Preventing complications of coronary angiography with N-acetylcysteine

One hundred twenty-one patients with chronic renal insufficiency (mean serum creatinine, 2.8 mg/dl; mean creatinine clearance, 22.3 ml/min) who were scheduled for coronary angiography were randomly assigned to receive N-acetylcysteine (NAC; 400 mg orally twice a day) or placebo, on the day before and the day of the procedure. Both groups were hydrated with 0.45% saline at a rate of 1 ml per kg of body weight per hour for 12 hours before and 12 hours after administration of the contrast agent (iopamidol). All patients were encouraged to drink if they were thirsty. Two of the 60 patients in the NAC group (3.3%) and 15 of the 61 patients in the control group (24.6%) suffered contrast agent-induced renal dysfunction, defined as an increase in the serum creatinine concentration of at least 0.5 mg/dl at 48 hours after administration of the contrast agent. Thus, NAC reduced the incidence of contrast agent-induced renal dysfunction by 86.4%, compared with placebo (p < 0.001).

Comment: Administration of contrast agents during coronary procedures can cause nephrotoxicity, apparently by inducing hypoxia of the adrenal medulla and exerting a direct toxic effect on renal tubular epithelial cells. Contrast agent-induced renal failure severe enough to require dialysis has been reported to occur in nearly 8 of every 1,000 of patients undergoing a coronary intervention. As the nephrotoxicity of contrast agents may be mediated by the production of free radicals, antioxidants such as NAC could be useful prophylactic agents. The results of the present study indicate that oral administration of modest doses of NAC, along with hydration, can greatly reduce the risk associated with coronary angiography. Whether other antioxidants, or combinations of antioxidants, would provide similar benefits requires further study.


Vitamins C and E prevent life-threatening complications in critically ill surgical patients

Five hundred ninety-five (595) patients admitted to a surgical intensive care unit (ICU), 91% of whom were victims of trauma, were randomly assigned to receive antioxidant supplementation or no antioxidants (control group) during their stay in the ICU, or for 28 days, whichever was shorter. Antioxidant supplementation, which was begun within 24 hours after surgery or trauma, consisted of 1,000 IU of vitamin E (dl-alpha-tocopheryl acetate) every 8 hours by naso- or orogastric tube and 1,000 mg of vitamin C intravenously in 100 ml of 5% dextrose every 8 hours. After 28 days, the incidence of multiple organ failure was significantly lower by 57% in the antioxidant group than in the control group (2.7% vs. 6.1%), and the 28-day mortality rate was nonsignificantly lower by 44% (1.3% vs. 2.4%). The mean length of stay in the ICU was significantly lower by 17% in the antioxidant group than in the control group (5.3 vs. 6.4 days).

Comment: This study demonstrated that early administration of vitamins E and C reduced the incidence of organ failure and shortened length of ICU stay, and may have reduced the mortality rate, in critically ill surgical and trauma patients. These patients are at high risk of developing life-threatening complications such as pneumonia, acute respiratory distress syndrome, and multiple organ failure. As these complications appear to be mediated, at least in part, by reactive oxygen species, antioxidant supplementation represents a logical approach to improving outcome in the surgical ICU. In animal studies, large parenteral doses of vitamin C (200 to 1,000 mg per kg of body weight) increased survival after experimentally induced hemorrhagic shock. In contrast, the daily dose of vitamin C used in the present study was less than 50 mg per kg per day for a 70-kg person. It is possible that larger doses of vitamin C would provide even greater benefit to critically ill surgical and trauma patients. Nathens AB, et al. Randomized, prospective trial of antioxidant supplementation in critically ill surgical patients. Ann Surg 2002;236:814-822.

Unsaturated fatty acids for Huntington's disease

Seventeen patients with Huntington's disease were randomly assigned to receive, in double-blind fashion, a supplement containing unsaturated fatty acids or a placebo. The dosage of unsaturated fatty acids was eight 1-g capsules per day; each capsule contained 70 mg of gamma-linolenic acid (GLA), 35 mg of eicosapentaenoic acid (EPA), 20 mg of docosahexaenoic acid (DHA), 50 mg of alpha-lipoic acid, and 30 mg of vitamin E, with linoleic acid as a carrier. The placebo contained hydrogenated coconut oil, alpha-lipoic acid, and vitamin E. The mean duration of treatment was 19 months for active treatment and 20 months for placebo. On the Rockland-Simpson Dyskinesia Rating Scale, 7 patients receiving active treatment improved and 2 became worse, whereas 1 patient receiving placebo improved, 1 was unchanged, and 6 became worse (p = 0.01 for the difference in the response between groups). A similar trend (p = 0.08) was seen using the Unified Huntington's Disease Rating Scale. No significant side effects were seen.

Comment: Huntington's disease is a hereditary, progressive degenerative brain disorder that eventually results in death. Because no effective conventional treatment is available, the results of this new study are encouraging. In another recent double-blind study (Neuroreport 2002;13:123-6), supplementation with the ethyl-ester of EPA (1 g twice a day for 6 months) resulted in significant improvement in motor function in patients with Huntington's disease. In addition, each of two patients in the active-treatment group who underwent MRI brain scans before and after treatment showed a reversal of cerebral atrophy. These two studies of unsaturated fatty acids offer new hope in the treatment of this devastating disease.


Taurine enhances treatment of iron-deficiency anemia

Fifty-one female university students with iron-deficiency anemia were treated with 325 mg/day of slow-release ferrous sulfate for 20 weeks. The women were grouped into pairs according to hemoglobin concentration, and the members of each pair were randomly assigned to receive, in double-blind fashion, 1,000 mg/day of taurine or placebo during the 20-week treatment period. Taurine was taken at bedtime, 6 to 8 hours after the iron (personal communication, Sirdah MM). Prior to treatment, the mean serum taurine concentration was significantly lower in the anemic women than in nonanemic controls, possibly because of a lower intake of meat (a major dietary source of taurine) in the anemic women. After
20 weeks of iron supplementation, the mean hemoglobin concentration increased significantly and the mean serum ferritin concentration became normal in both groups. However, the mean serum hemoglobin concentration (13.60 vs. 12.79 g/dL; p < 0.001) and the mean serum ferritin concentration (33.5 vs. 23.8; p < 0.05) were significantly higher in the taurine group than in the placebo group. No side effects attributable to taurine were seen.

Comment: These results indicate that supplementation with taurine increased the effectiveness of oral iron in the treatment of iron-deficiency anemia. The mechanism of action of taurine is unknown. Taurine probably did not have a direct effect on iron absorption, as the two supplements were taken 6 to 8 hours apart. It is possible that taurine, which is an antioxidant and cell-membrane stabilizer, increased the survival time of red blood cells, thereby increasing blood counts. Whatever the explanation for its effect, taurine may be considered for women who have had difficulty correcting iron deficiency with iron supplementation alone.


Which oils are preferable for frying?

Sunflower oil was less resistant than virgin olive oil to the oxidative changes induced by frying. Feeding fried sunflower oil to rats resulted in a significantly greater degree of lipid peroxidation in liver microsomes than did feeding fried virgin olive oil. Feeding non-fried sunflower oil and virgin olive oil had similar effects on lipid peroxidation in rat liver microsomes.

Comment: These results indicate that fried sunflower oil is more toxic than fried virgin olive oil. The results are consistent with the concept that heating polyunsaturated fatty acids (PUFAs) causes a greater degree of lipid peroxidation than heating saturated or monounsaturated fatty acids. While some PUFA-containing oils are considered beneficial for human health, these same oils may cause adverse effects when used for frying. All fats and oils undergo chemical changes when heated to high temperatures; however, some are more resistant to these changes than others. It appears that frying with olive oil or peanut oil is safer than frying with corn oil, sunflower oil, soybean oil, or canola oil. Although the saturated fat present in butter would presumably be resistant to oxidative changes during frying, the cholesterol in butter would be converted in part to artery-damaging cholesterol oxides. Eating a lot of fried foods is not a good idea, regardless of the fat or oil used for frying. If a food is to be fried, one should use the smallest amount of fat or oil that is feasible.


Policosanol 10 provides 10 mg of 99% pure policosanol extract from sugar cane. Clinical trials on humans have demonstrated that policosanol is safe, effective and well-tolerated. Policosanol has been studied extensively for the past 10 years and several human studies have been published in medical journals in North America and throughout the world.

For more information about our full product line or to place an order call:

1-800-792-2222
or (914) 834-1804
fax orders to (914) 834-5265

visit us at www.rxvitamins.com • email: info@rxvitamins.com

This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.