USANA Technical Bulletin

Chronic Fatigue Syndrome

Description

- Chronic fatigue syndrome is an ill-defined condition, characterized primarily by fatigue, that has a varied clinical presentation, no clear cause, and no established treatment.
- Currently, the Centers for Disease Control and Prevention uses two major criteria for diagnosis of chronic fatigue syndrome: the patient must have unexplained persistent or relapsing debilitating fatigue or must tire easily, with no previous history of this type of symptom. This symptom must have persisted for at least six months. The patient must also have no other medical condition that could produce similar symptoms.[1] In addition, the patient must exhibit at least eight other symptoms or signs that are considered to be minor criteria.
- Other medical conditions that can cause chronic fatigue must be ruled out before a diagnosis of chronic fatigue syndrome can be made. Some of these are hypothyroidism, sleep apnea, hepatitis or other viral infection, drug dependence, lupus, multiple sclerosis, depression, eating disorders, schizophrenia, and dementia.

Causes

- The cause of chronic fatigue syndrome is unknown, and many investigators believe that no single cause is responsible for all cases.
- Although chronic fatigue syndrome has some features of an infectious disease, scientists have so far failed to identify an infectious agent that is associated with the disease.[2] Epstein-Barr virus and herpesvirus 6 have been investigated and do not appear to play a causative role. It is still possible that some other infectious agent is responsible. Chronic fatigue patients often have depressed immune systems.
- A newer theory is that chronic fatigue syndrome may arise from some central nervous system disorder.[3]
- One hypothesis is that a chronic intestinal *Candida albicans* infection may be responsible for the altered immune function frequently seen in chronic fatigue syndrome.[4]

At Risk

- Chronic fatigue syndrome is more common among professionals in their 20s and 30s, and women.

Prevention and Management

- There is no known way to prevent chronic fatigue syndrome.
- Cognitive behavior therapy has been successfully used to improve physical functioning in some patients. In one study, 70% of patients who received this therapy has substantial improvement.[5]
- Several drugs have been tried, with mixed results. Non-steroidal anti-inflammatory drugs are used to control pain, and antidepressants are helpful for some patients.
- Very little research has been done on nutritional influences in chronic fatigue syndrome.
- There is some evidence that magnesium supplementation may be helpful to many who suffer from chronic fatigue syndrome.[6]
- Some physicians report that vitamin B_{12} and coenzyme Q_{10} supplements are beneficial.[7]
- In one study, subjects who took L-carnitine supplements had improved clinical status.[8]

Abstracts

Plioplys AV, Pioplys S. Amantadine and L-carnitine treatment of Chronic Fatigue Syndrome. Neuropsychobiology 1997; 35(1):16-23. Carnitine is essential for mitochondrial energy production. Disturbance in mitochondrial function may contribute to or cause the fatigue seen in Chronic Fatigue Syndrome (CFS) patients. Previous investigations have reported decreased carnitine levels in CFS. Orally administered L-carnitine is an effective medicine in treating the fatigue seen in a number of chronic neurologic diseases. Amantadine is one of the most effective medicines for treating the fatigue seen in multiple sclerosis patients. Isolated reports suggest that it may also be effective in treating CFS patients. Formal investigations of the use of L-carnitine and amantadine for treating CFS have not been previously reported. We treated 30 CFS patients in a crossover design comparing L-carnitine and amantadine. Each medicine was given for 2 months, with a 2-week washout period between medicines. L-Carnitine or amantadine was alternately assigned as fist medicine. Amantadine was poorly tolerated by the CFS patients. Only 15 were able to complete 8 weeks of treatment, the others had to stop taking the medicine due to side effects. In those individuals who completed 8 weeks of treatment, there was no statistically significant difference in any of the clinical parameters that were followed. However, with L-carnitine we found statistically significant clinical improvement in 12 of the 18 studied parameters after 8 weeks of treatment. None of the clinical parameters showed any deterioration. The greatest improvement took place between 4 and 8 weeks of L-carnitine treatment. Only 1 patient was unable to complete 8 weeks of treatment due to diarrhea. L-Carnitine is a safe and very well tolerated medicine which improves the clinical status of CFS patients. In this study we also analyzed clinical and laboratory correlates of CFS symptomatology and improvement parameters.

Cox IM, Campbell MJ, Dowson D. Red blood cell magnesium and chronic fatigue syndrome. Lancet 1991 Mar 30; 337(8744):757-60. The hypotheses that patients with chronic fatigue syndrome (CFS) have low red blood cell magnesium and that magnesium treatment would improve the wellbeing of such patients were tested in a case-control study and a randomised, double-blind, placebo-controlled trial, respectively. In the case-control study, 20 patients with CFS had lower red cell magnesium concentrations than did 20 healthy control subjects matched for age, sex, and social class (difference 0.1 mmol/l, 95% confidence interval [CI] 0.05 to 0.15). In the clinical trial, 32 patients with

CFS were randomly allocated either to intramuscular magnesium sulphate every week for 6 weeks (15 patients) or to placebo (17). Patients treated with magnesium claimed to have improved energy levels, better emotional state, and less pain, as judged by changes in the Nottingham health profile. 12 of the 15 treated patients said that they had benefited from treatment, and in 7 patients energy score improved from the maximum to the minimum. By contrast, 3 of the 17 patients on placebo said that they felt better (difference 62%, 95% CI 35 to 90), and 1 patient had a better energy score. Red cell magnesium returned to normal in all patients on magnesium but in only 1 patient on placebo. The findings show that magnesium may have a role in CFS.

References

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[4] Cater RE. Chronic intestinal candidiasis as a possible etiological factor in the chronic fatigue syndrome. Med Hypotheses 1995 Jun; 44(6):507-15.
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