L-arginine for dementia

Sixteen elderly patients (mean age, 79 years) with cerebrovascular disease who had been living in a nursing home for 2-4 years received 1.6 g/day of L-arginine for 3 months. Cognitive function was determined by a revised version of Hasegawa's Dementia Scale (which is comparable to the Mini-Mental State Examination). Thirty is a perfect score and less than 20 is considered to reflect dementia. The mean score improved from 16 at baseline to 23 (p < 0.0001) at the end of the treatment period. However, 3 months after L-arginine was discontinued, the score had fallen to 17. In general, patients showed more expressive faces and quicker responses while receiving L-arginine. No side effects were seen.

Comment: Arginine is a precursor to nitric oxide, which has been reported to function as a neurotransmitter that plays a role in learning and memory. In addition, nitric oxide functions as a vasodilator and might, therefore, promote increased blood flow to the brain. Tissue concentrations of nitric oxide and arginine decline with age, suggesting that arginine deficiency may be a contributing factor to age-related mental decline. This open trial suggests that supplementation with a relatively small amount of L-arginine (a typical diet contains approximately 3 times that amount) improved cognitive function in patients with cerebrovascular disease. Controlled trials are needed to confirm this promising study.


Unexplained dialysis dementia/encephalopathy caused by thiamine deficiency

Ten patients on dialysis (9 hemodialysis) with altered mental status, the cause of which was unidentified after an initial work-up, were studied. Manifestations included confusion, chorea, acute visual loss, rapidly progressive dementia, myoclonus, convulsions, and coma. Of 7 patients in whom serum thiamine concentrations were measured, all had subnormal levels. All 10 patients received an intravenous injection of 200 mg of thiamine, followed by 100 mg/day intravenously until they could consume a normal diet. The neurological deficits resolved dramatically in 9 of the 10 patients; the other patient failed to respond because of a delay in treatment. Five of the 10 patients had been receiving oral B vitamin supplements before developing thiamine deficiency.

Comment: Patients with end-stage renal disease undergoing regular dialysis are at risk of developing encephalopathy, the cause of which is often unclear. Dialysis patients are also at risk of developing thiamine deficiency, which can mimic many of the complications of uremia, including encephalopathy. Although peritoneal dialysis patients are routinely given supplemental thiamine, thiamine supplementation of hemodialysis patients is controversial. The results of the present study suggest that, in regular dialysis patients, unexplained encephalopathy is due primarily to thiamine deficiency (e.g., Wernicke's encephalopathy).


Dementia and Alzheimer's disease: environmental illnesses?

A total of 2,459 community-dwelling Yoruba residents of Ibadan, Nigeria, without dementia, and 2,147 community-dwelling African-American residents of Indianapolis, Indiana without dementia (all aged 65 years or older) were followed prospectively for a mean of 5.1 years and 4.7 years, respectively. The age-standardized annual incidence rates were significantly lower among Yoruba than among African-Americans for dementia (1.35% vs. 3.24%) and for Alzheimer's disease (1.15% vs. 2.52%).

Comment: The results of this study indicate that the incidence rates for dementia and Alzheimer's disease are significantly lower among individuals from a non-industrialized country than among those from an industrialized country. That finding suggests that environmental factors play a role in the development of dementia and Alzheimer's disease. There is evidence that exposure to aluminum can increase the risk of Alzheimer's disease; however, not all studies agree. It is likely that other environmental toxins, or chronic consumption of modern processed foods, make it difficult for old brains to remain healthy.


Choline, parenteral nutrition, and cognitive decline

Eleven patients who had received total parenteral nutrition (TPN) for more than 50% of their nutritional needs for at least 12 weeks were randomly assigned to receive their usual TPN regimen (n = 6; mean age, 34.0 years) or their usual TPN regimen plus 2 g/day of choline chloride (n = 5; mean age, 37.3 years). The following neuropsychological tests were administered at baseline and after 24 weeks: Weschler Adult Intelligence Scale-Revised (WAIS-R, intellectual functioning), Weschler Memory Scale-Revised (WMS-R, 2 subtests, verbal and visual memory), Rey-Osterrieth Complex Figure Test (visuospatial functioning and perceptual organization), Controlled Oral Word Association Test (verbal fluency), Grooved Pegboard (manual dexterity and motor speed), California Verbal Learning Test (CVLT, rote verbal learning ability), and Trail Making Parts A & B (visual scanning, psychomotor speed and set shifting). Compared with the placebo group, significant improvements were seen in the choline group in the delayed visual recall of the WMS-R (p = 0.028), and borderline improvements were seen in the List B subset of the CVLT (p = .06) and the Trails A test (p = .067).

Comment: This study demonstrates that both verbal and visual memory may be impaired in patients receiving...
term parenteral nutrition, and that both of these deficits may be improved with choline supplementation. As a component of acetylcholine, choline plays an important role in normal brain function. Choline deficiency is uncommon, because it can be manufactured in the body and is present in many foods. However, patients receiving choline-free parenteral nutrition as their main source of nutrition are apparently not capable of manufacturing sufficient amounts of this compound. Because of the wide range of nutritional deficiencies that have been reported in patients fed intravenously, it would be more appropriate to change the term "total parenteral nutrition" to "sub-total parenteral nutrition."


**Nutritional supplement enhances cognitive function in the elderly**

Ninety-six apparently healthy Canadians older than 65 years of age (mean age, 75 years) were randomly assigned to receive, in double-blind fashion, a nutritional supplement containing modest doses of vitamins and trace minerals or a placebo for 12 months. The supplement provided daily: vitamin A (400 retinal equivalents), beta-carotene (16 mg), thiamine (2.2 mg), riboflavin (1.5 mg), niacin (16 mg), vitamin B6 (3 mg), folic acid (400 mcg), vitamin B12 (4 mcg), vitamin C (80 mg), vitamin D (4 mcg), vitamin E (44 mg), iron (16 mg), zinc (14 mg), copper (1.4 mg), selenium (20 mcg), iodine (0.2 mg), calcium (200 mg), and magnesium (100 mg). The placebo contained calcium (200 mg) and magnesium (100 mg). Compared with placebo, the supplement produced significant improvements in 6 of 7 tests of memory, abstract thinking, problem-solving ability, and attention (p < 0.001 to p < 0.05).

**Comment:** This study showed that supplementation with modest amounts of vitamins and trace minerals can improve cognitive function in healthy elderly individuals. Nutritional status tends to decline with advancing age, because of factors such as poor dentition, economic hardship, greater difficulty shopping for fresh produce, age-related malabsorption, and use of medications that interfere with absorption or utilization of nutrients. In addition to improving mental function, supplementing with a broad-spectrum nutritional formula has been shown to improve immune function and to reduce the incidence of infections in the elderly.


**St. John's wort flunks another test: or does it?**

Some 340 adults with major depression and a score on the Hamilton Depression Scale (HAM-D) of at least 20 were randomly assigned to receive, in double-blind fashion, either 1) Hypericum perforatum (St. John's wort; SJW) extract LI-160, 2) placebo, or 3) sertraline for 8 weeks. Based on clinical response, the daily dose of SJW could range from 900 to 1,500 mg and that of sertraline from 50 to 100 mg. The primary outcome measures were 1) change in the HAM-D total score from baseline to week 8, and 2) rates of full response, determined by the HAM-D and Clinical Global Impressions (CGI) scores. On the 2 primary outcome measures, neither sertraline nor SJW was significantly different from placebo. The mean decrease (improvement) in the HAM-D score from baseline to week 8 was 9.20 for placebo, 8.68 for SJW, and 10.53 for sertraline (differences not significant). A full response occurred in 31.9% of the placebo-treated patients, 23.9% of the SJW-treated patients and 24.8% of sertraline-treated patients (differences not significant). Sertraline was better than placebo on the CGI improvement scale (p = 0.02), which was a secondary measure in this study. The authors concluded that St. John's wort was not effective in this group of patients with moderately severe major depression.

**Comment:** Numerous controlled trials have shown that St. John's wort is more effective than a placebo in the treatment of mild-to-moderate depression, and that its efficacy is similar...