

## A Quick Review of Vitamin Toxicity, Part II

### WATER-SOLUBLE VITAMINS

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#### Vitamin B1

In preparation for this article, I did not do a computer literature search. However, of the references I did use, only one author mentioned any signs and symptoms for excessive vitamin B1 ingestion.

Those effects include pruritus, perspiration, hot flashes, shortness of breath, and tachycardia.<sup>1</sup> These only occurred in individuals who ingested very high doses for long periods of time. All the other sources listed below stated that there was no known toxicity for vitamin B1 ingestion.<sup>2,3,4</sup>

#### Vitamin B2, Vitamin B5, Biotin

Vitamin B2, vitamin B5, and biotin are generally regarded as safe.

#### Vitamin B3

Vitamin B3, or niacin, can cause side effects. In the last few years it has had a lot of publicity for lowering cholesterol and, thus, we have seen side effects from this nutrient, the most common of which is flushing of the skin. Pruritus, dizziness, and nausea are also side effects of excessive niacin intake.<sup>3</sup> Niacin can also irritate inactive peptic ulcers, increase uric acid levels, and disrupt blood sugar levels in diabetics, due to the fact that niacin is involved in the synthesis of the glucose tolerance factor.<sup>1</sup> The other commonly ingested form of niacin, known as niacinamide, is not involved in this equation and, thus, does not affect diabetics.<sup>1,2</sup> The market has also seen the release of time-released niacin, again most often used for cholesterol control. Research has shown that this form does seem to cause more liver damage than regular niacin. A good rule of thumb is whenever you are performing therapy with high doses of niacin, niacinamide or time-released niacin, I recommend that blood work be performed monthly for the first three months. If there are no problems, quarterly monitoring may be performed until such time your therapeutic goal has been reached and your dose has been gently reduced.

As I mentioned above, high dose niacin is most commonly used for elevated cholesterol.

Niacinamide's most common use is for arthritics to reduce joint pain and increase joint mobility.<sup>1</sup>

An interesting side note to niacin therapy for lowering of cholesterol: There have been retrospective studies showing higher overall death rates with individuals who have had their cholesterol lowered. Dr. Abram Hoffer states that upon his review of the literature, he found that in those individuals who had their cholesterol lowered with niacin, there was not an increased death rate from other causes, as opposed to the group that had their cholesterol lowered with drugs. So, it may not be the low cholesterol but how the cholesterol is lowered that has resulted in increased overall death rate of people who have had their cholesterol lowered.<sup>5</sup>

#### Vitamin B6

Vitamin B6 has also received a lot of press in the last few years for its uses in carpal tunnel syndrome. As its utilization increased, we have begun to see side effects in certain susceptible individuals, the most common of which has been sensory neuropathy, and has been caused with doses as low as 200 mg per day for periods of two or more years. The vast majority of cases of sensory neuropathy, however, have been seen in those individuals who have taken doses of greater than 2000 mg per day.<sup>4</sup> Vitamin B6 is the B vitamin where, when utilizing high doses, there is an increased need for the other B vitamins. Insomnia and anxiety are effects of high dose ingestion seen in some individuals, both of which will respond to magnesium therapy.<sup>1</sup>

#### Vitamin B12

Vitamin B12 has no known toxic effects.

#### Folic Acid

Folic acid has no toxicity but in some individuals high doses can decrease vitamin B12 levels.

#### Vitamin C

Vitamin C probably gets more press than any other vitamin. Many people ingest massive doses with no problems whatsoever. Side effects of high dose vitamin C do include diarrhea, kidney stone formation in genetically susceptible individuals, vitamin B12 suppression, interference with occult blood stool testing, and abdominal pain.<sup>1,3</sup> Rebound deficiency can occur in individuals who ingest large doses and then suddenly stop.<sup>1</sup> This author recommends that if you have patients who are on a high dose and want to reduce it, do so gradually.

If a patient is C sensitive, use the ascorbate form of vitamin C. Rarely will you find a patient who is unable to tolerate this form.

#### *References*

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5. Bland: Preventive Medicine Update: November 1992. Personal communication with A. Hoffer.

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