Microcrystalline arthritis

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Microcrystalline arthritis is a group of diseases characterized by the precipitation of crystals of various compositions into the synovial fluid, their impregnation of articular and periarticular tissues, and the development of synovitis. The most common and well-known diseases in this group are gout and pseudogout (pyrophosphate arthropathy)

Gout is a disease that occurs when purine metabolism is disturbed and is accompanied by the deposition of sodium urate in various organs and tissues, which, in turn, leads to a violation of their functions.

Due to the peculiarities of the hormonal status and due to the different state of purine metabolism, men suffer from gout more often than women. Clinically, the disease is manifested by recurrent arthritis, the formation of gouty nodes (tophus) and damage to internal organs.

Distinguish between primary (essential) and secondary gout.

Primary gout occurs as an independent disease caused by genetically determined defects in enzymes that regulate the synthesis of nucleic acids, including uric acid. For example, the presence in the body of a congenital defective enzyme hypoxanthine-guanine-phosphoribosyltransfects (HTFT) already from childhood leads to hyperuricemia (an increase in the level of uric acid in the blood). In turn, hyperuricemia reduces the buffering properties of urine, which contributes to the deposition of microcrystals in the interstitial tissue of the kidneys and urinary tract in the form of stones.

Secondary gout develops in the presence of a previous disease or pathogenic factor, i.e. as a symptom. For example, increased production of uric acid in myeloid leukemia, congenital and acquired heart defects, occurring with cyanosis. A slowdown in the excretion of uric acid by the kidneys can be with polycystic disease, hydronephrosis, ketoacidosis, and analgesic nephropathy. Often, secondary hyperuricemia is observed with the use of certain drugs, for example, cyclosporine, nicotinic acid, lasix, cytostatics, etc. Acetylsalicylic acid in small doses increases the level of uric acid in the blood, and in large doses lowers it.

The onset of gout is considered to be the onset of acute arthritis of the first metatarsophalangeal joint, which begins acutely, most often at night. The pain syndrome grows gradually, reaching a maximum in a few hours. The painful part of the body becomes very sensitive. In the morning, the pain begins to decrease, but local skin hyperemia appears, the temperature rises to 38 ° C. The duration of the attack is from 2-3 days to a week. If arthritis enters the subacute phase, then the symptoms of the local inflammatory process disappear completely only after 1–2 months. A repeated attack of an attack can be both in 3-4 months, and after a longer period - sometimes up to 10 years.

The diagnosis of gout is made in the presence of the basic elements of pathogenesis:

- an increase in the level of uric acid in the blood;
- the presence of tofuses;
- the development of acute attacks of inflammation in the affected area;
- urate crystals in synovial fluid and tissues.

Pyrophosphate arthropathy (pseudogout) is a disease in which crystals of calcium pyrophosphate dihydrate, deposited in the bone and cartilage tissues of the joints, penetrate into the synovial fluid and cause acute inflammation. Usually, there are no prerequisites for the development of the disease.

Unlike gout, with pyrophosphate arthropathy, there are no systemic disturbances in the metabolism of inorganic phosphate or calcium and an increase in their level in the blood. However, it is assumed that there is a local disturbance in the metabolism of calcium pyrophosphate in the tissues of the joints.

Known genetic forms of the disease, when pyrophosphate arthropathy develops as a consequence of other diseases (hemochromatosis, hyperparathyroidism).

Pseudogout occurs in the elderly (at least 55 years old), equally common in men and women. Calcium pyrophosphate crystals are deposited primarily in the cartilage and, when they enter the joint cavity, inflammation develops. Most often, the knee joint is affected, however, the small joints of the hands and feet, menisci of the knee joints, capsule and hyaline cartilage can be involved in the process. Significant calcifications are found in the tendons and ligaments of the knee joint.

The clinical picture resembles acute gouty arthritis, which develops suddenly, with severe inflammation, but less severe pain syndrome. The attacks usually resolve spontaneously within 10 days, although signs of subacute arthritis may persist for several weeks.

The differential diagnosis of this disease with gout is established by examining a biopsy specimen of the synovial membrane or synovial fluid of the joint, using polarizing microscopy. The discovered crystals of calcium pyrophosphate dihydrate have a diamond-shaped or rectangular shape, positive double refraction, blue color.

However, more often pyrophosphate arthropathy in its course resembles osteoarthritis. Osteoarthritis is a joint disease characterized by degeneration of the articular cartilage with subsequent changes in the subchondral bone and the development of marginal osteophytes, as well as overt or latent synovitis.

Osteoarthritis is ill at any age, from 2% at 16–25 to 97% in the age group over 60, and women are 2 times more likely than men.

This form is characterized by moderate, but constant pain in the knee, wrist, ankle and other joints, the defeat of which is typical for osteoarthritis.

The diagnosis is made on the basis of radiography - the presence of chondrocalcinosis - calcification of the menisci, as well as articular cartilage. When examining the synovial fluid, crystals of pyrophosphate are detected.

As we can see from the above, making the correct diagnosis -

a rather laborious and time-consuming process. However, thanks to the devices of the IMEDIS Center, we have a unique opportunity to simplify this task.

In our center, 67 people were examined with a diagnosis of gout, which was confirmed during ART in only 23 people. Osteoarthritis was diagnosed in 30 patients, pseudogout in the remaining 14.

During the diagnosis, attention was paid to the following factors:

- hereditary predisposition;
- presence of loads (geopathogenic, electromagnetic, radiation);
- reserves of adaptation;
- the state of the mezynchyme;
- metabolic disease;
- since the process of synthesis of purine bases to a greater extent takes place in liver tissue, with particular attention to the liver;
- dysfunction of internal organs (especially kidneys), condition joints;

Endogenous bioresonance therapy, exogenous bioresonance therapy with fixed frequencies, private and general BR drugs were used for treatment. Drainage preparations of the ONOM company were connected.

Hirudotherapy was carried out, thanks to which the microcirculation of blood in the damaged joints was restored.

After the therapy, improvement was noted in all patients. It was possible to quickly stop the pain syndrome and reduce its duration. Laboratory indicators have improved. There were no relapses for two years, but each patient received testing and preventive treatment every six months.

Conclusion: the use of ART and BRT helps in making the correct diagnosis andimproves the quality of treatment.

Kayumova, E.N. Microcrystalline arthritis / E.N. Kayumova // XXII International Conference "Theoretical and Clinical Aspects of the Application of Bioresonance and Multiresonance Therapy". - M .: IMEDIS, 2016 .-- S.169-172.

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