue volume loss have been promising. Low levels of vitamin D have been linked to dementia and worse cognitive functioning in some but not all studies. Very few RCTs have investigated the effect of vitamin D supplementation on cognition. Overall, encouraging findings warrant further investigation of the role of vitamins in dementia, to better define preventive strategies. Adequately timed and powered RCTs are needed to determine the impact of vitamin supplementation on preventing cognitive decline and dementia-related pathology.