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A Quick Review of Vitamin Toxicity

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Compared to most drugs, whether they be over-the-counter or prescription, vitamins are very safe. However, too much of a good thing is possible, and this month we will review some common negative effects of ingesting excessive amounts.

Fat Soluble Vitamins

Vitamin A

Vitamin A gets a lot of publicity, especially from those health practitioners who are "antimicronutrient." In most individuals, vitamin A is very easily tolerated with no problems. Some of the most common signs and symptoms of vitamin A toxicity, which usually fall under the condition of hypervitaminosis A, include fatigue; headaches; muscle, joint and bone pain; dry, flaking skin; alopecia; amenorrhea; gastrointestinal problems, including nausea and vomiting; pruritus; and weight loss. Other problems that vitamin A overdose can cause include hepatomegaly, splenomegaly, liver damage, and a condition known as pseudotumor cerebri.^{1,2,3,4} Some of these signs and symptoms have been seen in certain individuals with amounts as low as 50,000 IU per day for a period of 18 to 24 months.^{1,3}

Conversely, there are many practitioners who have utilized vitamin A for teenage acne with levels of 300,000 to 500,000 IU per day for up to five months with no side effects.⁵ There have also been studies where people have ingested 1,000,000 IU per day, for five years with no toxicity whatsoever.²

Not surprisingly, vitamin C is important in the treatment of vitamin A toxicity.¹ This author recommends that if you use high dose vitamin A therapy that liberal amounts of vitamin C are also employed (minimum of 1,500 mg per day).

Beta Carotene

Unlike vitamin A, there are no documented causes of liver damage with high doses. Orange skin is a common side effect seen with people who either drink a lot of carrot juice or ingest a lot of beta carotene. There have been no studies indicating that the change in skin color is toxic. High doses of beta carotene can, in some individuals, decrease vitamin E levels.³

Vitamin D

The most common effects of vitamin D fall into the hypervitaminosis D condition, which include constipation, nausea, vomiting, anorexia, hypertension, hypercalcemia and hypercalciuria, polyuria, and polydipsia.^{1,4} Although vitamin D is in the fat-soluble vitamin family, most nutritional biochemists will tell you that it is actually a prohormone and not a vitamin. Because man can synthesize vitamin D in the skin with a little sun exposure, normal, healthy patients need not consume any more than 400 IU per day in supplemental form. Many new and reformulated vitamin formulas contain vitamin D in amounts ranging from 50 to 200 IU. If your patient is on multivitamins containing less than 400 IU of vitamin D, you need not worry about deficiency, provided they are not osteoporotic or in the process of healing a fracture.

Vitamin E

Vitamin E is a very safe nutrient. However, large doses should be taken carefully in those people suffering from rheumatic heart disease, diabetes, hypertension, or hypothyroidism.³ In a few susceptible individuals, ingestion of over 1,000 IU of vitamin E per day may cause immune suppression.⁶ In levels below 1,000 IU, vitamin E is known to enhance the immune system.⁶ Finally, one of the first signs and symptoms of excess vitamin E intake is fatigue.⁷ Again, problems with vitamin E are very rare, and it is the safest of the commonly ingested, fat-soluble vitamins.

Vitamin K

Vitamin K toxicity is rare. It may interfere with the therapeutic effect of Coumadin.³ There are three types of vitamin K: vitamin K1, which is in foods; vitamin K2, which is made in the small intestine of the body; and vitamin K3, the synthetic form, called menadione. Studies have shown that the K3 or menadione form can be toxic. In fact, the FDA has banned this synthetic vitamin K from supplements.¹ (Isn't it amazing that the government actually banned something synthetic?)

Next month we will continue our brief review of vitamin toxicity with a focus on the water-soluble vitamins.

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