Treatment

- NSAIDs
- Corticosteroids
- Sometimes used immunosuppressants

- **Patients who need treatment regardless of stage include the following:**
- Worsening symptoms
- Activity limitation
- Significant impairment or deterioration in lung function
- Significant changes on x-rays (cavities, fibrosis, conglomerates, pulmonary hypertension)
- Damage to the heart, nervous system, or eyes
- Renal or hepatic impairment
- Moderate to severe hypercalcemia
- Disfiguring lesions of the skin or joints
- For the treatment of discomfort from the musculoskeletal system, NSAIDs are used.

Corticosteroids

- Symptom management begins with corticosteroids.
- *! The presence of abnormalities on chest scans without significant symptoms or evidence of decreased organ function is not an indication for treatment.*
- The standard protocol is **prednisone 20–40 mg orally once a day**, depending on symptoms and severity of the disease. Alternatively, you can use an every other day regimen: for example, prednisone 40 mg orally once every other day.
- Although patients rarely need a **dose> 40 mg / day**, higher doses may be required to reduce complications of **neurological disease**. Response usually occurs within 6-12 weeks, so symptoms and pulmonary function tests can be re-evaluated between 6 and 12 weeks. In chronic and latent cases, the reaction may be delayed. If there is an effect, the dose of corticosteroids is gradually reduced to maintenance (for example, prednisone 10-15 mg / day); with improvement, therapy is continued for at least 6-12 months.

- The optimal duration of treatment is unknown. A premature dose reduction may lead to relapse. In case of a doubtful reaction or ineffectiveness of treatment, the use of the drug is gradually discontinued. Ultimately, corticosteroids can be discontinued in most patients, but since relapse occurs in 50% of cases, follow-up examinations should be performed, usually every 3–6 months.
- **Treatment with corticosteroids should be resumed** if complaints and symptoms recur, including dyspnea, arthralgia, fever, liver failure, cardiac arrhythmias, CNS symptoms, hypercalcemia, eye damage, lack of topical drug control, and disfiguring skin lesions. Because low doses of corticosteroids suppress ACE production, it may be useful to monitor serum ACE levels over time when assessing adherence to corticosteroid treatment in the presence of elevated ACE levels.

- **Inhaled corticosteroids** can relieve cough in patients with *endobronchial involvement or airway hyperresponsiveness*. Inhalation of large doses of **budesonide** or **fluticasone** has sometimes been shown to be effective in pulmonary stages I-III, while combinations of systemic and inhaled steroids have a positive effect on both clinical symptoms and changes on radiographs in stages II-IV.
- **Local corticosteroids** may be helpful in treating dermatitis, sinusitis, and eye diseases.
- When treating with corticosteroids or immunosuppressants, prophylaxis for Pneumocystis jirovecii pneumonia should be considered.

Immunosuppressants

- ***!*** *Treatment with immunosuppressants is carried out in case of intolerance to moderate doses of corticosteroids, refractoriness of sarcoidosis to corticosteroids, or if treatment with corticosteroids is required for a long time.*
- In about 10% of cases when therapy is necessary, tolerated doses of corticosteroids are ineffective, and a 6-month trial of **methotrexate therapy at a dose of 10-15 mg / week** should be carried out. Methotrexate and corticosteroids are given initially; after 6-8 weeks, the dose of corticosteroids can be gradually reduced, and in many cases their use can be discontinued. However, the maximum effect of methotrexate can be observed after 6-12 months. In such cases, the dose of prednisolone should be decreased more slowly. Determination of blood corpuscles and liver enzymes should be performed first every 1–2 weeks, then every 4–6 weeks, as soon as a stable dose is reached. In patients receiving methotrexate, folate (1 mg orally per day) is recommended.

- Other drugs that have been effective in a small number of patients who do not respond to corticosteroid treatment or who experience complicating side effects include **azathioprine, mycophenolate mofetil, cyclophosphamide, chloroquine or hydroxychloroquine, and infliximab**. Immunosuppressants are often more effective in refractory cases, and relapse is common after stopping treatment. The **TNF inhibitor infliximab** may be effective in treating chronic steroid-dependent pulmonary sarcoidosis, refractory lupus fever, and neurosarcoidosis. It is administered intravenously at a dose of 3-5 mg / kg once, repeated in 2 weeks, and then administered 1 time / month.
- **Hydroxychloroquine** 400 mg orally once a day or 200 mg orally twice a day may be as effective for treating hypercalcemia, sarcoid skin lesions, or enlarged patient-discomfortable or disfiguring peripheral lymph nodes.