Ciprofloxacin is a drug from the group of fluoroquinolone antibiotics. It kills the bacteria that cause infection and therefore is used for the treatment of the following infections:

- Bacterial infections of the respiratory tract (sinuses, tonsils, pharynx, trachea, bronchi and lungs)
- Bacterial infections of the genital organs of women
- Bacterial infections of the genital organs of men
- Bacterial infections of the gastrointestinal tract
- Bacterial skin infections
- Bacterial infections of bones and joints
- Bacterial infection of the soft tissue
- Anthrax
- Prevention and treatment of bacterial infections that occur in patients with a very low number of white blood cells (neutropenia)
- Bacterial ear infections

In clinical practice, there were cases of resistance to this drug primarily by S. aureus and P. aeruginosa.¹

Safety precautions

The most common side effects of Ciprofloxacin are gastrointestinal symptoms, which are usually mild and transient.
While you are on the treatment with this medicine, special attention should be paid to its adverse effects on the central nervous system and tendons.

In clinical trials, Ciprofloxacin was associated with neurotoxicity\(^2\) (it may cause a partial status epilepticus). It also may affect mental status and cause a confusion. The mechanism by which ciprofloxacin leads to the adverse CNS effects is still not known.

FDA recommends the use of fluoroquinolone antibiotics only as a last resort because it can cause permanent peripheral neuropathy.\(^3\)

Because of their efficiency and pressure on doctors from patients to resolve infection as soon as possible, doctors, unfortunately, often prescribe these antibiotics despite their risks.\(^4\)

However, it should be borne in mind that the majority of patients experience only mild side effects on the CNS, such as headache and drowsiness.

For the foregoing reasons, Ciprofloxacin should not be used in patients who have or have had neuropathy, depression, anxiety, obsessive-compulsive disorder, epilepsy and other CNS diseases.

Fluoroquinolones may cause tendinitis (inflammation and rupture of tendons) at approximately 0.15 to 0.40% of patients taking these antibiotics.\(^5\) Tendinitis can affect the Achilles tendon (on the feet) or tendons in the hands, shoulders and gluteus. If you notice muscle pain, inflammation, or swelling, contact your physician immediately. The risk of tendinitis is higher in elderly.

Therefore, Ciprofloxacin should not be used in patients who already have problems with the muscles (e.g. myasthenia gravis).

### Ciprofloxacin, pregnancy and lactation

**What FDA and science say?**

FDA has classified Ciprofloxacin into group C - the risk has been demonstrated in animals, but there are no studies in humans.

Since the urinary infection is a common complication during pregnancy, it must be treated. One study reported that Ciprofloxacin does not cause malformations but should not be used as a drug of first choice for the treatment of urinary tract infections during pregnancy.\(^6\) One study examined 200 pregnant women to determine if this drug has adverse effects on the musculoskeletal system of the fetus and the connection between adverse effects and this drug was not established.\(^7\)

It is excreted into breast milk, and breastfeeding should be avoided.

### Dosage

The dose and duration of treatment depends on the type of infection, the severity of the infection, the age of patient, patient's body weight and patient's kidney function.

Your doctor will determine the appropriate dose of Ciprofloxacin for you.

Ciprofloxacin comes in the form of tablet, injection and oral suspension (a syrup).
The usual dosage regimen involves the use of this medicine twice a day.

It can be taken with or without food, but you should avoid the simultaneous use of dairy products with this drug.

Interactions

A list of drugs with which Ciprofloxacin should not be used concurrently is given below:

- Tizanidine (a muscle-relaxant used to treat muscle stiffness or spasticity). Ciprofloxacin affects the metabolism of tizanidine and simultaneous use leads to very low blood pressure and severe drowsiness.
- Corticosteroids (e.g. triamcinolone, hydrocortisone, methylprednisolone, and others). Co-administration with corticosteroids increases the risk of tendinitis.
- Hydrocodone (narcotic analgesic). Ciprofloxacin increases the concentration of hydrocodone in the blood, which can cause side effects.
- Theophylline (medicine used for asthma treatment). Ciprofloxacin increases the level of theophylline in the blood, which can further lead to arrhythmias that can be life threatening!
- Bupropion (an antidepressant). Concomitant use increases the risk of seizures.
- Anti-arrhythmics (droperidol and ibutilide). Concomitant use increases the risk of arrhythmia.
- Warfarin. Concomitant use increases the risk of bleeding.
- Mifepristone (a drug used for pregnancy termination). Concomitant use increases the risk of arrhythmia.
- Antidepressants
- Anti-epileptics
- Pentoxifylline (a drug used to treat peripheral circulatory disorders)

Side effects

Ciprofloxacin may cause the following side effects:

- Hyperactivity
- Skin rash, itching or hives
- Fungal superinfections
- Increased number of eosinophils in the blood
- Digestive disorders
- Tendinitis
- CNS symptoms (headache, drowsiness, confusion, hallucinations, depression, anxiety, etc.)
- Strange dreams
- Impaired kidney function
- Photosensitivity
- Symptoms similar to asthma
- Inflammation of the liver
- Allergy

References

1. NCBI link 1
2. NCBI link 2
3. NCBI link 3
4. NCBI link 4
5. NCBI link 5
6. NCBI link 6
7. NCBI link 7
8. NCBI link 8