Hypercalcemia

Hypercalcemia means the calcium in your blood is too high. A level above 10.5 milligrams per deciliter of blood is considered high. Calcium in our blood is important for the control of many things, such as:

- Blood clotting.
- Conducting of nerve impulses.
- Muscle contraction.
- Maintaining teeth and bone health.
- Other body functions.

In the bloodstream, calcium maintains a constant balance with another mineral, phosphate. Calcium is absorbed into the body through the small intestine. This is helped by Vitamin D. Calcium levels are maintained mostly by vitamin D and a hormone (parathyroid hormone). But the kidneys also help. Hypercalcemia can happen when the concentration of calcium is too high for the kidneys to maintain balance. The body maintains a balance between the calcium we eat and the calcium already in our body. If calcium intake is increased or we cannot use calcium properly, there may be problems. Some good suppliers of calcium are:

- Dairy products.
- Nuts.
- Eggs.
- Whole grains.
- Legumes.
- Green leafy vegetables.

CAUSES

There are many causes of this condition, but some common ones are:

- Hyperparathyroidism. This is an over activity of the parathyroid gland.
- Cancers of the breast, kidney, lung, head and neck are common causes of calcium increases. It does this by spreading to bone and destroying it.
- Medications that cause you to urinate more often (*diuretics*), nausea, vomiting and diarrhea also increase the calcium in the blood.
- Overuse of calcium-containing antacids.

SYMPTOMS

Many patients with mild hypercalcemia have no symptoms. The problem is found during a routine blood screen. Some common problems include:

- Loss of appetite.
- Constipation.
- Increased thirst.
- Heart rhythm changes.
- Abnormal thinking.
- Nausea.
- Abdominal pain.
- Kidney stones.
- Mood swings.
- Coma and death when severe.
- Vomiting.
- Increased urination.
- High blood pressure.
- Confusion.

DIAGNOSIS

- Your caregiver will do a medical history and perform a physical exam on you.
- Calcium and parathyroid hormone (PTH) may be measured with a blood test.

TREATMENT

- The treatment depends on the calcium level and what is causing the higher level. **Hypercalcemia can be life-threatening**. Fast lowering of the level may be necessary.
- With normal kidney function, fluids can be given by vein to clear the excess calcium. Hemodialysis works well to reduce dangerous calcium levels if there is poor kidney function. This is a procedure in which a machine is used to filter out unwanted substances. The blood is then returned to the body.
- Drugs, such as diuretics, can be given after adequate fluid intake is established. These medications help the kidneys get rid of extra calcium. Drugs that lessen (*inhibit*) bone loss are helpful in gaining long-term control. Phosphate pills help lower high calcium levels caused by a low supply of phosphate. Anti-inflammatory agents such as steroids are helpful with some cancers and toxic levels of vitamin D.
- Treatment of the underlying cause of the hypercalcemia will also correct the imbalance. Hyperparathyroidism is usually treated by surgical removal of one or more of the parathyroid glands and

any tissue, other than the glands themselves, that is producing too much hormone.
- The hypercalcemia caused by cancer is difficult to treat without controlling the cancer. Symptoms can be improved with fluids and drug therapy as outlined above.

PROGNOSIS

- Surgery to remove the parathyroid glands is usually successful. This also depends on the amount of damage to the kidneys and whether or not it can be treated.
- Mild hypercalcemia can be controlled with good fluid intake and the use of effective medications.
- Hypercalcemia often develops as a late complication of cancer. The expected outlook is poor without effective anticancer therapy.

PREVENTION

- If you are at risk for developing hypercalcemia, be familiar with early problems (*symptoms*). Report these to your caregiver.
- Good fluid intake (up to four quarts of liquid a day if possible) is helpful.
- Try to control nausea and vomiting, and treat fevers to avoid dehydration.
- Lowering the amount of calcium in your diet is not necessary. High blood calcium reduces absorption of calcium in the intestine.
- Stay as active as possible.

SEEK IMMEDIATE MEDICAL CARE IF:

- You develop chest pain, sweating, or shortness of breath.
- You get confused, feel faint or pass out.
- You develop severe nausea and vomiting.

MAKE SURE YOU:

- Understand these instructions.
- Will watch your condition.
- Will get help right away if you are not doing well or get worse.

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