

B12 Folic Acid Discussion

Several sessions have talked about HCL deficiencies and how to fix it, but one of the things that go hand in hand with HCL deficiencies are low minerals and B12 deficiency. We need the acidity to cleave the minerals from their substrates making them more bio-available. So expect mineral deficiencies with low HCL.

We also discussed as we age, the incidence of HCL deficiency increases as it takes so much cellular energy to make HCL. **So B12 deficiency should be a consideration for your elderly or chronically ill population.**

Also remember the more chronic the condition, the greater the incidence of HCL depletion. Consider the following study. On a college campus baseline levels of HCL were taken from “healthy” college students. Before the experimental part of the trial could begin, the flu broke out on campus. This adds a twist to any HCL experiments as sickness will diminish HCL production. In an effort to salvage time and data, researchers decided to see how long it would take for the subjects to return to their baseline levels of HCL after the flu abated. Interestingly enough it took up to 6 months for 2 of the subjects. This should serve as a reminder for all of us who see chronically ill patients that are battling trauma or disease; there is a good chance that there is a digestive component as part of the clinical picture.

So if we are low in HCL or if your patient has been on acid blocking medication for a prolonged period of time, the chances are pretty good that patients are low in B12.

B12 works with folic acid in the synthesis of the building blocks for DNA and RNA. B12 is essential for the integrity of the nervous system as well as energy production.

B12 deficiency affects the peripheral nerves and in later stages the spinal cord. So we can see tingling and numbness in the extremities, loss of vibratory and position sensation, abnormalities of gait, age related hearing loss, spasticity, irritability, depression, loss of concentration, memory loss, and dementia.

Animal products are the principal food sources of vitamin B12. The richest dietary sources are the liver, brain, and kidney. Other sources include egg yolks, clams, oysters, sardines, salmon, and heart. Lower amounts are present in fish, beef, lamb, pork, chicken, cheese, and milk.

Plant sources of B12 do not have the same biological activity for humans, and as a result most vegetarians are low in B12 and should supplement.

The gold standard for testing B12 deficiency are urinary or serum methylmalonic acid. This test is a little expensive and will have to be sent out to a reference lab. Another helpful test would be either a urinary or serum homocysteine. Many clinicians use homocysteine as a key

marker for folic acid. If the methylmalonic acid is ok and the homocysteine is elevated, you can assume with a high level of confidence that the folic acid is low.

Homocysteine levels less than 80% of the maximum lab range should be your goal. For example, if the upper level of the lab range is 10, 80% would be 8; if the lab test was 8 or higher, I would be aggressive with treatment. There are many doctors that use 50% of the maximum lab range as their upper limit because B12 and folic acid are so essential for neurological functioning, and they are so safe there is no reason to wait for upper levels especially if the above neurological symptoms are evident.

A simple CBC with differential can be extremely valuable and can verify B12/ folate deficiencies. I mention both B12 and folic acid because if you know you have one deficiency, you will supplement with both. First let's look at the mean corpuscular volume (MCV). If it is above 89.9, that is a good indicator that a deficiency. But if the mean corpuscular hemoglobin is also above 31.9, you can be pretty sure you have a B12 or folic acid deficiency.

Fortunately, the remedy for elevated homocysteine, elevated MCV and MCH is the same, namely B12, folic acid, and B6. My favorite product is a cherry flavored lozenge from Biotics called B12-2000™ Lozenge.

B12 is not always well absorbed via the stomach, and as such should be supplemented with a product that will yield good oral absorption. The key to this therapy, however, is to allow the tablet to dissolve slowly in the mouth. Most nutrients when chewing them provide a strong aftertaste and can create an interesting delayed reaction as you watch the taster's facial expressions; however this tablet is so tasty that the tendency is to chew it like candy. Even the kids like it. Research shows that for most people oral supplementation can be effective, especially if you are already supplementing with HCL. Some people may need B12 injections and so follow up monitoring with the laboratory is advised to make sure the values come down.

There are many forms of B12 lozenges on the market. One form that is very well absorbed is a methylated form. The problem with oral methylated forms is that they chelate heavy metals that may be used as dental fillings. For this reason Biotics uses a cyanocobalamin form of B12

Expect to start seeing changes in 30 days and lab tests should reflect changes in values in 120 days.