FACT SHEET

Hormone Health NETWORK
Keep your body in balance

High Blood Calcium (Hypercalcemia)

WHAT IS HIGH BLOOD CALCIUM?

People with high blood calcium, also called hypercalcemia, have above-normal levels of calcium in their blood.

Calcium is a mineral found mostly in your bones, where it builds and maintains bone strength. A small amount of calcium is also found in muscle and blood cells, where it plays several important roles:

- Helps muscles contract
- Helps nerves and the brain work properly
- Helps regulate (control) your heart rhythm and blood pressure

High blood calcium often does not cause any health problems. But over time, some causes of high blood calcium can lead to osteoporosis (thinning of the bones) and kidney stones. Very high blood calcium can cause more serious problems, including kidney failure, abnormal heart rhythm, mental confusion, and even coma.

DID YOU KNOW?

Hormone problems are some of the many possible causes of high blood calcium.

HOW DOES YOUR BODY CONTROL BLOOD CALCIUM LEVELS?

Normally, your body controls blood calcium by adjusting the levels of several hormones.

When blood calcium levels are low, your parathyroid glands (four pea-sized glands in your neck) secrete a hormone called parathyroid hormone (PTH). PTH helps your bones release calcium into the blood.

Vitamin D is also important in keeping calcium levels in the normal range. Vitamin D, which is actually a hormone, helps your body absorb calcium and move it from your intestines into your blood.

Together, PTH and vitamin D, along with other hormones and minerals, help move calcium in or out of body tissues to keep your blood calcium at a normal level.

WHAT CAUSES HIGH BLOOD CALCIUM?

The most common cause of high blood calcium is a condition called primary hyperparathyroidism or PHPT. In this condition, one or more of the parathyroid glands produces too much PTH. This, in turn, causes the bones to release too much calcium into the blood. Women over the age of 50 are more likely than others to have PHPT.

Certain types of cancer, most often breast cancer, lung cancer, or multiple myeloma (a type of blood cancer), can also cause high blood calcium. This usually occurs late in the course of cancer.

Less common causes of hypercalcemia include these health problems:

- Some types of infectious diseases, such as tuberculosis (TB)
- Some types of autoimmune disease, such as sarcoidosis
- Hormone disorders, such as overactive thyroid (hyperthyroidism)

- A genetic condition called familial hypocalciuric hypercalcemia
- Kidney failure

Other infrequent causes of high blood calcium include
- Some medicines, such as lithium (to treat psychiatric illness) or, rarely, thiazide diuretics
- Intake of very large amounts of calcium or large amounts of milk plus antacids
- Intake of too much vitamin D or vitamin A
- Immobility--being confined to bed for at least several weeks--combined with some bone diseases, such as Paget's disease
- Tube feeding or being fed through a vein
- Severe dehydration

HOW IS HIGH BLOOD CALCIUM DIAGNOSED?

Doctors detect high blood calcium through a blood test that measures calcium levels. To help pinpoint the cause, your health care provider may check PTH and vitamin D levels, as well as kidney function and levels of calcium in your urine. Your provider may do other tests to further assess your condition, such as checking your blood levels of phosphorus (a mineral). Imaging studies also may be helpful, such as bone mineral density, ultrasound, or other types of scans.

HOW IS HIGH BLOOD CALCIUM TREATED?

Your treatment will depend on the cause of your high blood calcium. In general, the best treatment is to take care of the condition that is causing the high blood calcium. For instance, people with primary hyperparathyroidism who have symptoms usually have surgery to remove the problem-causing parathyroid gland.

Until the underlying problem is resolved, treatment may include medicines to improve blood calcium levels. When blood calcium is dangerously high, people may need treatment in a hospital to return their blood calcium to a safe level.

You might not need any treatment if your blood calcium is only slightly high or you have not developed any health problems. Instead, your health care provider will continue to check your condition over time.

Talk with your health care provider about the best treatment for your condition.

SYMPTOMS OF HIGH BLOOD CALCIUM

High blood calcium may cause no symptoms (what you feel), or it may cause symptoms such as
- Muscle weakness
- Fatigue
- Constipation
- Nausea
- Mood changes
- Confusion

Questions to ask your doctor

- **What is the cause of my high blood calcium?**
- **Do I need treatment, and what are my options?**
- **What are the benefits and risks of each treatment?**
- **What are the signs of dangerously high blood calcium?**
- **Should I see an endocrinologist?**

RESOURCES

- Find-an-Endocrinologist: *www.hormone.org* or *1-800-HORMONE (1-800-467-6663)*
- Hormone Health Network information about related topics: *www.hormone.org* (search for PHPT, calcium, hyperthyroidism, or osteoporosis)
- MedlinePlus (National Institutes of Health-NIH): *www.medlineplus.gov*
- National Cancer Institute (NIH): *www.cancer.gov/cancertopics/pdq/supportivecare/hypercalcemia/Patient*
- Genetic and Rare Diseases Information Center: *http://rarediseases.info.nih.gov/GARD* (search for FHH)

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The Hormone Health Network offers free, online resources based on the most advanced clinical and scientific knowledge from The Endocrine Society (*www.endo-society.org*). The Network's goal is to move patients from educated to engaged, from informed to active partners in their health care. This fact sheet is also available in Spanish at *www.hormone.org/Spanish*.

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