



PATIENT RESOURCES

Hyperprolactinemia

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Hyperprolactinemia is a condition in which a person has higher than normal levels of the **hormone prolactin** in the blood. Hyperprolactinemia can lead to menstrual disturbances, estrogen deficiency and testosterone deficiency, infertility, and breast milk production (galactorrhea).

Prolactin is made by the pituitary gland, a pea-sized organ found at the base of the brain. The main function of prolactin is to stimulate lactation (breast milk production) after childbirth, so having high prolactin levels in pregnancy is normal. Production of prolactin is controlled by two main hormones: dopamine and **estrogen**. These hormones send a message to the pituitary gland primarily indicating whether to begin or cease the production of prolactin. Dopamine restrains the production of prolactin, while estrogen increases it.

Endocrine Condition

In addition to promoting lactation, prolactin decreases other pituitary hormones—luteinizing hormone and follicle-stimulating hormone—that normally stimulate the function of ovaries and testes. Therefore, high prolactin causes low estrogen in women and low testosterone in men and decreases fertility in both women and men. Low estrogen and testosterone also can result in bone loss and **osteoporosis**.

► Diagnosis and Prevention

A blood test is used to detect excess prolactin. If prolactin levels are high, more tests are usually done to check for other hormones including thyroid hormone levels and to rule out pregnancy in women. Low thyroid (hypothyroidism) sometimes causes hyperprolactinemia. A test for an abnormal form of prolactin (macroprolactin) might also need to be done. Macroprolactin does not cause any health problems.

Your doctor will also ask about other conditions and get a detailed list of medications you are taking since some of them can cause elevated

prolactin. Many times, excess prolactin is produced by a pituitary tumor that is called prolactinoma. Other growths in the pituitary area can also cause hyperprolactinemia.

If a pituitary tumor is suspected, an MRI (magnetic resonance imaging) of the brain and pituitary is often the next step. Using a special machine that creates images of body tissues, an MRI can reveal a pituitary tumor and show its size.

► Symptoms and Risk Factors

Both men and women may have infertility, decreased sex drive, and bone loss. In addition, women may have:

- › Vaginal dryness, leading to pain during intercourse
- › Problems with menstruation—having no periods or irregular periods
- › Production of breast milk when not pregnant or nursing

Men may also have:

- › Erectile dysfunction—trouble getting or keeping an erection
- › Breast enlargement, called gynecomastia
- › Decreased muscle mass and body hair

One common cause of hyperprolactinemia is a pituitary gland tumor that produces prolactin called a prolactinoma. These tumors can be large or small and are usually benign, meaning they are not cancerous. Small tumors (smaller than 1 cm) are called microprolactinomas and larger tumors (more than 1 cm) are called macroprolactinomas. Large tumors can also

cause headaches, vision problems, or both. Prolactinomas are more common in women than in men and rarely occur in children. They tend to be smaller in women.

Several prescription medications can also increase prolactin levels. These include medications for:

- › Mental health disorders (antipsychotics such as Risperdal and Haloperidol)
- › Nausea and vomiting
- › Contraception (Birth Control Pills)
- › Menopausal symptoms (estrogen)
- › High blood pressure (calcium-channel blockers and methyldopa)
- › Depression (tricyclic and SSRI antidepressants)
- › Pain (opiates)

Other causes include:

- › Hypothyroidism or underactive thyroid
- › Pregnancy and lactation
- › Chest-wall injuries or other conditions that affect the chest wall, such as shingles
- › Chronic liver and kidney diseases
- › Other tumors and diseases affecting the pituitary gland, or radiation treatment for tumors on or near the pituitary.
- › Larger pituitary growths that do not produce prolactin and other diseases, injury or radiation in the pituitary area may also cause hyperprolactinemia but decreasing the amount of dopamine that flows from the brain to the pituitary gland (dopamine normally decreases prolactin)

Sometimes, no cause for hyperprolactinemia can be found.

► Treatment and Therapies

Treatment is based on the cause. Some people with high prolactin levels, but few or no signs and symptoms, do not need any treatment. If you are diagnosed with a prolactinoma (a tumor that makes prolactin), treatment options include:

Prescription Medications: Medicines called dopamine agonists like bromocriptine and cabergoline can decrease prolactin production and usually decrease the size of prolactinomas even when the tumor is large. Medicines work well for most people with prolactinomas and are well tolerated. Bromocriptine is taken 2-3 times a day and cabergoline is long acting and used once or twice a week. Most prolactinomas respond very well to medication and women are usually able to get pregnant once their levels normalize. The medications are usually stopped during pregnancy.

Surgery: Surgery is usually done through the nose, to remove a tumor. Surgery may be used if medicines have not been effective or cause too many side effects.

Radiation: Rarely, if medicines and surgery have not been effective, radiation is used to shrink the tumor.

Hypothyroidism is treated with synthetic thyroid hormone, which should bring prolactin levels back to normal. If high prolactin levels are caused by prescription medications, other types of medications can be explored.

► Questions For Your Healthcare Provider

- › What caused my hyperprolactinemia?
- › What tests do I need?
- › What are my options for treatment?
- › What are the advantages and disadvantages of each treatment option?
- › Will I have long-term side effects from my condition

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