Drug-induced Nutrient Depletion

By Harlan C. Bieley, MD

Q: My sister has begun taking a new blood pressure medication. I am wondering if there are any additional side effects she should be aware of other than what was printed in the warnings from the pharmacy?

A: Yes. Many medications can deplete critical nutrients from the body. It is important to be aware of these potential deficiencies and be proactive to supplement when taking pharmaceuticals before other conditions set in. Let’s take a closer look:

As health care practitioners, we are taught to be on the alert for major side effects from the drugs we prescribe. Little or no attention has been focused on nutrients that are depleted by these medicines. Many drugs are “new-to-nature molecules,” meaning that they are not found in nature, and they never existed in the history of the world until a pharmaceutical company created them. Along with the beneficial effects these medicines provide come side effects, and in some instances, the depletion of nutrients.

We shall highlight some classes of compounds and some specific examples within these classes of drugs that have been documented to have caused nutrient depletion(s) in published scientific studies. According to Roger J. Williams, the discoverer of pantothenic acid, biotin, and the co-discoverer of folic acid, the effect of losses is based on a person’s “unique biochemical individuality.” In addition, the length of time a person takes these prescription medicines also helps determine the overall significance of the nutrient depletion.

For example, when a woman takes estrogen, it depletes the body of B vitamins, regardless of the form of estrogen (birth control pills, bioidentical hormones that contain estrogen, or synthetic estrogens). A woman taking a birth control pill such as Ortho-Novum® depletes her body of the following nutrients: folic acid, magnesium, tyrosine, vitamin B2, vitamin B3, vitamin B6, vitamin B12, vitamin C, and zinc.1

Vitamin B6 plays a role in approximately 130 reactions in the body. Vitamin B6 deficiency can lower serotonin and melatonin levels, elevate homocysteine levels, increase anxiety, decrease libido, and impair glucose tolerance. It’s important to take B vitamins together as a group instead of as individual vitamins. For example, you cannot make vitamin B6 if you don’t have enough vitamin B2. Also, you need vitamin B6 to make niacin (vitamin B3).

Magnesium is a superstar nutrient that plays a role in approximately 300 functions in the body. There are over 100 medicines that cause magnesium depletion such as atenolol, estrogen, and numerous antibiotics such as amikacin, doxycycline, and more.2 Magnesium is a co-factor for adenosine triphosphate (ATP), and is critical in energy production. “Serum magnesium can be normal in the presence of intracellular magnesium depletion, and the occurrence of a low serum level usually indicates significant magnesium deficiency.”3 A red blood cell (RBC) magnesium test would be a better test to determine magnesium deficiency, compared to serum magnesium.

A class of compounds called statins is famous for depleting the body of coenzyme Q10 (CoQ10), which can cause muscle aches and other troublesome side effects. CoQ10 is required for the conversion of carbohydrates to ATP, the body’s energy currency, in the cellular powerhouses called mitochondria. Fueling our bodies is essential to keep our cellular machinery in optimal working order. We want to put “good” fuel in the body, and that not only means nutrition from what we eat, but also nutrients that may be depleted from medicines that we are taking, such as CoQ10.

Steroid drugs such as prednisone and triamcinolones have been shown to deplete the body of calcium, magnesium, folic acid, potassium, selenium, vitamin C, and vitamin D.
Even the commonest of drugs, e.g., aspirin, depletes folic acid, iron, potassium, sodium, and vitamin C. Acetaminophen depletes glutathione.

When a woman takes estrogen, it depletes the body of B vitamins, regardless of the form of estrogen.

Surprisingly, antibiotics deplete a wide variety of nutrients, and not so surprisingly, they deplete normal gut flora. For example, trimethoprim and quinolone antibiotics such as Cipro deplete the body of nearly the same gut flora and the same nutrients: \textit{Bifidobacterium bifidum}, \textit{Lactobacillus acidophilus}, biotin, folic acid, inositol, vitamin B1, vitamin B2, vitamin B3, vitamin B6, vitamin B12, and vitamin K.

Blood pressure-lowering medications routinely deplete nutrients. Here are some examples of classes and agents that induce nutrient losses:

- Loop diuretics like Lasix deplete the body of calcium, magnesium, potassium, sodium, vitamin B1, vitamin B6, vitamin C, and zinc. Loop diuretics increase magnesium excretion and inhibit passive magnesium absorption.
- Thiazide diuretics like hydrochlorothiazide deplete the body of CoQ10, magnesium, potassium, phosphorus, sodium, and zinc.
- Beta blockers such as propranolol deplete the body of CoQ10 and melatonin.
- ACE inhibitors such as lisinopril deplete the body of zinc and sodium.

There are legions of prescriptive medicines that deplete nutrients from the body. The unintended consequences from these nutrient losses can affect your energy, mood, libido, immune function, and in short, your life! This is a clarion call to increase awareness for drug-induced nutrient losses from medicines used on a regular basis.

To learn more about drug-induced nutrient depletion, the reference book \textit{Drug-Induced Nutrient Depletion Handbook} (Lexi-Comp Inc., 2001) by Pelton and LaValle is an excellent resource.

If you have any questions on the scientific content of this article, please contact a Life Extension® Health Advisor at 1-866-864-3027.

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\textbf{References}


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