Pernicious Anemia

Pernicious anemia may be an immune system illness. It causes the production of antibodies to cells of the stomach (*parietal cells*), and proteins produced by the stomach, which are needed to absorb vitamin B12. The result of this illness is the body does not absorb enough B12 from the diet. This leads to lessened red blood cell production which causes anemia. Vitamin B12 is needed for making red blood cells and keeping the nervous system healthy. Not enough vitamin B12 in your system slowly affects sensory and motor nerves. This causes problems with your nervous system (*neurological*) to develop over time. Neurological effects of vitamin B12 deficiency may be seen before anemia is diagnosed. This affects both men and women, between ages 40 and 70. The anemia also affects the bowel, the heart and vascular systems and cannot be prevented.

CAUSES

Pernicious anemia is due to a lack of substance called *intrinsic factor*. This is a substance made by cells in the stomach. It makes it possible to absorb vitamin B12. The reason for the lack of this substance is unknown but it may be autoimmune, genetic, or both.

SYMPTOMS

The following problems may be seen with this illness:

- Problems develop slowly.
- Rapid heart rate.
- Nausea, appetite loss, and weight loss.
- Difficulty maintaining proper balance.
- Yellow eyes and skin.
- Loss of deep tendon reflexes.
- Depression.
- Confusion, poor memory, and dementia.
- Ringing in the ears (*tinnitus*).
- Weakness, especially in the arms and legs.
- Sore tongue.
- Numbness or tingling in the hands and feet.
- Pale lips, tongue, and gums.
- Bleeding gums.
- Shortness of breath.
- Headache.
- Fatigue.

RISK OF VITAMIN B12 DEFICIENCY INCREASES WITH:

- Diseases or surgery affecting the stomach.
- Diabetes and autoimmune disorders. Autoimmune disorders are diseases where the body makes antibodies which attack your own body tissues.
- Thyroid disorders.
- Genetic factors, such as in people of Northern European ancestry. It is rare in African Americans and Asians.
- Family history of pernicious anemia.
- Age over 40.
- Strict vegetarian diet or infants breast-fed by a mother on a strict vegetarian diet.
- Lack of stomach acid in older adults.
- Parasitic infections and intestinal diseases.
- Drugs such as H2 blockers, proton pump inhibitors, colchicine, neomycin, and aminosalicylic acid.
- Alcoholism.

PREVENTIVE MEASURES:

- Pernicious anemia cannot be prevented but vitamin B12 deficiencies can be prevented.
- For pernicious anemia, lifelong vitamin B12 therapy will help symptoms and prevent complications.
- Dietary changes can prevent deficiency. B12 is mostly from animal sources so a deficiency is more likely in a vegetarian who does not eat eggs or dairy products.

COMPLICATIONS OF PERNICIOUS ANEMIA

- Congestive heart failure.

- Nerve damage that can not be reversed.
- Gastric cancer.

DIAGNOSIS

Your caregiver can determine what is wrong by:

- Doing blood tests for vitamin B12 levels.
- Checking for antibodies to the intrinsic factor.
- Measuring the body's ability to absorb vitamin B12.

TREATMENT

- Life long treatment usually involves vitamin B12 replacement. Monthly vitamin B12 injections are the treatment of choice to correct vitamin B12 deficiency and may be given by the patient. This therapy corrects the anemia and it may correct the neurological complications if given early enough. About 1% of vitamin B12 is absorbed (even in the absence of intrinsic factor) so some caregivers recommend that elderly patients with gastric atrophy take oral vitamin B12 supplements in addition to monthly injections.
- Some symptoms should start to clear up in a few days after treatment begins but other symptoms may take several months.
- Additionally, other conditions which may lead to a deficiency should be treated.
- Stop drinking alcohol if alcoholism led to the vitamin B12 deficiency.
- For other patients, the vitamin may be taken by mouth or as a nasal gel (or in addition to injections).
- Iron supplements may be prescribed.
- Avoid taking high amounts of folic acid. It can mask the signs of vitamin B12 deficiency.
- Activity may be limited until symptoms improve.
- Eat a well-balanced diet.
- People on strict vegetarian diets can change their diet or take vitamin B12 supplements for life.

PROGNOSIS

- When caught early, the prognosis is good. Most people will do well.
- Patients with this illness have a higher incidence of cancer and polyps of the stomach.
- Nervous system problems may not improve if treatment does not start soon enough.

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