

Learning unit: Principles of immunotherapy

Impact of the learning unit:

Immunologic mechanisms of action are used therapeutically in different indications. For instance, immune suppression in rheumatology or transplantology, and immune stimulation in infectious diseases and oncology. Physicians need to know how to pharmacologically influence immune functions and which drugs are used for it.

Relevant terms

immunosuppressants

immune suppression as adverse effect

glucocorticoids

iatrogenic Cushing syndrome

hydrocortisone

prednisone

prednisolone

methylprednisone

triamcinolone

dexamethasone

betamethasone

calcineurin inhibitors

ciclosporin A

tacrolimus

mTOR inhibitors

sirolimus

antimetabolites

methotrexate

azathioprine

mycophenolate mofetil

biological drugs

etanercept

adalimumab

rituximab

basiliximab

immunostimulants

autoimmune adverse effects

cytokines

interferon alpha

interferon beta

interferon gamma

normal human immunoglobulin

immune checkpoints inhibitors

ipilimumab

nivolumab

dendritic cell therapy as an example of somatic cell immunotherapy

Learning outcomes

Student explains the mechanism of effect of selected immunosuppressants and immunostimulants and derives their adverse effects.

Student is oriented in general indications of immunosuppressant and immunostimulants and gives examples of drugs and their clinical use.

Student knows basic pharmacological profile (mode of action, unwanted effects, indications and contraindications) of immunostimulants and suppressants.

Student knows synthetic glucocorticoids, their potency, and duration of effect.

Student chooses appropriate dosage form according to the indication of glucocorticoid. Student describes the adverse effects of long-term glucocorticoid therapy and how to manage them.

Student knows basic pharmacological profile (mode of action, unwanted effects, indications and contraindications) of glucocorticoids.

Study materials

Lecture

Rang & Dale's Pharmacology, 8th edition, 2016, chapter 26 (Anti-inflammatory and immunosuppressant drugs: subchapter Antirheumatoid drugs, Anticytokine drugs and other biopharmaceuticals), and chapter 33 (The pituitary and the adrenal cortex)

Study materials for courses aVLFA0721p and aVLFA0721c.

Exam questions

Special pharmacology: 6. Glucocorticoids, 7. Immunostimulants + immunosuppressants (except glucocorticoids)

Essential drugs: 18. dexamethasone, 19. prednisone, 20. cyclosporine, 21. interferons, 22. methotrexate