

## **OSTEOPOROSIS AND MODERN METHODS OF ITS TREATMENT**

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**Abstract:** Osteoporosis is a bone disease characterized by increased fragility and brittleness. The reason for this is a lack of calcium in the body, a metabolic disorder due to a lack of calcium element in the bone system in general. People with osteoporosis are life-threatening because simple injuries or collisions can lead to broken bones, such as knocking hands and feet against equipment such as doors, tables, and stools. Situations that are normal for a healthy person can be dangerous for people with osteoporosis.

**Key words:** Osteoporosis, bone density, densitometry, rheumatoid arthritis, inflammation, osteopenia.

Osteoporosis causes not only brittle bones, but also fractures. The curvature of the spine due to osteoporosis can cause breathing, digestive and even kidney problems. Osteoporosis (Latin: osteoporosis) is a chronic progressive systemic metabolic (exchange) disease or clinical syndrome of the skeleton, which manifests itself in other diseases and is characterized by a decrease in bone density, an increase in fragility due to a violation of their microarchitecture. it leads to a violation of the metabolism of bone tissues, the dominance of catabolism over the processes of bone formation, a decrease in bone strength and an increase in the risk of fractures. This definition refers to osteoporosis as a disease of the locomotor system and connective tissues (ICD-10) and complements it with the concept of "metabolic or exchange disease". if Factors that increase susceptibility to the disease include heavy smoking, drinking alcohol, and persistent eating disorders. The development of osteoporosis in older people is explained by calcium deficiency or calcium deficiency. However, osteoporosis is caused by metabolic disorders, especially when there are deficiencies in the hormonal system. Hormonal fluctuations are typical for women, such as the age of climax, menstruation, artificial termination of pregnancy. So, the causes of osteoporosis are as follows:

- People of Mongoloid / European race are more affected. According to statistics, people of the African American race have never had osteoporosis (in very rare cases, it has not even attracted the attention of the medical field);

- Thinness of the bones - this can be congenital or acquired;
- People over 65 years old - from this age, the calcium element in the body begins to decrease, and it becomes difficult to replace it;
- Hereditary (genetic) factors - osteoporosis can also be caused by genetic factors, but not always. The degree of closeness of relatives does not play a role in this;
- Belonging to the female gender - osteoporosis occurs in 87% of cases against the background of hormonal changes throughout the life of women.

Osteoporosis develops slowly over a long period of time. The patient may not even notice it. When the density of the bones decreases to a certain extent, pain begins. First of all, the density of the bones of the spine decreases, sometimes they break. The patient feels pain only after a fracture occurs in the vertebrae. Unfortunately, patients turn to the doctor only after the pain intensifies. A serious complication of the disease is bone fractures, especially femoral neck fractures. In this case, the patient cannot walk, he lies down. Inactivity makes the disease worse, and with age, it can lead to disability. Currently, complications of osteoporosis are treated surgically. Even elderly patients are operated without delay when the hip bone is fractured. In some cases, the head of the broken bone is removed and artificial joints are placed. Patients must undergo modern examination methods (for example, a digital X-ray machine that quickly detects bone diseases). There are other methods of examination (densitometry, ultrasound and X-ray). Almost all women after the age of 45-50 should undergo such examinations.

#### Types of osteoporosis

In the field of medicine, three different types of osteoporosis are distinguished, all of them have different causes: Osteoporosis of old age is caused by calcium deficiency, the regeneration of bone cells slows down. This type of osteoporosis is more common in older people, especially in people over 70 years old. In women, it develops after the climax period. Secondary osteoporosis - this type of osteoporosis occurs in only 5% of cases. The reason is the negative impact of another disease on the bone system or long-term use of certain types of drugs. Idiopathic osteoporosis - this type of osteoporosis is also called youth osteoporosis. Because this disease occurs in young children, even in newborns. The cause of this disease is not yet known.

Levels of development of osteoporosis. Doctors distinguish 3 stages of the development of osteoporosis, based on which the severity of the disease is determined. The first level. Doctors detect a decrease in bone density, a decrease in the shade of bones. Usually, the first level of osteoporosis is detected as a result of preventive examinations, because it passes without symptoms. Medium level. By this period, a significant decrease in the density of bones, deformations of the vertebrae are detected. The peculiarity of this level is that a person feels pain in bones, joints, and muscles. Obvious osteoporosis. In X-ray examination, it is seen that the bones are clearly blurred. By this time, osteoporosis can be easily diagnosed without additional tests. Osteoporosis is a polyetiological disease, the development of which is influenced by genetic predisposition, lifestyle, physical activity, endocrinological status, the presence of concomitant diseases, drugs, human aging and individual life expectancy. depends on duration [3]. The maximum amount of bone mass in people is reached at the age of 20-30. Bone mass then remains almost unchanged until age 35-40, after which it begins to decline, and the process of decreasing bone mineral density (BMD) in women occurs much faster than in men, which is associated with estrogen deficiency during peri- and postmenopause.[3] .

The level, quality and strength of bone mineralization depend on the balance of the processes of bone formation and bone resorption, which occur simultaneously during the continuous renewal of bone tissue. The causes of SMZ loss, in addition to estrogen deficiency, are disorders of

phosphorus-calcium metabolism, parathyroid hormone levels, vitamin D, growth hormone, calcitonin, thyroid hormones, glucocorticoids, aging and related secretory phenotype, etc. [3]. Today, it is customary to assess the level of risk of osteoporosis, focusing on a number of objective data obtained from the anamnesis and the results of a medical examination.

Diagnosis of osteoporosis

- Bones and spine are X-rayed.
- Densitometry — bone strength is determined using ultrasound, X-ray and computer tomography.

X-ray examination does not allow to detect the disease at the initial stage. Even when the bone mass decreases by 20-30%, the X-ray does not show it. It can work only in later stages. Bone densitometry shows the exact amount of bone mass and mineral density. It is also called bone screening. If a woman is healthy, densitometry should be done after the age of 65. Doctors agree on this. But even if you are young, densitometry can be done earlier if the doctor thinks you have brittle bones. In this case, ask the doctor about why he prescribed the same diagnostic method for you. Before going to the machine, you need some preparation. This diagnostic apparatus determines the amount of minerals in the bone with the help of X-rays. If you live in a remote village, you may have to go to the center. If you are taking calcium, stop taking it one day before the diagnosis. Otherwise, the results may be incorrect. In addition, to diagnose osteoporosis, a biochemical analysis of blood is performed, and various hormones (estrogens, thyroid hormones), vitamin D, calcium, phosphorus, magnesium, and bone The amount of markers that break down tissues and create new ones is determined.

Principles of osteoporosis treatment. Osteoporosis treatment is a very complex process. A number of specialists, such as an immunologist, rheumatologist, neurologist, endocrinologist, orthopedic traumatologist, should work together with him. It is necessary to ensure the normalization of metabolism in bones. Preventing bone fractures, reducing pain, and increasing the patient's movement activity are also the main goals of the treatment process. Osteoporosis is treated with medicamentosis. The doctor prescribes medicines on an individual basis, for example, if osteoporosis occurs in women during menopause, hormonal therapy is given to it. If the disease is related to age, vitamin D and calcium are prescribed.

Almost all patients are prescribed a special diet, physical therapy and massage. Of course, any physical exertion should be minimal, only prescribed by a doctor, taking into account the fragility of bones. Unfortunately, osteoporosis cannot be completely cured, proper diet, exercise and treatment prescribed by the doctor slows down the progression of the disease and improves the general condition of the patient.

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