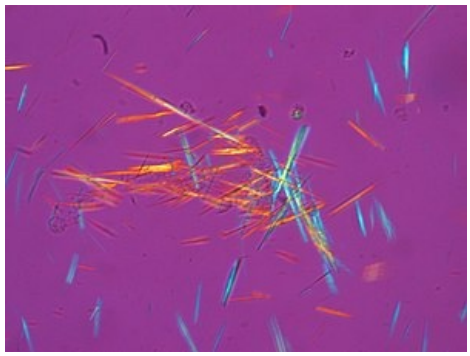
Drus for gout therapy

Medicines used in gout therapy are divided into:

- **Medicines used in an acute attack.**
- **Medicines used to prevent gout attacks**
    - Medicines that increase the excretion of uric acid - **uricosurics**.
    - Medicines that inhibit the synthesis of uric acid.

Gout

Gout is a chronic disorder of purine metabolism associated with increased plasma concentrations of uric acid and the deposition of sodium monourate crystals in joints, other parts of the locomotor system and other tissues (e.g. earlobes – gouty tophi). Acute inflammation is the body's reaction to crystals in the joint environment, where they are phagocytosed and lead to an inflammatory reaction, mediated mainly by neutrophil leukocytes. The inflammatory reaction then leads to degeneration of the affected joints.



Uric acid crystals in a fluorescence microscope

Primary gout

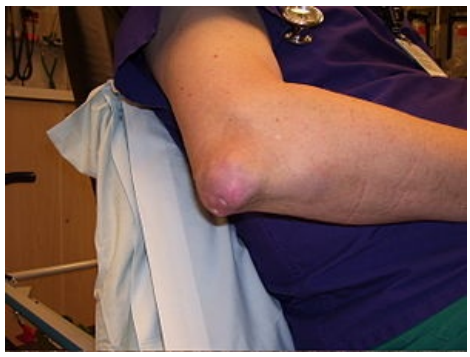
It is a genetically determined disorder of purine metabolism. Most often, it is a defect in the function of an enzyme called hypoxanthine-guanine-phosphoribosyltransferase, which manifests itself as the so-called Lesch-Nyhan syndrome.

Secondary gout

It occurs as a result of increased cell breakdown (e.g. in cytostatic therapy) or reduced excretion of urate in the urine.

Clinical manifestations of gout

An **acute** attack of gout is manifested by sudden, sharp pain in the affected joint, it is swollen, red and the skin over it is tense. The most common localization is the root joint of the thumb of the lower limb - the so-called **gout**. In addition, the joints of the instep, ankles, and knees are often affected.**Chronic** manifestations typically include the appearance of so-called **gouty tophi**, which are whitish deposits of uric acid crystals that are most often found in the earlobes.



Gouty tophi on the elbow

Gout therapy

The goal of long-term antiurate treatment is to prevent acute attacks and reduce uric acid concentrations (by improving its excretion and inhibiting synthesis).

Treatment of acute seizures

Nonsteroidal anti-inflammatory agents

- In an acute attack, they are mainly used to suppress severe pain.
- Due to the relatively few side effects, they are also given in the period between attacks.
- In addition to cyclooxygenase inhibition, they suppress the phagocytosis of urate crystals, and some substances have a uricosuric effect, i.e. they increase the excretion of uric acid by the kidneys.
- Since the acute pain of a gout attack only requires short-term treatment, in addition to relatively safe preparations (**ibuprofen, naproxen, diclofenac**), we can also use more toxic and effective ones (**indomethacin, piroxicam**).

Colchicine

- A mitotic poison that, by binding to tubulin, prevents its polymerization into microtubules and thus inhibits cell division, mobility and migration of leukocytes to the affected joint.
- It also leads to the suppression of phagocytosis of urate crystals by cells of the immune system.
- It must be administered already at the **prodrome** stage, later application is less effective.
- Served p.o. every 2-4 hours until the difficulties disappear or until diarrhea appears (this is a sign of severe

damage to the intestinal mucosa).

Corticosteroids

- They are given intramuscularly or intra-articularly only when previous treatment has failed.

Medicines used to prevent gout

Urikosurika

- **Probenecid** and **Benzbromarone**
- They are substances that inhibit the retrotubular resorption of uric acid.
    - This leads to an increase in its excretion and a decrease in its content in the body.
- The treatment leads to the absorption of urate from the tissues, especially the joints, and thus significantly prevents the development of acute arthritis.
- However, at the beginning of treatment, an acute attack may be provoked due to the leaching of urate from the tissues.
    - Therefore, this therapy should only be started after 2-3 weeks of managing acute gout.
- The most common side effect is kidney damage from urinary urate stones.
    - Less common side effects include allergic dermatitis, digestive problems and, very rarely, aplastic anemia.

Medicines that inhibit the synthesis of uric acid

- **Allopurinol**
- It is a competitive inhibitor of xanthine oxidase, the enzyme catalyzing the conversion of hypoxanthine and xanthine to uric acid.
    - The effect of **allopurinol** is based on the fact that hypoxanthine and xanthine are more soluble in water than uric acid and are therefore more easily eliminated in the urine.
- This drug at the beginning of therapy can reduce the excretion of urate by the kidneys and thus provoke the development of acute gout.
    - Therefore, for a period of about 1 month, its combination with non-steroidal antiphlogistics or colchicine is recommended.
- Unlike **uricosurics**, it also prevents hyperuricemia during oncological treatment.
    - However, it must never be combined with cytostatics based on purines (**azathioprim, 6-mercaptopurine**), where their metabolism would be inhibited and toxicity would be threatened.
- **Febuxostad**
- Like allopurinol, it belongs to the competitive inhibitors of xanthine oxidase, but it shows a higher affinity for the enzyme and is better tolerated. Put into practice in the first half of 2012.

Links

Related articles

- Gout
- Uric acid
- Disorders of uric acid metabolism
- Disorders of purine metabolism
- Cytostatics
- Antiuratic
- Hyperuricemia

References

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