Dynamic Chiropractic

VITAMINS / SUPPLEMENTS

Therapeutic Update on Vitamin A and Carotenoids

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The use of vitamin A in human nutrition is undergoing a revolution. Many supplement manufacturers are replacing some or all of the vitamin A content of their multivitamin products with betacarotene. In addition, many authorities are recommending that most vitamin A supplementation be done using carotenoids rather than the true vitamin, such as retinol. How should you advise your patient?

First, a reminder of what most of us learned in our nutrition courses. In the human body, vitamin A has long been known to be essential for the health of most tissues, especially the skin, mucous membranes, and the eyes. Concern for the adequacy of this vitamin in the American diet has led to the fortification of many foods with vitamin A, including milk, butter, margarine, and breakfast cereals. Today, vitamin A deficiency in the United States is considered a rarity. So, is there no reason for us to be concerned about our patients' intake of this vitamin? The answer is yes and no.

Understanding vitamin A nutrition has always been somewhat complicated by the existence of two forms of the nutrient, active retinol and the provitamin family known as the carotenoids, found in fruits and vegetables. Among the carotenoids, betacarotene has the highest vitamin A potential, so this form has been used to study vitamin A from plant sources.

Now it appears that betacarotene and other carotenoids have functions beyond supplying a precursor for the production of vitamin A in the human body. Their chemical structure allows them to function as powerful antioxidants, much more potent, in fact, than the retinol form of vitamin A. The most exciting applications of this new-found role for carotenoids are in the enhancement of the immune system and the prevention of cancer.

Based upon promising initial findings, the National Cancer Institute is funding research on the effectiveness of supplemental betacarotene in preventing cancer of the lungs, colon, esophagus, and skin. Studies on stomach, prostate, and breast cancer prevention are likely in the near future. Typical doses used in current research are in the range of 25-100 milligrams (approximately 40,000 to 160,000 IU) of betacarotene per day.

Enhancement of the immune response may be the mechanism by which carotenes exert their protective effects. A recent study showed a steady increase in immune system stimulation from lower doses of 15 milligrams per day up to 60 milligrams per day.

How many crotenoids are found in the typical American diet? Unfortunately, the average intake in the United States is only two to two and one-half milligrams per day. The best dietary sources, dark-green and yellow vegetables, and yellow-orange fruits, can contribute only 1-5 mg for each serving. It appears that supplementation may be the only practical method for approaching the maximum possible benefit.

Unlike retinol, side effects are rarely reported at high levels of betacarotene intake. A daily dose of 180 mg (300,000 IU) was given for two weeks with no adverse effects. Thus, it seems that

betacarotene and other carotenoids are a safe form of vitamin A, as well as a potent antioxidant for use in preventive nutrition.

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