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Department of Infectious Diseases

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INFECTIOUS DISEASES: HIV-INFECTION
(etiology, epidemiology, clinic, principles of treatment and prevention)

Training manual

for independent training of 6th year students
training for the Master of Medicine and Master of Pediatrics
fields of knowledge 22 "Health care"
specialties 222 "Medicine" and 228 "Pediatrics"
professional qualifications "Doctor" and "Pediatrician"

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H69 **INFECTIOUS DISEASES: HIV-INFECTION (etiology, epidemiology, clinic, principles of treatment and prevention):** Training manual for self-training of 6th year students training for the Master of Medicine and Master of Pediatrics fields of knowledge 22 "Health care" specialties 222 "Medicine" and 228 "Pediatrics" professional qualifications "Doctor" and "Pediatrician". Ryabokon O.V., Furyk O.O., Onishchenko T.E., Venytska H.V. Zaporizhzhia: [ZSMU], 2022. - 93 p

According to the curriculum for the course "Infectious diseases" (2022), Master's level of training, field of knowledge 22 "Health care", Specialty 222 "General Medicine", 228 "Pediatrics". Designed for students of the 6th years of medical faculty of ZSMU.

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INTRODUCTION

The curriculum for studying the academic discipline "Infectious diseases" is compiled according to the "standard" of the second Master's level of training, field of knowledge 22 "Health care", Specialty 222 "General Medicine", 228 "Pediatrics". Designed for students of the 6th years of medical faculty of ZSMU.

According to the Global HIV/AIDS Statistics (2021) fact sheet, in 2020, around 37 million people worldwide were living with HIV, and 680,000 deaths were reported in that year. An estimated 20.6 million of them live in East and Southern Africa. From the discovery of AIDS (early 1980s) to 2020, the disease has caused an estimated 36 million deaths worldwide. HIV/AIDS is considered a pandemic — an outbreak of the disease that is widespread throughout the world and is actively spreading.

Infection caused by the human immunodeficiency virus (HIV infection) is a progressive anthroponotic disease characterized by specific damage to the nervous and immune systems.

There is hardly any pathology in the world that would attract as much attention as HIV infection. The problem is given particular acuteness not only by the fact that it is mainly young people who lead the most active lives - working, social, sexual - but also by the fact that so far every person who is sick with HIV infection is doomed.

Today, Ukraine occupies one of the first places among the countries of the European region in terms of the number of HIV-positive people. According to estimated data, at the beginning of 2018, 244,000 HIV-positive people lived in the country. Every hundredth citizen of Ukraine between the ages of 15 and 49 is infected with HIV, which is one of the highest rates among the countries of the region.

The epidemic situation of HIV infection in Ukraine as of April 1, 2019 (according to the Center for Public Health of the Ministry of Health of Ukraine):

The epidemic of HIV infection in Ukraine at the current stage is characterized by a predominant effect on people of working age with an increase in the share of the

age group over 50 years among new cases of the disease. HIV infection is spread mainly through sex, but still remains concentrated in key population groups for HIV infection.

During 2018, 50 cases of HIV infection, 24 cases of AIDS and nine cases of death from AIDS-related diseases were registered daily in Ukraine.

According to official statistics for the period from 1987 to May 2019, 341,084 cases of HIV infection among citizens of Ukraine were officially registered in the country, including 114,487 cases of AIDS and 49,751 deaths from AIDS-related diseases.

https://phc.org.ua/kontrol-zakhvoryuvan/vilsnid/statistika-z-vilsnidu

The highest levels of HIV infection prevalence were registered in Odesa (898.3 per 100,000 population), Dnipropetrovsk (792.6), Mykolaiv (743.5) regions, Kyiv (479.0), Kyiv (447.9), Kherson (420.1) and Chernihiv (420.4) regions.

According to the same organization, for January - December 2021, 15,360 cases of HIV infection, 4,151 cases of AIDS, and 1,928 deaths caused by AIDS among Ukrainian citizens and 38 cases of HIV infection among foreigners were officially registered in Ukraine. However, for January - March 2022, 2,589 cases of HIV infection, 662 cases of AIDS and 330 deaths caused by AIDS among Ukrainian citizens and 5 cases of HIV infection among foreigners were officially registered in Ukraine (https://phc.org.ua/ kontrol-zakhvoryuvan/vilsnid/statistika-z-vilsnidu/statistichni-dovidki-pro-vilsnid).

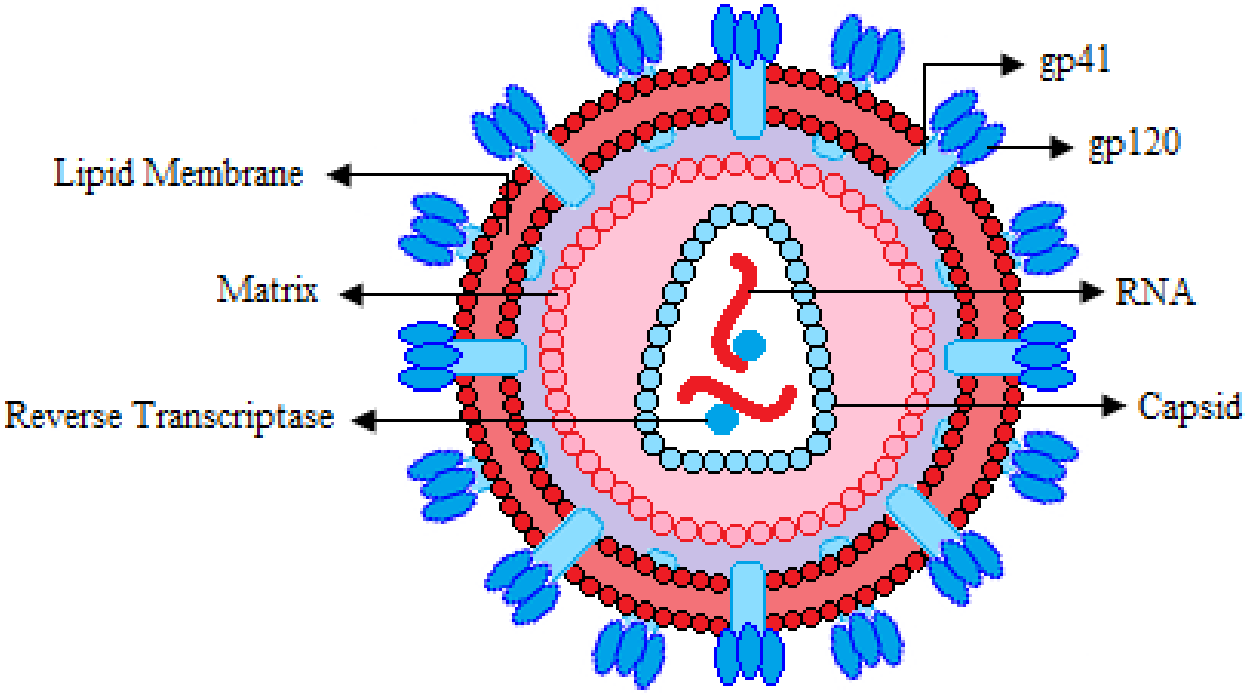
Etiology.

HIV infection is caused by the human immunodeficiency virus (HIV), which is genetically and antigenically heterogeneous: HIV 1 and HIV 2. HIV 1 was first isolated in 1983, HIV 2 in 1985.

HIV - belongs to the family of retroviruses (Retroviridae), subfamily of lentiviruses - slow infections (Lentiviridae). Retroviruses got their name because of the peculiarities of their development: there is a stage in their life cycle when the transfer of genetic information goes in the opposite direction to what is considered the norm.

A mature HIV virion is a spherical particle with a diameter of about 100 nm, which consists of a core and shells (Fig. 1). Each RNA molecule includes 9 genes (3 structural and 6 regulatory genes).

Structural genes include gag, env, and pol. lipid bilayer membrane



https://www.researchgate.net/publication/44227364_Largescale_integration_of_microarray_data_investigating_the_pathologies_of_cancer_and_infectious_diseases

Fig. 1. Human immunodeficiency virus model.

The gag gene encodes the formation of internal proteins (p 17/18, p 24/26, p 55/56). HIV 1 and HIV 2 differ in the molecular weight of internal proteins. Thus, HIV 1 has r 24, and HIV 2 - r 26.

The env gene of HIV encodes proteins of the virus envelope (gp120/105, gp41/36). Thus, HIV 1 has gp120, and HIV 2 has gp 105, which in the form of spikes protrude above the cell surface, gp41 of HIV 1 and gp36 of HIV 2 are immersed in the membrane like a rod. Thanks to these glycoprotein complexes, the virus is able to attach and penetrate into a cell that has CD4 receptors. Depending on the variant of the env gene structure, there are 10 subtypes of HIV 1, which are marked with Latin letters (A-J). In different regions of the world, these subtypes are distinguished with different frequencies. Thus, in Central Africa, subtypes A, D, H are more common; in Southeast Asia – B, E, G.

The pol gene encodes three enzymes: proteinase, reverse transcriptase, and endonuclease. Reverse transcriptase, using viral RNA as a matrix, carries out the

synthesis of viral DNA. Endonuclease inserts viral DNA into the genome of cells. Retroviruses have a detrimental effect on cells, as they integrate into the cell chromosome, acquiring the status of the cell genome.

In addition to structural genes, there are regulatory genes: tat, rev, nef, vpr, vit, vpu. The first three of them provide control over virus replication, they are identical in HIV1 and HIV2.

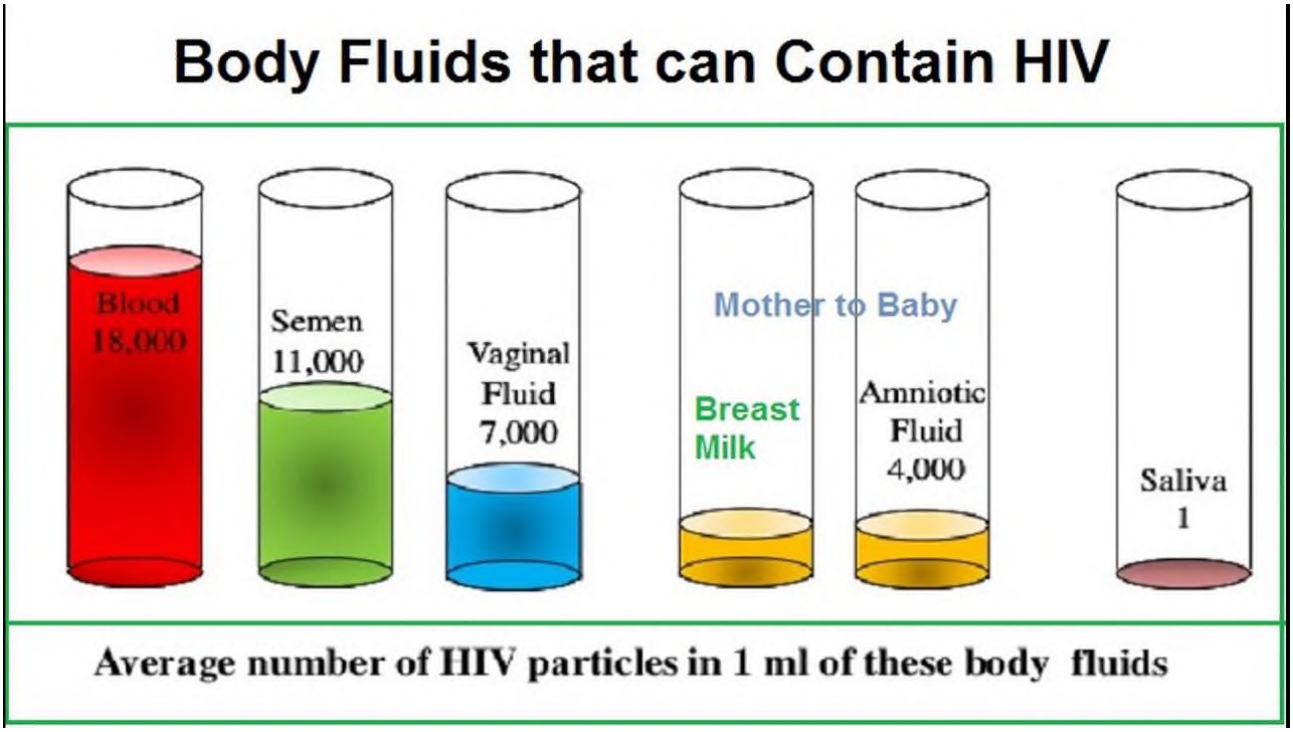
Of laboratory animals, only chimpanzees are susceptible to HIV.

The virus is unstable in the external environment. When boiling, the virus dies after 1-5 minutes, when pasteurized - after 30 minutes. 96 ° alcohol kills the virus after 1 minute. It quickly dies under the influence of chloramine, 3% hydrogen peroxide solution (3-5 minutes). Resistant to ultraviolet radiation, ionizing radiation and freezing at minus 70 ° C. There are data on the ability of the pathogen to be stored in the external environment for several days in a dried state, especially in blood and semen.

Epidemiology.

HIV-1 is found everywhere, HIV-2 infection is widespread mainly in the countries of West Africa.

The source of HIV infection is a person: a patient or a virus carrier. Human immunodeficiency virus is found in all biological fluids: blood, lymph, vaginal secretions, saliva, tears, sweat gland secretions, breast milk, semen, menstrual secretions, cerebrospinal fluid, urine, bronchial fluid. The concentration of the virus is important for infection. Blood, semen, and vaginal secretions have a sufficient proportion of the infection. An important factor affecting contagiousness is the stage of the disease. The infected person contains a high dose of the virus in the blood in the early stage and in the stage of AIDS.



https://www.hivtalk.net/which-body-fluids-transmit-hiv/

Fig. 2 HIV content in biological fluids

Natural and artificial mechanisms of pathogen transmission are possible. Natural mechanisms of transmission include sexual and vertical transmission. A homosexual act is more dangerous. If a homosexual with HIV has contact with 10 women, he infects 2. If he has relations with 10 passive homosexuals, he infects all of them. The mucous membrane of the rectum is more sensitive and easily injured, and the homosexual act is more traumatic, in addition, chromaffin cells of the rectum have CD4 receptors that are oriented to gp-120. At the same time, passive homosexuals always have reduced immunity (to relax the mass, they use drugs that suppress the immune system, in addition, sperm for the male body, injected per rectum, has an immunosuppressive effect). With heterosexual contact, the risk of infection is greater in women, which is explained by the higher concentration of the virus in semen.

The vertical mechanism of infection - the virus is transmitted from an infected mother to the future child in different ways: transplacental, ascending, intranatally. It has been proven that an infected mother who does not receive antiretroviral therapy can give birth to an infected child in 50% of cases. Pregnant women are tested for

HIV infection by voluntary consent. All HIV-infected pregnant women are prescribed antiretroviral therapy for the treatment of HIV infection in women and maximal suppression of the virus to reduce the risk of perinatal transmission of HIV. The risk of fetal infection is significantly reduced (up to 20%). Order of the Ministry of Health of Ukraine No. 551 dated July 12, 2010 "On approval of the clinical protocol of antiretroviral therapy of HIV infection in adults and adolescents".

A child can become infected during breastfeeding, since the mother's milk of an infected woman contains the virus.

Cases of infection of women from infected children during breastfeeding have been described, when the factor of transmission was blood from injuries in the child's oral cavity, and the entrance gate - cracks in the mother's nipple area.

An artificial (artificial) transmission mechanism is possible:

• when transfusion of blood and its components containing HIV, and the danger may be posed by asymptomatic HIV-carrier donors: 250 ml of blood taken from such carriers contains 15,000 copies of infectious doses of the virus;

• during parenteral manipulations, if they are carried out without changing syringes and even more so - needles (injection drug addicts represent a special risk group). In most countries of Asia and Europe, the infection is spread by injection drug users;

• during transplantation of infected organs.

Susceptibility to HIV is general.

Pathogenesis

HIV can penetrate only those cells that have receptors for it. The receptor is the CD4 antigenic complex. This receptor, the CD4 antigen, is present on the membranes of helpers, macrophages, monocytes, neuroglia cells, and other cells. Therefore, the virus can infect: macrophages, oligodendroglia cells and astrocytes of the brain, thymus, bone marrow, vascular endotheliocytes, lymph nodes,

macrophages of alveoli (lungs), Langerhans cells (skin), cervical cells, chromaffin cells of the intestines and other cells. When HIV 1 is found close to cells that have the CD4 receptor, the gp-120 coat protein binds to the CD4 receptor. As a result, the transmembrane viral protein gp-41 is exposed, which is inserted at one end into the cell membrane of the affected cell, which leads to the fusion of the cell and virus membranes.

The virus, having penetrated into the cell, behaves differently depending on the type of affected cell and the level of its activity. In macrophages, their precursors, monocytes, the virus multiplies constantly, but slowly, not killing the cell, but influencing its functioning. As a result of the direct effect of HIV on macrophages, their chemotaxis and bactericidal activity decrease, and antigen presentation of T- and B-cells deteriorates. Due to the fact that macrophages and monocytes do not die after HIV infection - they are the main reservoir of the virus and carry the virus to various organs, first of all to the brain.

When HIV enters the CNS (central nervous system), it affects nerve cells and neuroglial cells. The virus has a direct cytopathic effect on the cells of the nervous system infected by it, affects the endothelial cells of the vascular plexuses of the brain and ependyma of the ventricles with the development of virus-induced vasculitis, reduces the production of neuropeptides - hormones of the epiphyseal-hypothalamic complex. At least 5% of patients with HIV infection die from HIV dementia long before the development of immunodeficiency. At the autopsy of patients who died of HIV infection, morphological signs specific for this disease are found only in the CNS, unlike all other internal organs. All changes in all internal organs, with the exception of the NS, both macro and microscopic, are due to either opportunistic infections or advanced tumors.

T-helpers (TC) have the most CD4 receptors. Once the virus has entered the T-helper, under the action of cytoplasmic proteases, it seems to undress by point proteolysis. Viral RNA is released from the core of the virus. Then, thanks to the presence of reverse transcriptase, sequential synthesis of single-stranded DNA occurs

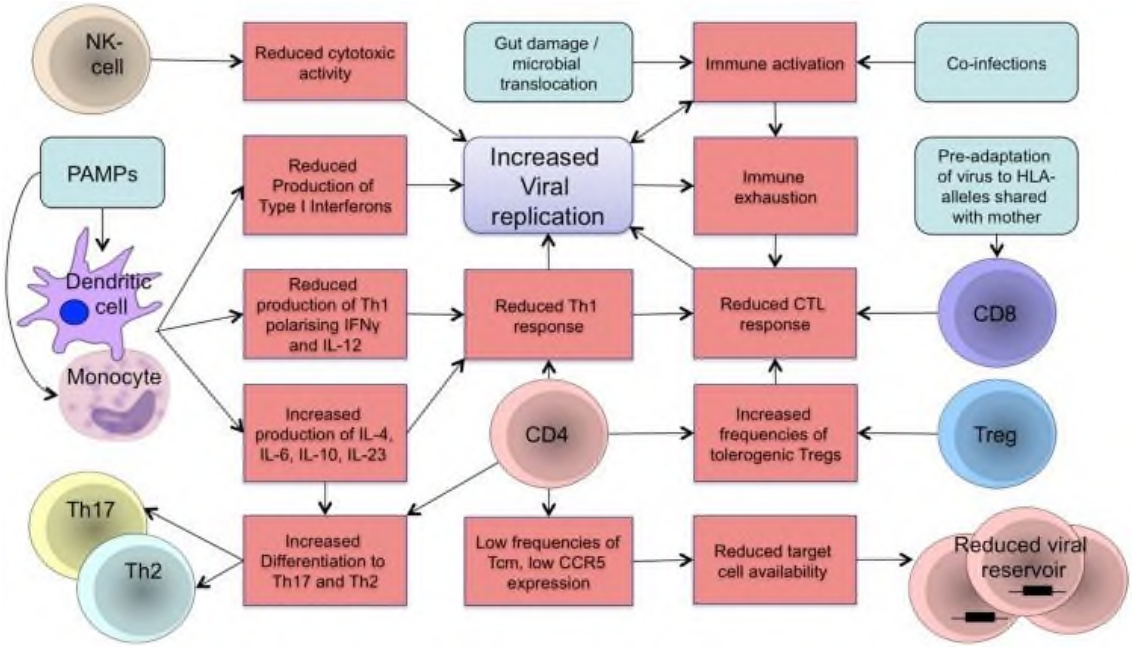
RNA of the virus, then the synthesis of the second strand of DNA, as a result of which double-stranded DNA is formed, that is, the DNA code is created. The DNA code is introduced into the genome of the helpers, embedded in the chromosomal DNA of the helpers, and in this form the provirus will reproduce together with the lymphocyte's own genes during its division and be transmitted to the next generation of lymphocytes. Integration has occurred and HIV in the provirus stage in the genome of the infected cell, like other pathogens of slow viral infections, will persist for a long time, without causing clinical symptoms of the disease, until activation of this cell occurs.

The immune system consists of non-specific and specific. Natural defenses include normal killers (NK), macrophages, and interferon.

A targeted fight against a specific antigen is carried out by specific immune factors: cytotoxic lymphocytes (activated T-killers), specific antibodies. When any antigen (virus, bacteria) enters the human body, macrophages capture this antigen, process it into separate fragments and present it to T- and B-cells. T-helpers have two subpopulations: TX 1 and TX 2.

Type 1 TCs are responsible for a specific cellular immune response. When activated, they produce IL-2 and gamma-interferon (γ-IFN), which activate the activity of CD8 lymphocytes, which recognize and destroy infected cells.

Type 2 TCs are responsible for the production of antigen-specific antibodies. TX type 2 secretes interleukins, under the influence of which B-lymphocytes undergo activation, differentiation, proliferation, and only then will plasma cells produce specific antibodies to antigens that have penetrated the human body at the moment (scheme 1).



https://www.researchgate.net/publication/265134944_Immunity_to_HIV_in_early_life

Scheme 1. Scheme of HIV immune response

In the body of a healthy person, there is a strictly certain ratio between the number of CD4 lymphocytes and CD8 lymphocytes. The CD4 + / CD8 + index is 1.5-1.7. With HIV infection, a decrease in this index is observed.

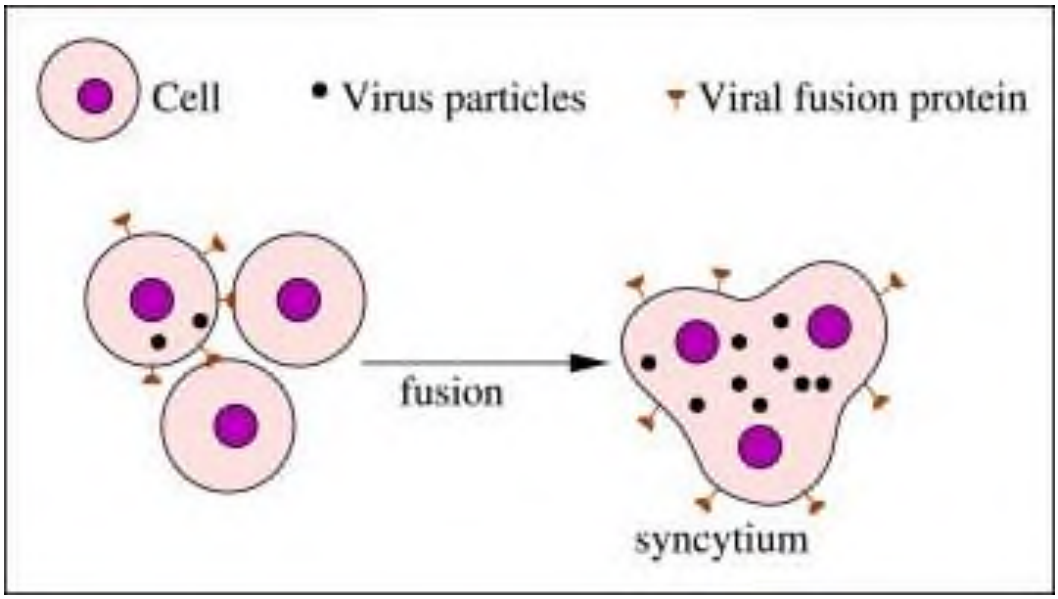
Immunodeficiency in HIV infection develops first, as a result of activation of the provirus. Activation of the infected helpers is followed by the activation of the provirus. In an active cell, the reversion of viral DNA into RNA occurs and the synthesis of RNA copies begins. This process is largely determined by the protease of the virus. The more actively the infected Helper functions, the more actively the virus reproduces in it. Activating factors can be various antigens, cytokines, transactivators and other factors. The virus replication process can proceed rapidly: up to 5 thousand virus particles can be formed in one infected helper in 5 minutes. Up to 1 billion viral particles can be formed per day. Replication of the virus is significant and is accompanied by the death of infected helpers. This process, also called apoptosis, is one of the main phenomena of the cytopathic effect of HIV. From a virus carrier, a person turns into a patient with HIV infection.

Active replication of the virus contributes to the accumulation of a significant number of mutant variants, which, in turn, help the pathogen escape from immune

surveillance. HIV has an increased ability to mutate because it lacks special mechanisms for correcting genetic errors.

Activation of the virus can also be under the influence of the "tat" gene. Cytomegalovirus, hepatitis B virus, and always the tat gene, for example, cytomegalovirus, can activate the tat gene of HIV infection, and vice versa, the tat gene of HIV activates the tat gene of cytomegalovirus. Thus, the tat gene is a transactivator that enhances HIV replication.

The second cause of immunodeficiency is the formation of syncytium (Sheme 2).



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Sheme 2. Syncytium formation

A syncytium is a set of helper nuclei enclosed in one cell membrane. Cells infected with HIV 1 carry not only CD4 but also gr120 on their membrane. And here is one HIV-stricken Helper, who has the ability to attract hundreds of healthy helpers. Syncytium is functionally inactive, does not produce interleukins and is not viable. It should be noted that the virus isolated from a virus carrier and an HIV patient differs in syncytium-forming activity. In a virus carrier, the virus has weak syncytium-forming activity, in a patient - strong syncytium-forming activity.

The third cause of immunodeficiency can be the development of autoimmune reactions and death as a result of these reactions of helpers and other cells that have CD4 receptors.

The next reason. During the period of viremia, both full-fledged viral particles and virus fragments enter the blood, including gp120, which, circulating in the blood separately, binds to the CD4 receptor of helpers. The helper, on the shell of which there are membrane antigens of the virus, becomes a foreign target on which the forces of both cellular and humoral immunity are directed. Killers seek to kill the changed helper, considering him a stranger. Antibodies to gr120 also strive for the death of this helper. In addition, Helper whose receptors are involved (CD4 + gr120) cannot participate in a normal immune response, although the cell remains uninfected.

In patients in the acute phase of HIV infection, the CD4 / CD8 index decreases due to an increase in the number of CD8 lymphocytes, although the number of CD4 lymphocytes has not changed. It is believed that CD8 lymphocytes prevent HIV replication and long-term infection without clinical manifestations is due to CD8 lymphocytes, that is, a long latent period can be caused by HIV-specific cytotoxic lymphocytes that inhibit virus replication.

Due to depletion of the helper population, their number is decreasing. With AIDS, the CD4 / CD8 index decreases to 0.5 or less. A decrease in the number and functional activity of T of the immune system is a risk factor for the occurrence of tumors and opportunistic infections.

The number of gamma globulins gradually increases in HIV-infected people. Hypergammaglobulinemia is a sign of polyclonal activation of B-lymphocytes (gp120-nonspecific mitogen). Patients with HIV infection develop a large number of antibodies to currently non-existent antigens. All of them belong to class G immunoglobulins, i.e. antibodies to pathogens that the patient has previously encountered. Spontaneous, unregulated hyperproduction of antibodies leads to exhaustion of the immune system.

The formation of antibodies, especially in the period of the AIDS-associated complex, to new antigens is disrupted and is absent in the terminal stage. Violation of the production of TX 2 interleukins (IL-4, IL-5, IL-6) and, as a result, plasma cells do not synthesize specific immunoglobulins.

Dysfunction of the immune system is a prerequisite for the development of B-cell lymphoma. The patient is defenseless and dies from opportunistic infections. Thus, the leading factor in the pathogenesis of HIV is damage to the immune system with the development of acquired, secondary immune deficiency.

Clinical manifestation.

The incubation period lasts from 2-4 weeks to 2-3 months, and according to some data it is longer. In this period of time, only the virus itself, its antigens or genetic material of the virus can be detected. The incubation period ends with seroconversion, i.e. the appearance of antibodies, and in some patients with the first clinical manifestations.

Several clinical classifications have been proposed. According to the international classification of the WHO, revised in 2006, the definition of a case of HIV infection includes: acute HIV infection, chronic HIV infection (stages 1 and 2), advanced HIV infection (stage 3) and AIDS (stage 4):

Clinical classification of stages of HIV infection in adults and adolescents	**Code according toICD-10**
ACUTE HIV INFECTION	
Asymptomatic	Z.21
Acute retroviral syndrome	B.23.0

CLINICAL STAGE I	
Asymptomatic course	Z.21
Persistent generalized lymphadenopathy	B.23.1
CLINICAL STAGE II	
Recurrent bacterial infections of the upper respiratory tract (sinusitis, otitis media, tonsillitis, pharyngitis - 2 or more episodes within 6 months)	B.20.1
Herpes Zoster	B.20.3
Angular cheilite	B.23.8
Recurrent aphthous stomatitis (two or more episodes within 6 months)	B.23.8
Papular pruritic dermatitis	B.23.8
Seborrheic dermatitis	B.23.8
Fungal lesions of nails	B.20.5
CLINICAL STAGE III	
Unmotivated chronic diarrhea lasting more than 1 month	B.22.7

Recurrent candidiasis (thrush) of the oral cavity (two or more episodes within 6 months)	B.20.4
Hairy leukoplakia of the tongue	B.23.8
Severe bacterial infections (pneumonia, meningitis, empyema, purulent myositis, arthritis or osteomyelitis, bacteremia, severe pelvic inflammatory disease, etc.)	B.20.1
Acute non-cortising ulcerative stomatitis, gingivitis or necrotizing ulcerative periodontitis	B.22.7
CLINICAL STAGE IV	
Pulmonary tuberculosis	B.20.0
Extrapulmonary tuberculosis (including lymph nodes)	B.20.0
Nontuberculous mycobacterial infection or disseminated nontuberculous mycobacteriosis	B.20.0
Pneumocystis pneumonia	B.20.6
Recurrent bacterial pneumonia (two or more episodes within one year)	B.20.1

Recurrent salmonellosis bacteremia caused by non-typhoidal Salmonella	B.20.1
Cytomegalovirus retinitis (± colitis)	B.20.2
Chronic or persistent infection caused by the herpes simplex virus lasting more than 1 month.	B.20.3
Progressive multiple leukoencephalopathy (PML)	B.20.3
Toxoplasmosis	B.20.8
Visceral leishmaniasis	B.20.8
Cryptosporidiosis (with diarrhea lasting more than 1 month)	B.20.8
Chronic isosporosis	B.20.8
Disseminated mycoses (candidiasis, coccidiomycosis, histoplasmosis)	B.20.4 B.20.5
Cryptococcal meningitis	B.20.5
Kaposi's sarcoma and HIV-associated malignant neoplasms (brain lymphoma, invasive cervical cancer, rectal carcinoma)	B.21.0 B.21.8
Hodgkin's T-cell lymphoma [1]	B.21.3

HIV-associated encephalopathy	B.22.0
HIV-associated cardiomyopathy	B.23.8
HIV-associated nephropathy	B.23.8
Exhaustion syndrome (HIV-cachexia)	B.22.2
Unmotivated weight loss (over 10% within 6 months)	B.22.2

However, HIV case reporting, which includes acute and chronic HIV infection, is done according to a standard case definition based on clinical and/or immunological criteria (Table 2).

Table 2

WHO stages of HIV infection for epidemiological surveillance

Stage of HIV infection	Absolute and relative number of CD4 lymphocytes
Acute HIV infection	
Chronic HIV infection	
Stage 1 (HIV infection)	≥ 500 cells/μL
Stage 2 (HIV infection)	350 - 499 cells/μL
Stage 3 (Advanced HIV infection)	300 - 349 cells/μL

Stage 4 (AIDS)	Absolute count < 200 cells/μL or relative count < 15%

Clinical manifestations of acute HIV infection are often non-specific and polymorphic. Allocate:

1. Syndrome of damage to the upper respiratory tract and lungs. Fever can be moderate or high, lasts from 2 to 6 weeks. The degree of intoxication corresponds to the fever. Patients complain of cough (dry or with sputum), runny nose, chest pain. Pharyngitis, tonsillitis or pneumonia clinic. Measles or rubella-like rash, transient lymphadenopathy and thrombocytopenia are possible. At the same time, antibacterial therapy is ineffective.

2. The syndrome of damage to the gastrointestinal tract is characterized by dyspeptic disorders. Patients complain of decreased appetite, nausea, vomiting, loose stools with mucus, with undigested food. The frequency of stool varies from 2-3 per day to 10-15. Duration from 3 days to three weeks.

3. Nervous system damage syndrome. Clinic of acute serous meningitis, meningoencephalitis, possible isolated damage to cranial nerves. The patient recovers in 2-3 weeks.

4. Lymphadenopathy syndrome. The clinic resembles infectious mononucleosis: undulant fever, tonsillitis, enlargement of lymph nodes, liver, spleen. In the blood, there are young forms of lymphocytes, which an inexperienced laboratory technician takes for atypical mononuclear cells.

5. Thrombocytopenia syndrome. Against the background of subfebrile temperature, patients complain of weakness, bleeding gums, and the appearance of "bruises" for no reason. In the blood - a decrease in platelets.

Most often, patients have a combination of several signs characteristic of each of the syndromes listed above.

After some time, all clinical manifestations of the acute period subside and the disease passes into the next phase - secondary latent. The duration of this stage is 2 years, sometimes up to 10 years. At this time, the patients feel quite satisfactory.

Then comes another phase - persistent generalized lymphadenopathy. Lymph nodes increase: most often located in the front and back cervical chains, submandibular, supra- and subclavian, axillary, less often - behind the ears, mesenteric, bronchopulmonary, the temperature may rise with frequent night sweats. To make a diagnosis of this form, it is necessary to enlarge 2 groups of lymph nodes (except inguinal) with a diameter of more than 1 cm for 3 months or more. The consistency of lymph nodes can be different. They can be soft (focal hyperplasia of follicles), dense (instead of lymph nodes - connective tissue), painless, not fused with surrounding tissues. The liver and spleen may be enlarged. The duration of this stage directly depends on the absolute number of CD4 lymphocytes.

The content of T-helpers in patients of this category is equal to or more than 500 cells per μl, the helper-suppressor index is reduced due to an increase in the content of CD8 lymphocytes. Antibodies to HIV appear in the blood of most patients, however, in 10% of patients antibodies appear later, after 3-6 months, and in 1% - later.

The most important syndromes of stages I-III are:

• localized damage to the skin and mucous membranes of viral, bacterial, fungal origin. The attachment of herpes viruses of type 1 and 2 is accompanied by painful rashes on the skin, in the mucous membranes of the genitals, and the anus.

Recurrences of shingles often lead to atrophy and scarring of the skin, large ulcers appear, which are complicated by bacterial infection.

An acute condyloma with localization more often in the area of the genitals is possible.

Hairy leukoplakia of the tongue (white overlays appear on the tongue that resemble hair - this is a keratinized epithelium that cannot be removed).

Characteristic vaginal candidiasis for more than 1 month, which is not amenable to treatment.

Streptoderma. Staphylocoderma.

The lack of generalization of the process is the main difference between this stage and AIDS;

People younger than 60 develop localized Kaposi's sarcoma (a vascular tumor from the endothelium of blood vessels). The first elements of Kaposi's sarcoma appear on the skin of the eye, on the cheek, the skin of the ears, on the back of the foot, first in the form of a pale pink spot up to 3 cm long. Then the spot darkens, acquires a purple-crimson, bluish and brown shade, increases in size and protrudes above the skin . Elements can merge, ulcers can form.

Peripheral neuropathy develops as a result of HIV damage to the spinal cord (progressive vacuolar myelopathy).

The defeat of internal organs by bacterial, viral, protozoan etiology is localized without dissemination. Bacterial pneumonias caused by streptococcus, staphylococcus, Klebsiella, Pseudomonas aeruginosa, etc. are most often observed. Pulmonary tuberculosis.

Cervical dysplasia.

In patients of this category, the number of T-helpers in blood serum ranges from 499-200 cells per μl. The helper-suppressor index is reduced due to a decrease in the number of CD4 lymphocytes.

Stage IV or directly AIDS is characterized by severe immunodeficiency, when the number of T-helpers in the blood serum is less than 200 cells per μl. Regardless of the number of CD4 lymphocytes, the presence of an AIDS clinic makes it possible to also diagnose AIDS.

For AIDS is a typical generalization of the process, most often caused by fungi, simpler viruses, bacteria. Joining of opportunistic infections caused by

opportunistic pathogens, infection with which in a person with a normally functioning immune system is not able to cause disease, or the infectious process proceeds easily.

Pneumocystis pneumonia in AIDS is the main cause of death. The causative agent is the yeast-like fungus Pneumocystis jiroveci (formerly carini).

The source of infection is a sick person or carrier.

The way of transmission is airborne. More than half of people (72%) become infected, but with a good immune response, the disease does not develop, with anergy, this seemingly "innocent disease" often ends in death.

The first stage of the disease is characterized by the development of alveolitis. As a result of thickening of the alveolar membrane (the membrane is sometimes 10 times thicker than normal), an alveolar-capillary block develops, which leads to a violation of gas exchange and the development of severe respiratory failure.

In patients with AIDS, the onset of pneumocystis pneumonia is hardly noticeable, the prodromal period lasts up to 3 weeks. The fever may not be high, but shortness of breath appears (the number of breaths is 30 or more per minute), cyanosis. The severity of the course is alarming with meager local data (auscultation - dry wheezes, on the X-ray - an increase in the pulmonary pattern). Then a non-productive cough appears with discharge of the so-called "milky" sputum (foamy, dense). During an X-ray examination carried out on the 3-4th week of the disease, you can see a fine mesh pattern, increased basal infiltration, the "frosted glass" symptom, cloud-like shadows, areas of balloon emphysema, that is, we see the lungs, as if through a veil. Patients die from severe respiratory failure .

The diagnosis is confirmed by the detection of pneumocysts in bronchial secretion obtained during bronchoscopy.

Prevention of pneumocystis pneumonia in AIDS patients is important. When the CD4-lymphocyte content is reduced to less than 200 cells in 1 μl, two tablets of trimethoprim-sulfamethoxazole (480 mg) are prescribed daily.

In the case of the development of pneumocystis pneumonia in AIDS patients, the gold standard of treatment is the appointment of trimethoprim-sulfamethoxazole (Biseptol, Bactrim, Septrim). With a severe or moderately severe course, the drug is administered intravenously (5-6 ampoules three times a day). After stabilization of the patient's condition, it is used in a dose of 1820 mg (four tablets of 480 mg) orally. Duration of treatment is 21 days. In mild cases, oral therapy can be prescribed immediately (order of the Ministry of Health of Ukraine No. 182 dated 04/13/2007).

Candidiasis is a disease caused by the fungi Candida albicans and Candida tropicalis.

Candida fungi are widespread in nature: they are found on the skin and mucous membranes of humans and animals, on environmental objects, food products, in the air, etc.

In an immunocompetent organism, candidiasis is most often manifested in the form of a carrier, oral lesions - thrush. It is possible to develop candidiasis of the large intestine, which is more often manifested by the clinic of ulcerative colitis with abdominal pain, unstable stool, impurities of pus and blood in the stool. The defeat by fungi of the vagina leads to the development of candidal vulvovaginitis, in which characteristic films are formed on the mucous membrane of the female genital organs.

With AIDS, visceral candidiasis develops with damage to the esophagus, bronchi, trachea, and lungs.

Esophageal candidiasis is characterized by dysphagia, a burning sensation and pain behind the sternum, vomiting and fever are common. Curd films, possible blood admixtures are sometimes found in vomitus. During fibrogastroscopy, it is possible to detect small whitish plaques of various sizes located on the swollen and hyperemic mucous membrane of the esophagus.

When the bronchi and trachea are damaged, there are disorders of the obstructive type: difficulty breathing, shortness of breath on exertion, spastic cough with a small amount of sputum.

When lung tissue is affected, the clinic resembles bacterial pneumonia: cough, chest pain when breathing appear. At first, the cough is with scanty sputum, and then with a lot. Sputum has a grayish color, with a heavy process, blood impurities appear in it. Depending on the severity of the process, the temperature can be subfebrile or even high.

The most reliable method of diagnosis is the detection of fungi in the examined material from mucous membranes, blood and other physiological fluids and selection of a pure culture.

For the treatment of esophageal candidiasis in patients with AIDS, fluconazole 400 mg is used, and after the disappearance of pain, 200 mg 1 time per day orally or intravenously for 14-21 days, or ketoconazole 200 mg 2 times a day, orally for 21 days.

Fluconazole 100 mg once orally or clotrimazole 500 mg once vaginally are used to treat vaginal candidiasis.

For the treatment of systemic candidiasis, fluconazole 600 mg is prescribed, at normal temperature - 400 mg once a day intravenously for 2-3 weeks or amphotericin B 0.6-0.8 mg / kg 1 time with per day intravenously for 2-3 weeks (order of the Ministry of Health of Ukraine No. 182 dated 04/13/2007)

Cryptococcosis is a disease caused by the widespread fungus Cryptococcus neoformans.

Cryptococci can be found in the soil, on various food products, and on vegetables. Most often, environmental infection occurs with pigeon droppings, in which cryptococci multiply in huge numbers. Human infection occurs mainly by inhaling dust particles containing cryptococci.

In immunocompetent patients, cryptococci do not cause the disease, or it is not manifested by acute bronchitis.

AIDS is characterized by extrapulmonary cryptococcosis. The central nervous system is most often affected by extrapulmonary cryptococcosis. The disease can develop acutely: against the background of fever and other general toxic phenomena (weakness, malaise, reduced work capacity), a headache appears in combination with meningeal signs; in the future, a disturbance of consciousness develops, a coma is possible.

However, more often damage to the central nervous system manifests itself gradually: weakness, reduced work capacity increase, in some patients, a progressive decrease in memory, intelligence, and even mental disorders is possible. In the future, meningoencephalitis usually develops, against the background of which there are focal neurological disorders; convulsions are possible. With meningitis, cryptococcal antigen is detected in the cerebrospinal fluid in 95% of cases.

Damage to the central nervous system in AIDS is often combined with damage and dysfunction of other organs and systems that develop against the background of generalization of the process (dissemination of infection).

The diagnosis of the disseminated process is based on the detection of fungi in the blood, urine, cerebrospinal fluid, as well as in biopsies of the affected organs (if it is possible to conduct a biopsy).

Prevention of cryptococcosis is important. When the CD4 lymphocyte count is reduced to <50/μl, fluconazole 100-200 mg once a day is prescribed.

When cryptococcosis develops in AIDS patients, amphotericin B 1.0 mg/kg once a day intravenously in combination with 5-flucytosine 25 mg/kg 4 times a day intravenously for 14 days is prescribed, despite the high toxicity; then fluconazole 400 mg 1 time per day orally for at least 10 weeks, then fluconazole 200 mg 1 time per day orally for a long time (order of the Ministry of Health of Ukraine No. 182 dated 04/13/2007)

Cryptosporidiosis is a protozoan infection caused by the intracellular parasite Cryptosporidium. The source of infection is animals: patients and carriers. The mechanism of transmission is fecal-oral.

Once inside the human body, oocysts calmly pass through the stomach and in the small intestine, 4 sporozoites are released from each oocyst, which are introduced into epithelial cells and multiply rapidly. Cryptosporodia are located inside the intestinal epithelial cells at the border between the villi and the cytoplasm. The villi atrophy, the cell does not receive nutrition, all types of metabolism are disturbed.

Diarrhea lasts 3-5 days in immunocompetent persons. Patients complain of fever, weakness, nausea, and abdominal pain. The chair can be 5-15 times a day. Excrement has a very unpleasant smell. In the future, within 2-3 weeks, the release of oocysts is possible.

With AIDS, the clinic is characterized by long debilitating fever, diarrhea that can last months and even years, when exhaustion reaches critical levels, rapid weight loss. Bronchopulmonary cryptosporidiosis is also possible, when the epithelium of the upper respiratory tract is affected. Shortness of breath, cyanosis.

Laboratory: microscopy of the researched material (sputum, duodenal contents, feces). Cryptosporodia can be seen with Ziel-Nilson staining.

For the treatment of cryptosporidiosis in AIDS patients, paramomycin 1.0 g 3 times a day is prescribed in combination with azithromycin 600 mg 1 time a day orally for 4 weeks; then paramomycin 1.0 g 2 times a day orally for 8 weeks (order of the Ministry of Health of Ukraine No. 182 dated 04/13/2007). Correction of fluid and electrolyte losses.

Toxoplasmosis is a protozoan disease. The causative agent is Toxoplasma gondii. The source of infection is animals, primarily cats, which excrete Toxoplasma oocysts in their feces. Oocysts can survive for many months in the soil of yards, gardens, sand pits, etc. Intermediate hosts of toxoplasma can be: humans, farm

animals, poultry, but they are safe for others. Human infection with tocoplasmosis occurs mainly through the fecal-oral mechanism:

- When swallowing cysts contained in insufficiently processed meat, especially pigs, rabbits;

- When swallowing oocysts released by cats, with food, water, when hands are contaminated, when caring for cats.

Transplacental infection is also possible.

Human infection with toxoplasma in different regions of the world ranges from 5% to 80% and it does not always lead to disease. Clinical manifestations in immunocompetent people are very polymorphic: lymphadenitis, nephritis, hepatitis, chorioretinitis, and others. Toxoplasmas can penetrate into the central nervous system, but there they remain in a passive state for years.

With AIDS, disseminated toxoplasmosis develops with manifestations of encephalitis, lungs, myocardium, liver and other organs. Symptoms of brain damage are very varied and depend on the localization of the process. The patient has a high fever, persistent headache, weakness. Hemiparesis, hemiplegia, aphasia, ataxia, tremor often occur. Confusion is possible. When the spinal cord is affected by toxoplasma, transverse myelitis develops.

The toxoplasmic genesis of encephalitis is confirmed by the detection of toxoplasma in the cerebrospinal fluid. Computed tomography and magnetic resonance imaging play an important role in the diagnosis of toxoplasmic encephalitis. Brain edema is found in almost all patients. The presence of contrast enhancement of multiple necrotic foci in the basal ganglia and white matter of the brain is determined.

In order to prevent toxoplasmosis in patients with AIDS, with a decrease in CD4 lymphocytes of less than 100 cl / μl, 2 pills of trimethoprim - sulfamethoxazole (TMP - SMZ) are prescribed daily.

When developing cerebral toxoplasmosis in AIDS patients, pyrimethamine 200 mg is prescribed once on the first day, then pyrimethamine 25 mg three times a day or 50 mg twice a day in combination with leucovorin 15 mg once a day and sulfadiazine 1.0 g orally every 6 hours 6 - 8 weeks (order of the Ministry of Health of Ukraine No. 182 dated 04/13/2007).

Among viral infections, herpetic and, above all, cytomegalovirus infection (CMV), which is found in 20-40% of HIV-infected people and is the cause of death of every fifth of them, are of primary importance.

The causative agent of CMV is a herpes virus of type 5, which is not sensitive to interferon. In addition, the synthesis of interferon in the cell, if cytomegalovirus has penetrated into it, is inhibited. Cytomegalovirus has the ability to persist in the body for life, in addition, CMV and HIV activate each other's effects. It is even possible to exchange the genetic information of CMV and HIV, which are in the same cell, which may result in the creation of mutant viruses.

The source of infection is a person. The virus is found in saliva, breast milk, urine, semen, and vaginal secretions. The way of transmission is transplacental, contact, parenteral. Cytomegalovirus, having penetrated into a cell, causes cytomegalovirus transformation of cells.

The cell becomes large, in the center of which is a very large "owl's eye" nucleus. Such cells can be found in any affected organ.

In most cases, infections are asymptomatic. In immunocompetent patients, clinically expressed forms occur mainly with mononucleosis-like syndrome.

In AIDS, there are disseminated lesions of various organs (except the liver, spleen, and lymph nodes), lungs, digestive tract, central nervous system, and eyes. In most cases, the disease develops imperceptibly, slowly. At first, patients experience increased fatigue, weakness, appetite worsens, then the temperature begins to rise, sweating appears. The defeat of the respiratory tract is most often manifested by the

clinic of pneumonia (usually interstitial). Patients are bothered by cough and shortness of breath, which intensifies as the disease progresses and hypoxia increases.

Damage to the digestive tract can occur at any level - from the esophagus to the rectum. In patients, against the background of fever, progressive exhaustion, and often diarrhea, signs of esophagitis appear (difficulty when swallowing, pain when food passes through the esophagus; erosions and even ulcers on the mucous membrane of the esophagus are detected during esophagoscopy), gastritis, stomach ulcers, colitis (abdominal pain, erosions and ulcers on the surface of the mucous membrane). Erosions and ulcers can be the cause of bleeding and even perforations with the development of peritonitis. When the intestines are damaged, progressive exhaustion develops especially quickly.

When the central nervous system is affected, encephalitis develops, which takes a chronic course and relatively quickly (after a few months or even weeks) leads to dementia.

Chorioretinitis caused by CMV infection is detected in 20-25% of AIDS patients (at first, the damage is unilateral, then the second eye is also affected). The process may be imperceptible in the initial stages, but as it progresses, it leads to blindness.

In order to prevent the dissemination of CMV infection in AIDS patients with a decrease in CD4 lymphocytes of less than 100 in 1 μl, primary prophylaxis with ganciclovir is necessary.

If there is a CMV infection clinic in AIDS patients, ganciclovir 5 mg/kg intravenously 2 times a day for 14-21 days, or foscarnet 90 mg/kg intravenously 2 times a day for 14 days are used (order of the Ministry of Health of Ukraine No. 182 dated 13.04. 2007)

Among bacterial infections, mycobacteriosis and tuberculosis are gaining the most relevance.

Mycobacteriosis (M.) can be caused by one of 40 types of mycobacteria. First of all, only some of them are pathogenic for humans

M. avium. The reservoir of M. avium is wild and domestic birds. In nature, mycobacteria are found on various environmental objects (soil, water, etc.). Human infection can occur with infected water and food products, aerosol inhalation of air containing mycobacteria, contact with mycobacteria on damaged skin.

mycobacteria, after entering the body of an immunocompetent patient, they behave as saprophytes. When immunity is reduced, some mycobacteria

(M. gordonae) is the cause of cervical lymphadenitis; others

(M. chelonei) cause the formation of abscesses in the skin, mild pneumonia. M.avium, as the most virulent, can cause severe pneumonia, which is accompanied by severe sweating, fever, cough with sputum, chest pain and is very similar to tuberculosis.

AIDS is characterized by the generalization of the process with damage not only to the skin, lymph nodes, lungs, but also to other organs. Pronounced intoxication syndrome (long debilitating fever, sweat, chills, weakness, rapid fatigue), abdominal pain, diarrhea, hepatosplenomegaly, sharp weight loss, anemia, leukopenia, thrombocytopenia.

The diagnosis is based on the isolation of mycobacteria from blood, sputum, lymph node biopsies. Sowing is carried out on special media - Levenstein and others.

Prevention of mycobacteriosis is important in AIDS patients. Azithromycin 1200 mg per week is prescribed when the CD4-lymphocyte count drops to 50 cl/μl or less.

In the presence of disseminated mycobacteriosis, patients with AIDS are prescribed clarithromycin 500-1000 mg 2 times a day in combination with ethambutol 400 mg 1 time a day and rifabutin 300-450 mg 1 time orally for 6 months (order of the Ministry of Health of Ukraine No. 182 of 13.04.2007 p.)

It is necessary to remember that any pathogen that can be destroyed only with the help of a powerful immune response is capable of causing serious diseases in AIDS. Deep immunosuppression leads to steady progression of the disease even against the background of retroviral therapy, which can ultimately lead to death.

In addition to opportunistic infections, the AIDS clinic may be caused by tumor processes, HIV encephalopathy.

The most significant neoplasms include generalized Kaposi's sarcoma, when, in addition to skin lesions, the larynx (croup clinic, obstruction), lungs (more often sarcoma near the pleura with severe pain syndrome), large intestine (bleeding, obstruction) is affected.

Non-Hodgkin's lymphomas (primary brain lymphoma) are second only to Kaposi's sarcoma. The disease progresses rapidly despite active chemotherapy.

When Kaposi's sarcoma is localized on the skin, radiation therapy is used, when it is visceral, antitumor drugs are prescribed.

5% of infected people develop HIV dementia or HIV dementia. Brain damage is not always accompanied by immunodeficiency.

The basis of HIV dementia is subacute encephalitis caused by HIV. The virus is neurotropic. As a result of virus reproduction in nerve cells, they degenerate.

The diagnosis of HIV dementia is established on the basis of the following criteria: impairment of cognitive, behavioral and motor functions, progressing over weeks and months. Patients develop weakness, drowsiness, inattention, and forgetfulness. Early intellectual disorders are manifested by a decrease in memory for names, phone numbers, addresses, slowed motor reactions, impoverishment of facial expressions. Then there is a tremor of the limbs, an unsteady gait, a change in handwriting, emotions are dulled, and the intellect clearly weakens. Cognitive functions are disturbed, drowsiness increases, sloppiness, indifference to everything, hyperkinesis appear. After a few months, severe dementia, paraparesis, urinary and fecal incontinence develop. Damage to the nervous system is irreversible.

A genetically determined predisposition to the development of AIDS has been established in individuals with the HLA locus DR5.

It should be noted that certain malfunctions in brain activity can be recognized in a considerable number (up to 50-75%) of HIV-infected people. This is a weakening of attention, slowness of reactions, difficulty in coordinating movements.

Laboratory diagnosis: To make a diagnosis of HIV infection, laboratory confirmation is required: the detection of antibodies to HIV, antigens, genetic material of the virus, as well as the virus itself. However, testing for HIV infection is carried out based on informed voluntary consent (Appendix 1).

Appendix 1

Назва міністерства, іншого центрального органу виконавчої влади, підприємства, установи, організації, у сфері управління яких перебуває заклад охорони здоров'я_____	МЕДИЧНА ДОКУМЕНТАЦІЯ Форма первинної облікової документації № 503-1/о ЗАТВЕРДЖЕНО Наказ МОЗ України 19.08.2005 № 415 Конфіденційна після заповнення
Найменування та місцезнаходження закладу, відповідальні особи якого заповнюють форму _____	
Ідентифікаційний код за ЄДРПОУ	

ІНФОРМОВАНА ЗГОДА НА ПРОХОДЖЕННЯ ТЕСТУ НА ВІЛ

Я, _____, _____ років,

(ПІБ)

Я, _____ _____, _____ років

(ПІБ)

добровільно звернувся/лася/лись до _____

(назва державного або комунального закладу охорони здоров'я)

щоб отримати *(потрібне відмітити у квадраті галочкою):*

- Індивідуальне консультування та тестування на ВІЛ-інфекцію ☐
- Консультування та тестування на ВІЛ-інфекцію сумісно з партнером ☐
- Консультування батьків для тестування дитини на ВІЛ-інфекцію ☐
- Проходження тесту на ВІЛ без консультування ☐

Я / ми підтверджую/ємо, що одержав/ла/ли інформацію щодо (*потрібне підкреслити, "так" чи "ні" окреслити колом):*

- процедури тестування на ВІЛ-інфекцію Так Ні
- умов одержання офіційного висновку (довідки) про результат тесту Так Ні
- заходів профілактики зараження і шляхи передачі ВІЛ Так Ні
- можливості отримання медичної, психологічної, консультативної та соціальної допомоги Так Ні

Я / ми підтверджую/ємо, що (*потрібне підкреслити, ” так” чи “ні” окреслити колом):*

- розумію/ємо можливі наслідки негативного або позитивного результату тесту Так Ні
- поінформований/на/ні про своє право відмовитися від тестування Так Ні
- поінформований/на/ні про те, що позитивний результат мого/нашої дитини тесту буде переданий в територіальний центр з профілактики та боротьби зі СНІДом з метою активного залучення мене / нас/ дитини для подальшого обстеження та лікування, в тому числі для проведення при необхідності антиретровірусної терапії Так Ні
- повністю задоволений/на/ні якістю отриманої інформації Так Ні

Я / ми підтверджую/ємо *(потрібне підкреслити, ” так” чи “ні” окреслити колом):*

- свою добровільну згоду на тестування на ВІЛ мене/нас/дитини та дозволяю/ємо закладу взяти зразок /зразки моєї /нашої крові / крові дитини (іншої біологічної рідини) для дослідження на ВІЛ Так Ні

Підпис пацієнта/батьків/іншого законного представника цієї особи

_____

Підпис пацієнта/батьків/іншого законного представника цієї особи

_____

ПІБ та підпис лікаря державного або комунального закладу охорони здоров’я

_____

Дата заповнення

Name of the ministry, other central body of executive power, enterprise, institution, organization in the sphere of management of which the health care institution is located_____ MEDICAL DOCUMENTATION

Name and location of the institution whose responsible persons fill out the form

_____

Identification code according to EDRPOU

MEDICAL DOCUMENTATION
Form of primary accounting documentation No. 503-1/o
APPROVED
Order of the Ministry of Health of Ukraine
19.08.2005 No. 415
Confidential after filling

INFORMED CONSENT TO BE TESTED FOR HIV

I, _____, _____ years old,

(surname**)**

I, _____ _____, _____ years old

(surname**)**

voluntarily applied to _____

(name of the state or municipal health care institution)

to get (need to check the box):

- Individual counseling and testing for HIV infection □ ☐
- HIV counseling and testing compatible with partner □ ☐
- Counseling parents to test their child for HIV infection □ ☐
- Taking an HIV test without counseling □ ☐

I/we confirm that I/we have received information regarding (it is necessary to underline, circle "yes" or "no"):

- • HIV testing procedures Yes No
- • conditions for receiving an official conclusion (certificate) about the test result Yes No
- • measures to prevent infection and ways of transmission of HIV Yes No
- • opportunities to receive medical, psychological, advisory and social assistance Yes No

I / we confirm that (it is necessary to underline, circle "yes" or "no"):

- • understand the possible consequences of a negative or positive test result Yes No
- • informed about his/her right to refuse testing Yes No
- • informed that the positive result of my/our child's test will be transferred to the territorial center for the prevention and fight against AIDS in order to actively involve me/us/the child for further examination and treatment, including for carrying out if necessary antiretroviral therapy Yes No
- • completely satisfied with the quality of the received information Yes No

I / we confirm that (it is necessary to underline, circle "yes" or "no"):

- • My voluntary consent to the HIV testing of me/us/the child and I/we allow the facility to take a sample/samples of my/our blood/the child's blood (other biological fluid) for HIV testing Yes No

Signature of the patient/parents/other legal representative of this person

_____

Signature of the patient/parents/other legal representative of this person

_____

Full name and signature of a doctor of a state or communal health care institution

_____

Date of completion

Already in the acute phase, antibodies to p24, gp 120 and gp 41 appear in many patients. The number of antibodies decreases during the AIDS period. Enzyme immunoassay (ELISA) is used to detect antibodies. If a positive result is obtained, the research is carried out 2 more times with the same serum and the same test system. With a positive result, the study is carried out with another test system, and then immunoblotting, which allows you to determine antibodies to individual proteins of the virus. Immunoblotting is based on electrophoresis. The result of immunoblotting is considered positive when the patient has antibodies to 2 or more viral proteins (gr 120, gr 41, r 24, r 18, etc.).

Determination of viral antigens. Most often, p24 proteins are determined by the ELISA method. The method is very simple, used at blood transfusion stations. The result is obtained after a few (3-5) minutes. However, the p24 protein can be detected only before it binds to antibodies to it, which, unfortunately, appear already in the early stages of the disease.

In recent years, PCR (polymerase chain reaction), which has a very high degree of sensitivity, has gained the most recognition. Test systems have appeared

that allow the determination of 20 HIV RNAs in 1 ml of blood serum. There are 2 PCR variants:

• detection of HIV RNA, which is part of virions (this method is used for quantitative determination of HIV content in blood and control of treatment);

• detection of HIV provirus DNA integrated into the genome of peripheral blood mononuclear cells (used to diagnose HIV infection).

It is recommended to use PCR in combination with ELISA (first ELISA, which detects antibodies, then PCR). These reactions are not interchangeable.

A probable sign of HIV infection is the isolation, cultivation and identification of the virus in cell cultures. However, this method is time-consuming, requires highly qualified performers and special equipment.

Auxiliary methods: 1. Immunological. Research on immune status is a mandatory component of the examination of HIV-infected patients, necessary for clarifying the stage of the disease, evaluating the effectiveness of treatment, predicting the course and results.

2. Microscopic, virological, bacteriological, mycological - important for detecting opportunistic infections.

Patient examination plan when the primary diagnosis of HIV infection is established:

• survey of complaints and collection of anamnesis (including anamnesis of illness and life, use of medicines; social anamnesis, etc.);

• objective (physical) examination;

• laboratory examination: determination of the number of CD4 lymphocytes; determination of HIV viral load in blood plasma; general analysis of blood, urine; biochemical blood test (bilirubin and its fractions, ALT, AST, LF, urea, creatinine); serological tests for markers of viral hepatitis B and C; screening tests for

tuberculosis, syphilis, gonorrhea, chlamydia, trichomoniasis, herpes simplex virus type 2; pap smear in women;

• instrumental examination (ultrasound of the abdominal cavity and kidneys, radiography of the chest cavity) and Mantoux test (order of the Ministry of Health of Ukraine No. 585 dated 10.07.2013).

Treatment.

Currently, there is no possibility of complete elimination of HIV from the human body. The goal of therapy is to prolong the patient's life and preserve the quality of life of infected persons for a longer period of time. Antiretroviral drugs are used for therapy. The essence of antiretroviral therapy (ART) is that reverse transcriptase builds the DNA code. It takes nucleotides one by one, and there are more than 9,000 of them, and connects them in a certain sequence. When prescribing, for example, azidothymidine reverse transcriptase mistakenly includes azidothymidine triphosphate in the growing chain of viral DNA instead of thymidine triphosphate. However, the molecule of azidothymidine triphosphate does not have a hydroxyl group, which is necessary for the formation of a bond with the following nucleotides. The virus is unable to correct this error and the construction of the DNA code stops, besides, azidothymidine triphosphate blocks reverse transcriptase.

Antiretroviral drugs are divided into four groups: nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs), protease inhibitors (PIs), and integral inhibitors (IIs).

NRTIs include: zidovudine (AZT), lamivudine (ZTS), stavudine (d4T), didanosine (ddI), abacavir (ABC), emtricitabine (FTC), tenofovir (TDF), combination zidovudine + lamifudine (AZT + ZTS), combination zidovudine + lamifudine + abacavir (AZT + ZTS + ABC).

NNRTIs include: efavirenz (EFV) and nevirapine (NVP), etravirine (ETR).

Protease inhibitors include: the combination of lopinavir + ritonavir (LPV / rtv), nelfinavir (NFV), pitonavir (RTV), saquinavir (SQV), atazanavir (ATV), fosamprenavir (FPV), darunavir (DRV).

Integrase inhibitors include raltegravir (RAL).

Antiretroviral drugs should be prescribed only in those cases when the patient clearly understands the strict adherence to the regimen of antiretroviral therapy throughout the patient's life and is ready to strictly comply with all the doctor's requirements. ART is carried out in the presence of the patient's written consent to conduct ART in compliance with the conditions of confidentiality of personal data and respect for the rights and freedoms of citizens defined by the legislation of Ukraine (Appendix 2) (Order of the Ministry of Health of Ukraine No. 585 dated 10.07.2013).

According to the order of the Ministry of Health of Ukraine No. 1292 dated June 5, 2019, ART should be started in all adults living with HIV, regardless of the clinical stage of the disease according to the WHO classification and with any number of CD4 cells (strong recommendation, average quality of evidence). ART should be initiated first in all adults with severe or late clinical stage HIV (WHO clinical stage 3 or 4) and in adults with CD4 cell counts ≤350 cells/mm3.

The main indications for prescribing ART are:

any AIDS-indicative disease;

• any HIV-related disease or condition;

• the number of CD4 lymphocytes is less than 350 cells/μl, regardless of the presence of symptoms;

• the number of CD4 lymphocytes 350 - 500 cells/μl, regardless of the presence of symptoms;

• pregnancy, regardless of virological, immunological or clinical indicators, in order to prevent the transmission of HIV from mother to child and preserve the health of the woman;

• HIV-associated nephropathy 1 with any early signs of renal dysfunction, regardless of the number of CD4 lymphocytes;

• patients with HBV/HIV co-infection, regardless of the number of CD4 lymphocytes, using drugs with dual activity against HIV and HBV;

• patients with HCV/HIV co-infection, regardless of the presence of liver cirrhosis, who receive treatment for viral hepatitis C and for whom treatment for viral hepatitis C is unavailable, regardless of the number of CD4 lymphocytes;

• patients with severe neurological or neurocognitive disorders, regardless of the number of CD4 lymphocytes;

• patients with Hodgkin's lymphoma associated with papillomavirus and non-HIV-associated malignant neoplasms, regardless of the number of CD4 lymphocytes;

• patients with a high risk of HIV transmission due to life characteristics: who are in serodiscordant couples (one of the partners is infected with HIV, and the other is not), in order to reduce the risk of HIV transmission during heterosexual contact, regardless of the number of CD4 lymphocytes;

• patients from other risk groups of HIV transmission;

Patients with a CD4-lymphocyte count of more than 500 cells/μl who do not meet any of the above criteria should be recommended ART in the following cases:

• high viral load (VL) of HIV (>100,000 copies/ml);

• a rapid decrease in the number of CD4 lymphocytes (by 120 cells/μl per year), which was confirmed by two studies with an interval of 14 - 28 days;

• the patient's age is over 50 years;

• presence of risk factors for diseases not associated with HIV (ischemic heart disease in history or high cardiovascular risk (>20% in the next 10 years), malignant neoplasms).

Since 1996, patients with HIV infection have been prescribed highly active antiretroviral therapy (HAARTV) with three drugs: 2 NRTI drugs and one NNRTI drug or 2 NRTI drugs and 1 PI drug.

According to the order of the Ministry of Health of Ukraine No. 1292 of 06/05/2019 first-line ART for adults consists of two NRTIs and a non-nucleoside reverse transcriptase inhibitor (NNRTI) or an IPI:

TDF (tenofovir disoproxil fumarate) + 3TC (lamivudine) (or FTC emtricitabine) + EFV (efavirenz) in a fixed-dose combination is recommended as the preferred initial ART option (strong recommendation, moderate quality of evidence).

The advantages of this scheme are: high efficiency, a limited range of side effects, no dependence on food intake, moderate cost of treatment. A disadvantage of efavirenz is the possibility of developing psychoneurological disorders (anxiety, sleep disturbances, depressed mood), pregnancy is among the contraindications.

If the combination of TDF+3TC (or FTC)+EFV is contraindicated or not available, one of the following alternatives is recommended:

• AZT (azidothymidine)+3TC+EFV;

• AZT+3TC+NVP (nevirapine);

• TDF+3TC (or FTC)+NVP (strong recommendation, moderate quality of evidence).

TDF+3TC (or FTC)+DTG (dolutegravir) or TDF+3TC (or FTC)+EFV at a dose of 400 mg/day can be used as an alternative to start ART (conditional recommendation, moderate quality of evidence).

The second-line ART regimen in adults should consist of two NRTIs plus a PI boosted by RTV (ritonavir).

The following sequence of second-line NRTI options is recommended:

• after failure with a first-line regimen based on TDF+3TC (or FTC), AZT+3TC should be used as the basis of NRTI in second-line regimens;

• after failure with a first-line regimen based on AZT or d4T (stavudine) +3TC, TDF+3TC (or FTC) should be used as the basis of NRTI in second-line regimens.

Table 3

Laboratory monitoring before and after starting ART

Phase of HIV management	Recommended	Preferably (if appropriate)
HIV diagnosis	HIV testing (serological research for adults and children over 18 months; early diagnosis newborns for children up to 18 months). CD4 cell count Screening on TV.	Serological research (HBsAg) for HBV. Serological research to viral hepatitis C (HCV). Antigen testing cryptococci (CrAg), if the number of CD4 cells ≤100 cells/mm3. Screening for sexually transmitted infections. Pregnancy testing to determine whether the priority of starting ART Assessment for discovery

		the main chronic non-infectious and concomitant diseases
Observations to beginning of ART	Quantification of CD4 cells (every 6–12 months provided that the beginning of ART postponed).	
The beginning of ART		Level definition hemoglobin to begin with AZT treatment. Pregnancy Test. Measurement arterial pressure. Level definition serum creatinine blood and GFR for beginning of TDFe treatment. Determination of ALT level for the start of NVP treatment. Quantification of CD4 cells at baseline

		treatment.
Receiving ART	Definition of viral load (on the 6th and the 12th month after Level definition serum creatinine and GFR at the start of ART and every 12 months thereafter). Quantification CD4 cells every 6 months to reach stability in the background use of ART.	Level definition serum creatinine blood and GFR at application of TDFc. Carrying out the test on pregnancy, especially in women of childbearing age who do not receive services regarding family planning and take DTG or EFV in low doses
Suspected failure treatment	Level definition serum creatinine blood and GFR at application of TDFc. Carrying out the test on pregnancy, especially in women of childbearing age,	Serological research on HBV (HBsAg), (fore by changing the ART scheme, if testing was not carried out or if the result was negative at the beginning treatment, but the person is not

	who do not receive services regarding family planning and accept DTG or EFV in low doses.	had a vaccination after this).

Evaluation of the effectiveness of antiretroviral therapy is carried out on the basis of the following criteria: achievement of clinical remission, reduction of the RNA level (it is desirable to reduce the level of HIV RNA to 50 copies in 1 ml of plasma and maintain this level of viral load for the longest possible time - years), increase in the content of CD4 lymphocytes. It is recommended to determine the number of HIV RNA and CD4 lymphocytes 1 month after the start of treatment and thereafter every 3-6 months.

In addition to ART, AIDS patients receive therapy for opportunistic infections (see above).

It is necessary to take into account the peculiarities of treatment of HIV infection in certain groups of the population (those suffering from an active form of tuberculosis, users of injection drugs, with co-infection of HBV / HIV, HCV / HIV).

Indications for hospitalization of HIV-infected persons are:

• the need to conduct planned studies that cannot be carried out in outpatient settings;

• prescription of ART in cases requiring hospitalization;

• the need to correct the ART scheme;

• development of toxicity or serious side effects of ART;

• opportunistic infections.

Patients with HIV infection and tuberculosis with bacteremia are provided with medical assistance in anti-tuberculosis dispensaries, tuberculosis hospitals of the relevant territorial medical associations (Order of the Ministry of Health of Ukraine No. 585 of 10.07.2013).

Appendix 2

Informed consent of the patient for antiretroviral therapy (ART)

I, _____,

(last name, first name of the patient)

with this document, I consent to antiretroviral therapy (ART).

With my personal signature, I confirm that _____

_____

(surname, first name of the infectious disease doctor, name of the health care facility where the infectious disease doctor works)

I was given information that I could understand about the nature, purpose, possible consequences, risks and complications of antiretroviral therapy (ART).

I was given the opportunity to ask questions about any possible side effects of the drugs, and to receive full, clear and comprehensive answers.

In the event of unforeseen situations and complications during antiretroviral therapy (ART), I agree in advance to take all necessary and possible measures to eliminate them.

I was given explanations about the need to adhere to the regimen of taking antiretroviral drugs.

I am warned that the voluntary interruption of antiretroviral therapy will lead to the deterioration of my health.

I am warned that during the period of antiretroviral therapy (ART), the use of alcohol and narcotic drugs and/or psychotropic substances may lead to deterioration of my health.

I have read the text of this Informed Consent. With my signature, I confirm full agreement with all of the above.

Signature: _____ Date of giving consent: _____

Dispensary monitoring of HIV-infected persons

Registration of HIV-infected persons and their medical supervision are carried out subject to their voluntary consent. Medical examinations, laboratory and instrumental examinations, counseling of patients are carried out in accordance with the "Clinical protocol of antiretroviral therapy of HIV infection in adults and adolescents", approved by the order of the Ministry of Health of Ukraine No. 551 of 12.06.2010

The frequency and scope of medical examinations depend on the stage of HIV infection and the rate of progression of the disease:

1) planned medical examinations and laboratory examinations are carried out at least once every 6 months; in cases of signs of progression of HIV infection - at least once every 3 months:

a) laboratory tests, which are carried out at least once every 6 months:

• determination of the number of CD4 lymphocytes;

• determination of HIV viral load in blood plasma;

• general analysis of blood, urine;

• biochemical examination of blood (bilirubin and its fractions, ALT, AST, LF, urea, creatinine);

b) laboratory tests, which are carried out at least once a year:

• serological tests for: cytomegalovirus (if the number of CD4 lymphocytes <100 cells / μl), toxoplasmosis, hepatitis B, hepatitis C, if the results of previous tests were negative;

• for women: Pap test;

• lipid fractions of blood;

• screening examinations for sexually transmitted infections (STIs) and tuberculosis;

Appointment of medical Pre-exposure prophylaxis of HIV infection (order of the Ministry of Health of Ukraine dated 05.02.2021 No. 189 "On approval of health care standards for pre-exposure prophylaxis and post-contact medical prevention of HIV infection")

Oral PrEP is prescribed for the prevention of HIV infection to people who are at high risk of HIV infection, as part of combined measures to prevent the transmission/spread of HIV.

Information, counseling on PCT, appointment of PCT are provided as part of combined prevention and integrated with other HIV prevention services, such as provision of condoms, HIV testing, diagnosis and treatment of STIs, counseling on adherence to PCT, use of contraceptives for women, substitution and maintenance therapy for individuals with mental and behavioral disorders due to opioid use.

Daily oral PrEP can be prescribed to all categories of adults, regardless of gender, sexual orientation or sexual behavior.

High risk of HIV infection

• Risky sexual behavior (see Appendix 2 to Standard 1).

• Having an HIV-positive sexual partner who is not taking ART or who is taking ART but has not achieved viral suppression of HIV.

• Appointment of PKP due to the risk of sexual infection during the last 6 months.

• Recent STD (sexually transmitted infection).

Criteria for inclusion in PrEP

1) Negative HIV status and

2) Absence of symptoms of acute HIV infection and

3) Consent to take PrEP as prescribed, including the necessary periodic HIV testing and other examinations

Contraindications to PrEP:

-Laboratory-confirmed HIV-positive status.

- Estimated creatinine clearance < 60 ml/min.

-Signs/symptoms of acute HIV infection, probable recent risk of HIV infection.

- Viral hepatitis B for the PrEP scheme.

- Contraindications to any component of PrEP

The PrEP involves the use of oral tenofovir disoproxil fumarate 300 mg (hereafter TDF) and emtricitabine 200 mg (hereafter FTC) or the combined dosage form of TDF/FTC, unless otherwise indicated separately.

PrEP for daily admission:

• It is prescribed to ALL people who have a potential risk of HIV infection, in particular, patients with chronic hepatitis B;

• The combined medicinal form of TDF/FTC is prescribed;

• Prescribed according to the scheme/regime: one tablet once a day,

daily during the period of risk of HIV infection, and an additional 28 days after cessation of risky practices.

7 days + (X days) + 28 days

where X is the number of days during which a person has risky practices and wishes to take PrEP;

PrEP if necessary "2+1+1":

Recommended for cisgender (gender identity corresponds to the one assigned to them at birth) MSM (man has sex with men) who engage in sexual acts less than 2 times a week; who can plan sex at least 2 hours in advance, or can delay sex for at least 2 hours;

A combined form of TDF/FTC is prescribed. Assigned according to the scheme:

two pills from 2 to 24 hours before sex; then one tablet within 24 hours after taking the first two tablets and taking the fourth tablet 48 hours after taking the first two tablets;

The dosage regimen "2+1+1" describes DKP-P when it comes to a separate sexual act. If sexual acts also occur in the following days, then one PrEP tablet can be continued daily as long as sex continues, and one tablet per day is taken for two days after the last sexual act.

Appointment of medical post-contact prophylaxis (PCP) of HIV infection (order of the Ministry of Health of of Ukraine dated February 5, 2021 No. 189) is a set of medical measures aimed at preventing the development of HIV infection after probable contact with this pathogen:

I. first aid,

II. counseling and risk assessment of HIV infection,

III. HIV testing after obtaining informed consent

IV. conducting a short course (28 days) of antiretroviral therapy (ART) depending on the degree of the assessed risk

V. providing support and follow-up.

PEP is carried out:

- with professional contact with HIV or a high probability of such contact;

- in case of accidental contact that is not related to professional activity;

- with a high probability of such contact, including in a medical institution.

Post-contact prevention of HIV transmission begins as soon as possible, but no later than 72 hours after a contact that could potentially result in HIV transmission, regardless of the type of such contact:

TDF + 3TC (or FTC) + DTG

Tenofovir disoproxil fumarate (TDF) 300 mg once a day

Lamivudine (3TC) 300 mg once daily (or emtricytobine (FTC) 200 mg once daily)

Dolutegravir (DTG) 50 mg once a day

Alternative control schemes

Boosted protease inhibitors instead of DTG:

Atazanavir ATV/r; Darunavir DRV/r; Lopinavir LPV/r

Persons who were subject to PEP, but did not receive it within 72 hours, are prescribed HIV testing after 3 months, informed about the risks of infection and preventive measures (condoms, lubricants, disposable needles, etc.).

The procedure for conducting emergency post-contact prophylaxis (PCP) of HIV infection among employees in the performance of professional duties
(Order of the Ministry of Health No. 955 dated November 5, 2013)

First aid procedure:

1. First aid is organized and carried out immediately after the case of contact with a source of potential HIV infection related to the performance of professional duties.

2. First aid includes treatment of the contact site:

a) in case of injury with a needle or other sharp instrument contaminated with human blood or biological materials: the place of contact is washed with soap and water; the injured surface is under running water for several minutes or until the bleeding stops. In the absence of running water, the damaged area is treated with a disinfectant gel or solution for washing hands. At the same time, it is not allowed to squeeze or rub the damaged area, squeeze or suck blood from the wound, use a solution of ethyl alcohol, iodine, hydrogen peroxide;

b) if blood or other potentially dangerous biological fluids come into contact with intact skin, the contact area is washed with soap and water;

c) if blood or other potentially dangerous biological fluids get into the eyes: the eye is washed with water or physiological solution. At the same time, it is not allowed: washing the eyes with soap or disinfectant solution; removing contact lenses while washing the eyes. After washing the eyes, contact lenses are removed and processed, after which they are considered safe for further use;

d) when blood or other potentially dangerous biological fluids get on the mucous membrane of the oral cavity: the liquid that entered the oral cavity is spit out, the oral cavity is rinsed several times with water or physiological solution; it is not allowed to use soap or disinfectant solutions for washing the oral cavity.

Examination for HIV of an employee who had the opportunity to come into contact with a source of potential HIV infection related to the performance

of professional duties (order of the Ministry of Health No. 955 dated November 5, 2013):

HIV testing of an employee who had the opportunity to come into contact with a source of potential HIV infection, related to the performance of professional duties, is carried out in accordance with the requirements of the Procedure for voluntary counseling and testing for HIV infection (protocol of the Ministry of Health No. 415 dated 19.08.2005) and The procedure for testing for HIV infection and the quality of research (Order of the Ministry of Health No. 1141 dated 12.21.2010).

Medical indications for the appointment of medical post-contact prophylaxis (MPCP) (order of the Ministry of Health No. 955 dated 05.11.2013): an employee who had the opportunity to contact a source of potential HIV infection must seek help within 72 hours after contact; depending on the real possibility of HIV infection, PKP is prescribed or not prescribed according to the main or alternative scheme of a short course (28 days) of antiretroviral therapy of the 1st line (according to the above scheme).

Careful control of adherence to treatment and possible adverse reactions includes a repeat examination - after 48-72 hours from the start of PKP; Referral of the employee to the health center for observation in connection with the reception of ART and their possible side effects is recommended (after the start of PKP!!!) necessarily after 2 weeks, after 4 weeks.

HIV testing is carried out no later than in the first 5 days after the application, then after 6 weeks, 12 weeks and 6 months (+ HBV, HCV) after contact, even if a decision has been made not to conduct PKP.

IF SEROCONVERSION HAS NOT HAPPENED DURING 6 MONTHS - HIV IS ABSENT !!!

Persons receiving PKP are recommended to:

• refrain from sexual contact without a condom (up to 6 months)

• within 6 months. not to be a blood, tissue, or sperm donor

• avoid pregnancy

• stop breastfeeding

• compliance with standard measures at the workplace when there is a risk of professional contact

• clinical and laboratory monitoring

When receiving information about a violation of the regime or termination of the PEP:

• - the PEP scheme is interrupted due to adverse drug reactions and less than 72 hours have passed since taking the last dose - it is recommended to update the PKP with the use of an alternative PEP scheme;

• - the PEP scheme is interrupted and at the same time less than 24 hours have passed since taking the last dose - it is recommended to immediately take the missed dose of the drug, continue PEP according to the regimen and conduct counseling on the formation of adherence to the use of drugs in accordance with the doctor's recommendations;

• - if the PEP scheme is interrupted and at the same time 24 - 72 hours have passed since taking the last dose - it is recommended to update the PEP with the use of an alternative scheme and conduct adherence counseling;

• - if the PEP scheme is interrupted and at the same time more than 72 hours have passed since taking the last dose of the drug, it is recommended to stop PEP.

Test tasks

1. Immunodeficiency virus refers to: A- paramyxoviruses; B * - retroviruses; C - herpesvirus; D - flaviviruses; E arboviruses.

2. How many structural genes does the immunodeficiency virus have: A - one; At two; With * - three; D- five; It's eight.

3. HIV genes encoding envelope glycoproteins include: A-p17; B- p24, C-endonuclease; D * - gp 120; All of the above is true.

4. The HIV genes encoding the formation of internal proteins include: A * - p24; B- gp120; C- gp41; D- endonuclease; All of the above is true.

5. HIV 1 is divided into subtypes according to the structure of the envelope glycoproteins: A-A-B; In the NE; C- A-D; D * - A-J; E A-K.

6. The HIV gene encodes all enzymes, with the exception of: A- endonuclease; B- proteinase; C- reverse transcriptase; D * - cholinesterase; Everything is true.

7. Control of virus replication is provided by: A-p24; B- gp120; With * - "tat" gene; D- endonuclease; E p17.

8. The virus is inactivated within 1 minute with: A * - boiling; B- ultraviolet radiation; C- ionizing radiation; D- freezing; Everything is true.

9. Slow infections include: A- malaria; B- tick-borne encephalitis; With * - HIV infection; D - Lyme disease; Well, all of the above is true.

10. HIV infection refers to diseases: A * - anthroponous; B- zooanthroponous; C- sapronosis; D - zoonosis; It is endemic.

11. HIV-infected people have the virus in: A- blood; B- sperm; C- vaginal secretion; D - saliva; E * - everything is correct.

12. The largest amount of virus in HIV-infected persons is contained in: A * - semen; In- sweat; C- tears; D- breast milk; E cerebrospinal fluid.

13. The mechanism of transmission of the immunodeficiency virus: A * - contact; B- air droplet; C- transmissive; D- fecal-oral; Everything is true.

14. An HIV-infected pregnant woman can infect the future child: A-transplacentally; B- intranatally; C- after birth - during breastfeeding; D * - everything is correct; Well, they are all wrong.

15. In order to prevent infection of the fetus of an HIV-infected woman, the following is prescribed: A * - zidovudine; B- ganciclovir; C- acyclovir; D-ribavirin; E pentamidine.

16. Blood-contact transmission of HIV is possible with: A- blood transfusion; B- erythrocyte mass; C- transplantation of infected organs; D- parenteral manipulations; E * - everything is correct.

17. Antigenic complex CD4 + has: A-cells of Langerhans; B- cells of oligodendroglia; C- alveolar macrophages; D- T helpers; E * - everything is correct.

18. The immunodeficiency virus can penetrate into: A- monocytes; B- macrophages; C- brain glial cells; D- T helpers; E * - all of the above is true.

19. HIV has a direct cytopathic effect on: A- cardiocytes; B- hepatocytes; With * - cells of the nervous system; D- Nephrocytes; Well, all of the above is true.

20. In a healthy person, the helper-suppressor index is equal to: A-0.3; B- 0.5; C-1.0; D * - 1.7; E 3.0.

21. Specific antibodies are produced by: A-T helpers; Po-T killers; C- β cells; D * - plasma cells; E macrophages.

22. In the construction of the DNA code of the immunodeficiency virus, the following are involved: A- endonuclease; B * - reverse transcriptase; C- phosphatase; D- cholinesterase; Everything is true.

23. Embeds the viral DNA code into the genome of the host cell: A * - endonuclease; B- reverse transcriptase; C- phosphatase; D- cholinesterase; Everything is true.

24. The reversion of viral DNA into RNA with the synthesis of RNA copies is largely determined by: A - viral endonuclease; B - reverse transcriptase of the virus; C * - protease of the virus; D- cholinesterase; E phosphatase.

25. In an HIV-infected macrophage: the A virus is constantly but slowly multiplying; B - the bactericidal activity of macrophages decreases; C- reduces the antigen-presenting ability of its T-helpers; D - antigen presentation to B-cells decreases; E * - all of the above is true.

26. HIV affects: A- endothelial cells of vascular plexuses of the brain; B- reduces the production of neuropeptides - hormones of the epiphyseal-hypothalamic complex; C- has a cytopathic effect on nerve cells; D- T helpers; E * - all of the above is true.

27. Immunodeficiency in HIV infection develops as a result of: A- activation of infected helpers; B- formation of syncytium; C- autoaggressions; D - death of healthy helpers, on the membrane of which CD4 has joined gp120; E * - everything is correct.

28. Syncytium during HIV infection is formed due to: A * - capture of healthy helpers by HIV-infected helpers; B- activation of T-killers; C - decrease in the number of T helpers; D- autoaggression; E polyclonal activation of antibodies.

29. The immunoregulatory index of CD4 + / CD8 + in the acute phase of HIV infection is reduced due to: A- a decrease in the number of CD4 lymphocytes; B - decrease in the number of CD8 lymphocytes; C - an increase in the number of CD4 lymphocytes; D * - increase in the number of CD8 lymphocytes; E increase in the number of plasma cells.

30. The immunoregulatory index CD4 / CD8 in the terminal phase of HIV infection is reduced due to: A * - decrease in the number of CD4 cells; B - increase in the number of CD4 cells; C - an increase in the number of CD8 cells; D - decrease in the number of CD8 cells; E decrease in the number of plasma cells.

31. In HIV-infected people: A- the number of gamma globulins decreases; B * - the number of gamma globulins increases; C - the number of normal killers decreases; D - the number of macrophages increases; E production of interferon increases.

32. Category A of HIV infection according to the classification adopted by the Center for Disease Control (1993) includes: A - viral load; B- acute stage; C - persistent generalized lymphadenopathy (PGLP); D- CD4 lymphocytes 500 cells / μl; E * - everything is correct.

33. An HIV-infected person complained of fever, headache, and vomiting. Positive meningeal signs (Kernig's symptom, Brudzinsky's). Cerebrospinal fluid is transparent, cytosis of 30 cells due to lymphocytes. CD4 lymphocytes in the blood are

550 cells/μl. Stage of HIV infection: A * - acute stage; B- latent period, C- PGLP; D- AIDS associated complex; E AIDS.

34. The patient has a fever of T-37.5-38.0 ° for 5 weeks. Complaints of sore throat. Tonsils are hypertrophied, submandibular, posterior, subclavian, inguinal lymph nodes are enlarged. Hepatosplenomegaly. Immunoblotting revealed antibodies to HIV 1, in the immunogram of CD4 lymphocytes - 520 cells / μl. Determine the stage of HIV infection: A- primary latent period; B- secondary latent period; With * - generalized lymphadenopathy; D- AIDS associated complex; E AIDS.

35. The stage of persistent generalized lymphadenopathy in HIV-infected patients can be diagnosed under the following conditions: A - the patient complains of increased temperature, sweating; B - an increase in at least 2 groups of lymph nodes (not including inguinal), C - the presence of CD4 lymphocytes in the amount of at least 500 cells / μl; D- possible enlargement of the liver: E * - all of the above are correct.

36. 64. For 3 weeks, patient A. had a low-grade fever, weakness, abdominal pain, an increase in the number of bowel movements up to 8-10 times a day, weight loss. PCR - HIV RNA. In the immunogram of CD4 lymphocytes - 150 cells / μl. CD8 lymphocytes -150 cells / μl. Diagnosis: A- acute stage of HIV infection; B- secondary latency; S- ГГНС; D- AIDS-associated complex; E * - AIDS.

37. In an HIV-infected patient, against the background of subfebrile temperature, bleeding gums appeared, weakness increased, "bruises" began to appear on the skin for no reason. In the immunogram - CD4 lymphocytes - 560 cells / μl, the CD4 + / CD8 + index is 1.4. Thrombocytopenia in the blood. Determine the stage of the disease. A- primary latent; B * - acute stage; C- generalized lymphadenopathy; D- dementia; E AIDS.

38. Localized Kaposi's sarcoma in an HIV-infected person is observed during: A- secondary latency; B- acute stage; C- with generalized lymphadenopathy; D * - AIDS-associated complex; E with AIDS.

39. HIV-infected for 2 months complains of vaginal candidiasis, which is not amenable to treatment, in addition, acute genital warts were found. Determine the stage

of the disease: A- acute stage; B- secondary latent period; C- LPG; D * - AIDS-associated complex; E AIDS.

40. Peripheral neuropathy was detected in an HIV-infected person. In the immunogram - CD4 lymphocytes in the amount of 380 cells / μl. Stage of the disease? A- acute; B- LPG; C- dementia; D * - AIDS associated complex; E AIDS.

41. AIDS-associated complex is diagnosed in an HIV-infected woman in case of: A- presence of localized Kaposi's sarcoma; B - tuberculosis of the lungs, which is not amenable to treatment; C - cervical dysplasia; D- frequent relapses of shingles; E * - everything is correct.

42. The causative agent of pneumocystis pneumonia is: A- mycoplasma; B * - yeast-like fungi; C- chlamydia; D- the simplest; E rickettsiae.

43. The source of pneumocystis pneumonia infection is infected: A- rodents; B * - a person; C - pigs; D - birds; Everything is true.

44. The main mechanism of transmission of pneumocystis pneumonia: A- contact; B- fecal-oral; With * - air droplet; D- transmissive; Everything is true.

45. In which disease in HIV-infected patients is a fine-mesh pattern ("frosted glass" symptom) detected on radiography: A- pneumococcal pneumonia; B- croupous pneumonia; C* - pneumocystis pneumonia; D- tuberculosis; E candidiasis.

46. In which disease in AIDS patients, the thickness of the alveolar membrane increases 5-20 times compared to normal: A- cryptosporidiosis; Tuberculosis; C- toxoplasmosis; D * - pneumocystis pneumonia; E cytomegalovirus infection.

47. Prevention of pneumocystis pneumonia in HIV-infected patients is carried out with the content of CD4 lymphocytes in the blood in the amount: A * - 150 cl / μl; B- 250 cl / μl; C- 350 cl / μl; D- 500 cl / μl; Eh, that's right.

48. For the treatment of pneumocystis pneumonia in AIDS patients, the following are used: A- biseptol; B- clindamycin; C- pentamidine; D- dapsone-trimetaprim; E * - everything is correct.

49. In an immunocompetent organism, candidiasis can manifest itself in the form of: A- nociception; B- oral lesions (thrush); C - candidal vulvovaginitis; D - candidiasis of the large intestine; E * - everything is correct.

50. The diagnosis of AIDS is valid for: A * - candidiasis of the esophagus, bronchi, lungs; B- colon candidiasis; C - candidal vulvovaginitis; D- streptoderma; Everything is true.

51. For the treatment of candidiasis, you can use: A-miconazole; B-ketoconazole; C- fluconazole; D- amphotericin B; E * - everything is correct.

52. The causative agent of cryptococcosis is: A- bacteria; V- rickettsia; With * - mushrooms; D - D- the simplest; And viruses.

53. The main mechanism of transmission in cryptococcosis: A- contact; B * - air-dust; C- transmissive; D- transplacental; It is intranatal.

54. An HIV-infected person complains of weakness, memory loss, fever, headache, vomiting. Kernig's and Brudzinsky's signs are positive. Cryptococcal antigen was isolated from cerebrospinal fluid. Determine the stage of the disease: A-acute; B- latent for the second time; C- PGLP; D- AIDS-associated complex; E * - AIDS.

55. Prevention of cryptococcosis in an HIV-infected person is carried out with the content of CD4 lymphocytes in the blood in the amount: A * - 50 cl / μl; B-200 cl / μl; C- 300 cl / μl; D- 400 cl / μl; Everything is true.

56. In the therapy of cryptococcosis, the following are used: A- acyclovir; B-ganciclovir; With * - fluconazole; D - pentamidine; E interferon.

57. The causative agent of cryptosporidiosis is: A- bacteria; V- rickettsia; C - mushrooms; D * - the simplest; And viruses.

58. The source of infection of cryptosporidiosis is infectious: A - a person; B * - animals; C- birds; D - insects; Everything is true.

59. The main mechanism of transmission of cryptosporidiosis: A- contact; B-air droplet; With * - fecal-oral; D- transmissive; It is intranatal.

60. Method of laboratory diagnosis of cryptosporidiosis: A - bacteriological; B- virological; With * - microscopic; D- mycological; It is allergic.

61. An HIV-infected person complains of fever, nausea, abdominal pain lasting for 2 months, frequent watery stools up to 10 times a day, weight loss. Cryptosporidium

oocysts were isolated from feces. Determine the stage of HIV infection. A- acute; B- latent for the second time; C- PGLP; D- AIDS associated complex; E * - AIDS.

62. In the therapy of cryptosporidiosis, the following are used: A * - azithromycin; B- acyclovir; C- fluconazole; D- ganciclovir; E foscarnet.

63. The causative agent of toxoplasmosis is: A- viruses; B- bacteria; S- rickettsia; D * - the simplest; E-mushrooms.

64. Infection with toxoplasmosis is possible: A- through air and dust; B- when eating meat from infected animals; C- with contaminated food and water; D- transplacental; E * - everything is correct.

65. Clinical manifestations of toxoplasmosis may manifest in immunocompetent persons: A- lymphadenitis; B- hepatitis; C- pneumonia; D- chorioretinitis; E * - everything is correct.

66. A marker of AIDS in an HIV-infected person is toxoplasmosis: A * - brain; B- eyes; C- liver; D- lungs; Everything is true.

67. Prophylaxis of toxoplasmosis in HIV-infected persons is prescribed in the presence of CD4 lymphocytes in the amount: A- 500 cells / μl; B- 300 cl / μl; C-200 cl / μl; D * - less than 100 cl / μl; Everything is true.

68. Toxoplasmosis is treated with: A- ganciclovir; B * - pyrimethamine; C- antibiotics; D- fluconazole; E interferon.

69. The source of cytomegalovirus infection is infected: A- rodents; B- wild animals; C - cattle; D * - a person; Everything is true.

70. In a patient with cytomegalovirus, the virus is found: A- in semen; B- vaginal secretion; C - saliva; D- breast milk; E * - everything is correct.

71. Possible mechanism of cytomegalovirus infection: A- contact; B- parenteral; C- transplacental; D- intranatal; E * - everything is correct.

72. In AIDS, cytomegalovirus affects: A- lungs (pneumonia); B- digestive tract (esophagitis, gastritis, colitis); C- Central nervous system (encephalitis); D- eyes (chorioretinitis); E * - everything is correct.

73. Prevention of cytomegalovirus infection in HIV-infected persons is carried out with the content of CD4-lymphocytes in the blood in the amount: A * - 100 cl / μl; B- 300 cl / μl; C- 400 cl / μl; D-500 cl / μl; Everything is true.

74. In patients with cytomegalovirus infection, use: A * - ganciclovir; B- dapsone; C- pyrimethamine; D- fluconazole; E amphotericin.

75. The main source of mycobacteriosis is: A - ticks; B- a person; With * - birds; D - soil; It's water.

76. Infection with mycobacteriosis is possible through: A- infected food products; B- infected water; C- aerosol; D- through damaged skin; E * - everything is correct.

77. In an HIV-infected patient, an increase of up to 2 cm of submandibular and cervical lymph nodes was found, the skin above them was not changed, and the lymph nodes were not fused. Gordonae mycobacteria were isolated from lymph node biopsies. In the immunogram - CD4 lymphocytes - 300 cells / μl, CD4 + / CD8 + is equal to 1.2. Determine the stage of HIV infection: A- acute; B- latent for the second time; C- PGLP; D * - AIDS-associated complex; E AIDS.

78. An HIV-infected person complains of severe sweating, temperature rise - 38.5 °, cough with sputum, chest pain. X-ray - focal pneumonia. Kansasii mycobacteria were isolated from sputum. In the immunogram, CD4 lymphocytes - 400 cells / μl, CD8 lymphocytes - 300 cells / μl. Determine the stage of HIV infection: A - acute; B- latent for the second time; C- PGLP; D * - AIDS-associated complex; E AIDS.

79. Patient A. is 30 years old, has had a fever of 38.0-38.9 ° C, weakness, abdominal pain, diarrhea, and weight loss for 2 months. Anemia, leukopenia, thrombocytopenia. PCR - HIV RNA. Mycobacteria avium were isolated from the blood. In the immunogram: CD4 lymphocytes - 90 cells / μl. The CD4 + / CD8 + index is 1.0. Diagnosis: A- acute stage of HIV infection; B- mycobacteriosis; C- PGLP HIV infection; D- AIDS-associated complex; E * - AIDS. Mycobacteriosis.

80. Prevention of mycobacteriosis in HIV-infected persons is carried out with the content of CD4 lymphocytes in the blood in the amount: A * - 50 cl / μl; B- 200 cl / μl; C- 300 cl / μl; D- 500 cl / μl; Everything is true.

81. Mycobacteriosis is treated with: A- immunoglobulin; B- interferon; With * - antibiotics; D- acyclovir; And dapsone.

82. In a patient with HIV infection, generalized Kaposi's sarcoma was detected (on the face, trunk, lungs and large intestine). Determine the stage of the disease: A- acute; B- latent for the second time; C- PGLP; D- AIDS-associated complex; E * - AIDS.

83. When Kaposi's sarcoma is localized on the skin, therapy is prescribed: A- pentamidine; B- antibiotics; With * - radiation therapy; D- biseptol; Everything is true.

84. An HIV-infected person was diagnosed with primary lymphoma of the brain. Determine the stage of the disease. A- acute; B- latent for the second time; C- PGLP; D- AIDS-associated complex; E * - AIDS.

85. An HIV-infected person complains of pronounced weakness, drowsiness, inattention, memory loss, unsteady gait. The patient is untidy, indifferent to everyone. Impoverishment of facial expressions, slowing down of motor reactions is noted. A- lymphoma of the brain; B- encephalitis; With * - dementia; D- AIDS-associated complex; E cytomegalovirus infection.

86. The diagnosis of AIDS in HIV-infected persons is valid in the presence of: A- generalized Kaposi's sarcoma; B- pneumocystis pneumonia; C- cerebral toxoplasmosis; D- disseminated mycobacteriosis; E * - everything is correct.

87. The diagnosis of HIV infection is confirmed by the laboratory in the presence of antibodies to: A- gp120 in the blood by the ELISA method; B- gp 41; C * - immunoblotting; D- immunogram; Everything is true.

88. The diagnosis of HIV infection can be laboratory confirmed by the method: A- PCR - detection of HIV RNA; B- PCR - detection of HIV provirus DNA; C- ELISA - determination of antibodies; D- ELISA - determination of virus fragments; E * - everything is correct.

89. The main method of laboratory diagnosis of HIV infection, which confirms the stage of the disease, is: A- CD8 lymphocytes; B * - CD4 lymphocytes; C- B cells (CD19 +); D- immunoglobulins; Everything is true.

90. During the initial examination of an HIV-infected person, it is necessary to examine: A- general analysis of blood and urine; B- biochemical indicators (bilirubin, ALT, creatinine, blood urea, sugar, protein and blood albumin); S- feces on the eggs of helminths and protozoa; D - complex of CD4 lymphocytes; E * - everything is correct.

91. During the initial examination of an HIV-infected patient, it is necessary to conduct: A- chest X-ray; B- serological examination for syphilis; C- put a tuberculin test; D- gynecological examination; E * - everything is correct.

92.K Nucleoside reverse transcriptase inhibitors (NRTIs) include: A- efavirenz; B * - zidovudine; C- nevirapine; D- lopinavir; Everything is true.

93. Non-nucleoside reverse transcriptase inhibitors (NNRTIs) include: A * - efavirenz; B- zidovudine; S- lamivudine; D- lopinavir; Everything is true.

94. Protease inhibitors (PIs) include: A- efavirenz; B * - lopinavir; C- zidovudine; D- lamivudine; Everything is true.

95. Integrase inhibitors include: A * - raltegravir, B - zidovudine; S- lamivudine; D- lopinavir; Everything is true.

96. Antiretroviral therapy for HIV-infected patients is prescribed for: A- when the number of CD4 lymphocytes is <350 cells / μl; B- generalized mycobacteriosis; C- pneumocystis pneumonia; D - pregnant women; E * - everything is correct.

97. Highly active antiretroviral therapy (HAARTVT) is carried out according to the scheme: A-NNIRT; B * - 2 NRTIs + 1 NNRTI; C- 3 NSAIDs + 1 NNOT; D- 1 NRTI + 2 NNRTI; E 2 NIZT + 2 NNOT.

98. Highly active antiretroviral therapy (HAARTVT) is carried out according to the scheme: A * - 2 NRTIsT + 1 IP; B- 1 NNOT + 1IP; C- 1 NNOT + 2 IP; D- 2 NRTIs + 2 PIs; E 1 NNZT + 1 VP.

99. For the first time, a patient with HIV co-infection / active pulmonary tuberculosis was detected. The number of CD4 lymphocytes is more than 350 cells / μl. Therapy: A- start antiretroviral therapy; B * - antiviral drugs should be prescribed after the completion of the tuberculosis treatment course; C - to combine antiviral and antituberculosis drugs; D - antiretroviral therapy is contraindicated; Eh, that's right.

100. The basis of nucleoside antiretroviral therapy for patients with CHB / HIV co-infection can include all, except: A - tenofovir; B - emtricitabine, S - lamivudine; D * - zidovudine; Everything is true.

Multilevel situational task

You are a doctor in the reception department of an infectious disease hospital. A 22-year-old female patient was brought in by the medical team with complaints of loose bowel movements for 2 months, weight loss of 13 kg, weakness, constant subfebrile temperature, dry cough for a month, shortness of breath. It is known from the anamnesis that he uses injectable drugs. During the examination, there is no rash on the skin, generalized lymphadenopathy, hard breathing above the lungs, enlargement of the liver up to 2 cm. Meningeal signs are negative.

Your next steps

Hospitalize, determine the level of CD4 lymphocytes

Hospitalize, prescribe a bacteriological examination of stools

*Hospitalize, prescribe specific studies

Hospitalize, prescribe X-ray of chest organs

Conduct a consultation and refer to a narcologist

Define a specific study to confirm the diagnosis?

IgG to early EA antigen of Epstein-Barr virus by ELISA method

IgG to VCA capsid antigen of Epstein-Barr virus

IgG to the nuclear antigen EBNA of the Epstein-Barr virus

IgG to cytomegalovirus

*antibodies to the human immunodeficiency virus by enzyme-linked immunosorbent assay

Which of the results has a diagnostic value?

(reference values up to 0.8 are negative; more than 1.1 are positive;

0.9-1.0 - doubtful result)

The level of antibodies is 0.08

The level of antibodies is 0.8

The level of antibodies is 0.01

The level of antibodies is 0.1

*Antibody level 10.0

Make a clinical diagnosis

*Disease caused by HIV

Asymptomatic HIV carrier

Cytomegalovirus infection

Infectious mononucleosis

Influenza complicated by pneumonia

Determine treatment tactics

Oseltamivir 75 mg 2 times a day, per os

Appointment of antibacterial therapy from the penicillin group

*Prescribing antiretroviral therapy in combination with means for the prevention of opportunistic infections

Appointment of antiretroviral therapy in combination with antibacterial agents of the cephalosporin group

Appointment of therapy with trimethoprim + sulfamethoxazole

Regulations.

LAW OF UKRAINE No. 1972-XII dated 12.12.1991

On combating the spread of diseases caused by the human immunodeficiency virus (HIV), and legal and social protection of people living with HIV

(extract)

(Reports of the Verkhovna Rada of Ukraine (VVR), 1992, No. 11, Article 152)

{Enforced by Resolution of the Supreme Court No. 1973-XII (1973-12) dated 12.12.91, Supreme Court, 1992, No. 11, Article 153}

{As amended by Law No. 155/98-VR dated 03.03.98, Law No. 35, Article 235, 1998}

{With changes introduced in accordance with Laws N 2776-III (2776-14) dated 11/15/2001, VVR, 2002, N 6, Article 41 N 1257-VI (1257-17) dated 04/14/2009, VVR, 2009, N 36-37, Article 514}

{As amended by Law No. 2861-VI (2861-17) dated 12.23.2010, VVR, 2011, No. 30, Article 274}

{With changes introduced in accordance with Laws N 4565-VI (4565-17) dated 22.03.2012, VVR, 2012, N 51, Article 574 N 5460-VI (5460-17) dated 16.10.2012, VVR, 2014, N 2-3, Article 41}

{In the text of the Law, the words "specially authorized central body of executive power in the field of health care" in all cases are replaced by the words "central body of executive power that ensures the formation of state policy in the field of health care" in the corresponding case according to Law No. 5460 -VI (5460-17) dated 10.16.2012 }

Chapter II Conditions and procedure for detecting HIV infection. Providing medical care to HIV-infected people. Registration, accounting of HIV-infected persons and their medical supervision

Article 6. The right of a person to testing for the purpose of HIV detection, the conditions and procedure for conducting it

1. Citizens of Ukraine, foreigners and stateless persons permanently residing in Ukraine, persons who have applied for refugee status and who have been granted refugee status in Ukraine, other foreigners and stateless persons who are temporarily staying on the territory of Ukraine on legal grounds, have the right to conduct testing for the purpose of detecting HIV (hereinafter - testing) with receiving qualified consultation before and after testing, which is carried out in accordance with the protocol for conducting such testing, approved by the central executive body, which ensures the formation of state policy in the field of health care .

2. Testing of persons aged 14 and older is carried out voluntarily, in the presence of the informed consent of the person, obtained after providing him with a preliminary consultation on the specifics of the testing, its results and possible consequences, in compliance with the conditions regarding the confidentiality of personal data, including data on the state personal health.

3. Testing of children under the age of 14 and persons recognized as legally incompetent is carried out at the request of their parents or legal representatives and in the presence of conscious informed consent. Parents and legal representatives of the mentioned persons have the right to be present during such testing, familiarized with its results and are obliged to ensure the preservation of confidentiality of data on the HIV status of the persons whose interests they represent.

Testing of children under the age of 14, who are deprived of parental care and are under the care of children or educational institutions with full state maintenance, is carried out if they are aware of the consequences and benefits of such an examination at the request of their legal representatives and on the condition of the informed consent of such persons only for the purpose of prescribing treatment, care and support for

children in connection with HIV infection. The legal representatives of such minors have the right to be informed of the results of the said testing and are obliged to ensure the confidentiality of data on the HIV status of the persons whose interests they represent.

4. Free testing for the purpose of detecting HIV, appropriate pre-test and post-test counseling, preparation and issuance of a conclusion on the results of such testing can be carried out by medical institutions regardless of the form of ownership and subordination, social support services and other organizations working in the field of combating the spread of diseases caused by HIV, have an appropriate license to carry out this type of activity and a medical laboratory accredited in accordance with the procedure established by law (hereinafter referred to as the institution that conducted the testing).

Test systems are used for testing that have been tested in accredited laboratories in accordance with the procedure established by law and have documentary evidence of their quality.

5. A person who has undergone testing for the purpose of detecting HIV has the right to retest free of charge in accordance with the procedure established by this Law and the normative acts issued in accordance with it.

6. The sequence of actions for establishing a diagnosis of HIV infection is approved by the central executive body, which ensures the formation of state policy in the field of health care.

7. At the request of the person who applied for HIV testing, such testing can be conducted anonymously.

Article 7. Notification of HIV testing results and post-test counseling of HIV-infected persons

1. A person in whose body HIV has been detected according to testing data shall be notified of this by an employee authorized to do so by the institution that conducted the test, taking into account the requirements of this Law regarding the

confidentiality of the specified information, in accordance with the procedure established by the central executive body, which ensures the formation of state policy in the field of health care.

2. Qualified post-test counseling is a mandatory component of HIV testing, during which a person diagnosed with HIV must be informed about preventive measures necessary to maintain the health of an HIV-infected person, prevent the further spread of HIV, about guarantees of compliance rights and freedoms of people living with HIV, as well as criminal liability for knowingly putting another person at risk of infection and/or contracting HIV.

During post-test counseling, the employee of the institution that conducted the test has the right to offer the person who has been diagnosed with HIV, with her consent, to inform her partner(s) about the risk of HIV infection and to provide recommendations on the need for HIV testing and the use of preventive measures.

3. In the case of detection of HIV in children under 14 years of age and persons recognized as incompetent in accordance with the procedure established by law, the authorized medical worker shall notify the parents or other legal representatives of the said persons. In such a case, the parents or other legal representatives of such HIV-infected persons should be provided with appropriate counseling aimed at ensuring that they make appropriate informed decisions regarding the treatment, care and support of their wards and that their legal rights and interests are properly protected.

4. A person in whom HIV was detected as a result of testing, parents or authorized representatives of children under 14 years of age, in whom HIV was detected as a result of testing, are obliged to provide an authorized employee of the institution that conducted the test with a written confirmation in an arbitrary form under their own signature regarding obtaining information about preventive measures necessary for maintaining the health of an HIV-infected person, preventing the further spread of HIV, about guarantees of compliance with the rights and freedoms of people living with HIV, as well as about criminal liability for knowingly putting another person at risk of infection and/ or HIV infection.

Article 8. Laboratory research of donor blood and its components

1. Blood (its components) received from blood donors (its components), organs, tissues and other biological materials of a person intended for use in medical practice are subject to mandatory laboratory testing for the presence of HIV infection.

2. Transfusion of blood (its components) obtained from donors and the use in medical practice of human organs, tissues and other biological materials obtained from donors are allowed only after a mandatory laboratory test for HIV infection and confirmation of the absence of the causative agent of HIV infection in those intended for the specified use of biological materials.

3. In the event of a real threat to the life of a person, the only means of saving which is an urgent blood transfusion, and in the absence of properly tested donor blood, with the conscious informed consent of the patient or his legal representative, blood transfusion tested for HIV infection using tests for express diagnostics that have passed tests in accredited laboratories in accordance with the procedure established by law and have documentary evidence of their quality.

The fact of transfusion of blood tested for HIV infection using rapid diagnostic tests and the patient's or his legal representative's informed consent to such a medical intervention must be documented in writing in the patient's medical records, and a sample of such blood must be urgently sent for appropriate laboratory testing research.

If it is impossible to obtain the informed informed consent of the patient or the consent of his legal representative, the decision on blood transfusion is made by a council of doctors, and in case of impossibility of convening a council - by the doctor who provides medical assistance.

Article 9. Registration and accounting of people living with HIV, medical supervision of them

1. Registration, record-keeping of people living with HIV, and medical supervision of these persons are provided by relevant health care institutions of state and communal ownership, determined by a specially authorized central body of the

executive power, which implements the state policy in the field of combating HIV infection / AIDS and other socially dangerous diseases.

2. Registration, record-keeping of people living with HIV, medical supervision of such persons and epidemiological supervision of HIV infection are carried out in compliance with the conditions regarding the confidentiality of personal data, in particular about the state of health, respect for the personal rights and freedoms of a person, determined by the legislation and international treaties of Ukraine, the consent of which is binding has been given by the Verkhovna Rada of Ukraine.

3. The procedure for keeping records of people living with HIV and medical supervision of such persons (z1255-13) is determined by the central executive body, which ensures the formation of state policy in the field of health care.

Article 10. Medical assistance to people living with HIV

1. The provision of medical assistance to people living with HIV is carried out in accordance with the procedure established by law, other normative legal acts and international treaties of Ukraine, the binding consent of which has been given by the Verkhovna Rada of Ukraine.

2. People living with HIV have the right to participate in assisted reproductive technologies, provided that the transmission of HIV infection from parents to the future child is prevented.

Article 11. Additional measures that a doctor can take to prevent the spread of HIV

1. If post-test counseling has not led to changes in the behavior of a person living with HIV, necessary to maximally reduce the risk of HIV transmission to a partner(s), then a doctor who provides medical services to such a person in connection with a disease caused by HIV must re-explain to her the measures she must take to prevent the further spread of HIV, as well as offer, with her consent, to inform her partner(s) that he (she, they) has been exposed to the risk of HIV infection, and provide

recommendations on the need for testing on HIV and the use of preventive measures to prevent HIV infection.

2. If the doctor's repeated explanation of the need to take preventive measures specified in part one of this article did not lead to changes in the behavior of a person living with HIV, necessary to maximally reduce the risk of HIV transmission to other persons, and also if a person living with HIV, refused to give consent to the doctor warning her partner(s) that he (she, they) was exposed to the risk of HIV infection, the doctor has the right, without the consent of this person, to inform the specified partner(s) that he (she, they)) was exposed to the risk of HIV infection, and provide recommendations on the need for HIV testing and the use of preventive measures to prevent HIV infection.

When submitting such a notification, it is forbidden to disclose the data of a person living with HIV, as a result of contact with whom the partner (partners) could become infected, as well as to report any circumstances that may reveal the data of this person.

3. Data on the behavior of a person living with HIV, as well as on the presence or absence of changes in his behavior, may be voluntarily provided by him in response to a doctor's question or obtained from sources and in a manner not prohibited by law.

Article 12. Responsibilities of people living with HIV

1. People living with HIV must:

1) take measures to prevent the spread of HIV infection, proposed by health care authorities;

2) inform persons who were their partners before the fact of infection was discovered about the possibility of their infection;

3) refuse to donate blood, its components, other biological fluids, cells, organs and tissues for their use in medical practice.

2. In case of non-fulfilment of the obligations specified in part one of this article, people living with HIV, from among foreigners, as well as stateless persons, who by their behavior pose a threat to the health, protection of the rights and legitimate interests of citizens of Ukraine, may be expelled from the borders of Ukraine in accordance with the procedure established by law.

Chapter III Rights and social protection of people living with HIV and their family members

Article 13. The right of people living with HIV to information. Protection of information about a person's positive HIV status from disclosure and disclosure to third parties

1. All people living with HIV have the right to unimpeded access to information about their health status stored in health care institutions.

2. All people living with HIV have the right to be informed about services to provide the psychological, social and legal support they need and, if they wish, to receive such support in a way that does not lead to the disclosure of their HIV status.

3. Information on the results of a person's testing to detect HIV, on the presence or absence of HIV infection in a person is confidential and constitutes a medical secret. Healthcare professionals are required to take the necessary measures to ensure proper storage of confidential information about people living with HIV and to protect such information from disclosure and disclosure to third parties.

4. Transfer of the information specified in the third part of this article by a medical worker is allowed only:

to the person in respect of whom the test was conducted, and in the cases and under the conditions established by the third part of Article 6 of this Law, to the parents or other legal representatives of such a person;

to other medical workers and health care institutions - exclusively in connection with the treatment of this person;

to other third parties - only by court decision in cases established by law. The transfer of the information specified in the third part of this article to other medical workers and health care institutions is allowed only in the presence of the conscious informed consent of the person living with HIV to the transfer of such information, given in writing, and only for the purposes of related to the treatment of diseases caused by HIV, and in the event that the doctor's awareness of the patient's HIV status is of significant importance for his treatment.

The disclosure by a medical worker of information about a person's positive HIV status to a partner (partners) is allowed if:

1) a person living with HIV will contact a medical professional with a corresponding request confirmed in writing;

2) the person living with HIV has died, is unconscious, or is likely to be unconscious and unable to give informed consent.

Article 14. Equality before the law and prohibition of discrimination of people living with HIV and persons belonging to groups at increased risk of HIV infection

1. People living with HIV and persons belonging to groups at increased risk of HIV infection - citizens of Ukraine, foreigners and stateless persons permanently residing in Ukraine, persons who have applied for refugee status and who have been granted the status refugees in Ukraine, asylum seekers, foreigners and stateless persons who are temporarily staying on the territory of Ukraine on legal grounds, enjoy all the rights and freedoms provided for by the Constitution (254k/96-BP) and laws of Ukraine, other normative legal acts of Ukraine.

2. The state guarantees that all people living with HIV and persons belonging to groups at increased risk of HIV infection are given the same opportunities as other citizens to exercise their rights, in particular in terms of the possibility of administrative and judicial protection of their rights.

3. Discrimination of a person on the basis of HIV infection, as well as a person's belonging to groups at increased risk of HIV infection, is prohibited. Discrimination is

an action or inaction that, directly or indirectly, creates restrictions, deprives a person of proper rights or degrades his human dignity on the basis of one or more signs related to the actual or possible presence of HIV, or gives grounds for assigning a person to groups increased risk of HIV infection.

Article 15. Other rights of people living with HIV

1. In addition to the general rights and freedoms of a person and a citizen, people living with HIV also have the right to:

1) compensation for damage related to the restriction of their rights as a result of disclosure or disclosure of information about their positive HIV status;

2) free provision of antiretroviral drugs and drugs for the treatment of opportunistic infections in accordance with the procedure established by the central executive body in the field of health care.

2. People living with HIV participate in HIV-related scientific research, tests of relevant medical devices and methods, educational process, photography, video and film shooting only with their written consent.

Article 16. Protection of the right to work and other social rights of people living with HIV, their relatives and friends

1. Dismissal from work, refusal of employment, refusal of admission to educational, medical institutions, institutions of social care and care and social services, as well as refusal to provide medical assistance and social services, restriction of other rights of people living with HIV, on the basis of their HIV-positive status, as well as the restriction of the rights of their relatives and friends on this basis is prohibited.

2. Unlawful actions of officials that violate the rights of people living with HIV, their relatives and friends, can be challenged in court.

Article 17. Compensation for damage caused to a person's health in case of HIV infection

1. Persons infected with HIV infection as a result of transfusion of blood (its components), biological fluids, transplantation of human cells, tissues and organs, performing medical manipulations or performing official duties have the right to compensation in court for damage to their health harm

Article 18. Rights of parents of HIV-infected children and children suffering from an illness caused by HIV

1. Parents of HIV-infected children and children suffering from a disease caused by HIV and persons who replace them have the right to:

1) joint stay in the inpatient department of a hospital with children under the age of 14 with temporary leave from work and payment of temporary incapacity benefit in connection with caring for a sick child;

2) receiving an additional 10-day annual vacation in the summer or other time convenient for them until the children reach the age of 18.

Article 19. State assistance to HIV-infected children and children suffering from an illness caused by HIV

1. HIV-infected children and children suffering from a disease caused by HIV are assigned a monthly state aid in the amount established by the Cabinet of Ministers of Ukraine.

Chapter IV Social protection of medical and other workers whose professional duties are associated with an increased risk of HIV infection

Article 20. Protection against HIV infection in the performance of professional duties

1. Owners or management bodies authorized by them of organizations whose personnel conduct diagnostic tests for HIV infection, provide medical assistance and social services to people living with HIV, or come into contact with human blood or biological materials contaminated by them with instruments, equipment or items, obliged to provide employees with the necessary means of personal protection in

accordance with the list and regulations (z1978-13), established by the central body of executive power, which ensures the formation of state policy in the field of health care, as well as to organize appropriate training of such employees on the use appropriate means of personal protection.

2. During the performance of the works specified in the first part of this article, employees whose performance of professional duties is associated with increased risk are required to use appropriate means of personal protection.

3. The standard instruction on the procedure for the use of personal protective equipment by employees specified in the first part of this article (z1979-13) is approved by the central executive body, which ensures the formation of state policy in the field of health care.

4. Owners or management bodies authorized by them of organizations whose personnel perform the work specified in the first part of this article are obliged to ensure the creation of conditions for emergency post-contact prevention for employees who, during the performance of the specified work, received damage to the skin or mucous membrane as a result of physical contact with human blood or biological materials contaminated with tools, equipment or other objects or have undergone direct open physical contact with human blood or biological materials, and the conditions for such employees to undergo testing at their request.

5. The procedure for conducting emergency post-contact prophylaxis (z1980-13) in the cases specified in part four of this article is approved by the central executive body, which ensures the formation of state policy in the field of health care.

Article 21. Peculiarities of remuneration, provision of vacations and pension provision of certain categories of employees who have an increased risk of HIV infection

1. Employees engaged in the provision of medical care to people living with HIV, laboratory diagnosis of HIV infection, conducting scientific research using infected material, production of biological drugs for the diagnosis, treatment and

prevention of HIV infection shall be paid a salary supplement. is granted the right to an old-age pension on preferential terms and annual additional leave in accordance with the procedure established by law.

Article 22. The procedure for confirming the connection between HIV infection and the employee's performance of his professional duties

1. HIV infection, which a person contracted as a result of performing professional duties, belongs to occupational diseases.

2. The procedure for confirming the connection of HIV infection with the employee's performance of his professional duties is approved by the central executive body, which ensures the formation of state policy in the field of health care.

Article 23. Improvement of living conditions of medical and other workers who became infected with HIV infection as a result of the performance of their professional duties

1. Medical and other workers who became infected with HIV as a result of performing their professional duties have the right to priority improvement of living conditions in accordance with the procedure established by law.

Chapter V Responsibility for violations of legislation in the field of prevention of the spread of HIV infection

Article 24. Responsibility for violation of legislation in the field of protection of the rights of people living with HIV, and responsibility for knowingly creating a risk of infection or infection with HIV infection of another person

1. Violation of the legislation in the field of preventing the spread of HIV infection entails disciplinary, civil, administrative or criminal liability in accordance with the procedure established by law.

MINISTRY OF HEALTH PROTECTION OF UKRAINE

ORDER N 716 dated 14.11.2007

On the approval of the clinical protocol for obstetric care "Prevention of HIV transmission from mother to child"

(extract)

Examination of pregnant women:

HIV testing of a pregnant woman is carried out by drawing blood, which is sent to the laboratory for diagnosing HIV infection.

HIV testing is performed on all pregnant women with their informed consent.

Standard testing of a pregnant woman's blood for HIV is carried out at registration. In the case of a diagnosis of HIV infection, a repeat examination is not prescribed, the pregnant woman is prescribed drug prevention of vertical transmission of HIV.

In the case of receiving a negative result by the enzyme-linked immunosorbent assay (ELISA) method for HIV when taking into account up to 12 weeks of pregnancy, retesting is carried out at 22-23 weeks of pregnancy. In the case of a diagnosis of HIV infection, a repeat examination is not prescribed, the pregnant woman is prescribed drug prevention of vertical transmission of HIV.

In the case of receiving a questionable result of the examination by the enzyme-linked immunosorbent assay (ELISA) method before 23 weeks of pregnancy, the pregnant woman is assigned a repeat test using an immune blot.

If a pregnant woman applies for pregnancy registration after 23 weeks of pregnancy, she is prescribed a blood test for HIV by the ELISA method. If a diagnosis of HIV infection is established, re-testing is not carried out, the pregnant woman is prescribed prevention of vertical transmission of HIV in accordance with this protocol.

If a negative result is obtained, it is necessary to carry out a repeat examination for HIV no later than the 32nd week of pregnancy.

If a pregnant woman applies for registration after 30 weeks of pregnancy, she is prescribed HIV testing by the ELISA method or the express method. If a negative result is obtained, a repeat examination is carried out by the express method in childbirth.

In the case of a pregnant woman in labor without a known HIV status, she is tested by the express method. In case of receiving a positive result of HIV infection, the pregnant woman (newborn) is prescribed drug prevention of vertical transmission of HIV.

In the case of obtaining a questionable result by the enzyme immunoassay (ELISA) method before delivery or during delivery, repeated testing is carried out twice with an interval of 15-20 minutes by the express method in the maternity hospital. After receiving a positive result for HIV, drug prevention of vertical transmission of HIV is carried out.

If a woman in labor goes to the maternity hospital after giving birth, she is prescribed twice with an interval of 15-20 minutes for blood testing for HIV by the express method. If a positive result is obtained, medical prevention of vertical transmission of HIV is carried out.

The results of the rapid tests are subsequently confirmed by a standard blood test for HIV by ELISA and immunoblotting.

Immediately after birth, a sample of the umbilical cord blood of a child born to a woman infected with HIV or not tested for HIV infection is sent for testing for antibodies to HIV by the ELISA method.

Risk factors that increase the frequency of HIV transmission from mother to child: advanced stage of HIV infection with a high viral load of more than 10,000 copies/ml during pregnancy and childbirth; the absence of antiretroviral therapy during pregnancy; the presence of sexually transmitted infections; the duration of the

waterless period is more than 4 hours (each hour of waterless interval increases the risk of transmission by 2%); childbirth through natural birth canals (compared to caesarean section) (in the absence of effective ART, the risk of transmission increases by 50%); breastfeeding, etc.

Prophylactic antiretroviral therapy during pregnancy and childbirth in accordance with the clinical scenario

1. HIV-infected pregnant women who do not need HAART due to their health status (CD4 more than 350 cells/μl).

1.1. Basic mode (viral load (VL) cannot be determined or the value of VL is > 10,000 copies/ml):

• From the 24th to the 26th week of pregnancy, zidovudine 300 mg + lamivudine 150 mg + lopinavir/ritonavir 400/100 mg or saquinavir/ritonavir 800/100 mg are prescribed twice a day until delivery. It is recommended to monitor the hemoglobin level every 2-3 weeks.

• In case of anemia or intolerance to zidovudine, it can be replaced by tenofovir or abacavir.

• During childbirth, the ART regimen indicated above is continued.

• ART is stopped after delivery.

• In the case of delivery by elective elective caesarean section (EPKR), retrovir 300 mg orally or intravenously 2 mg/kg body weight in the first hour and 1 mg/kg body weight before cutting the umbilical cord are prescribed 4 hours before the operation.

• A newborn is prescribed zidovudine syrup 4 mg/kg twice a day for 7 days 8 hours after birth.

• If the mother received ARV prophylaxis during pregnancy for less than 4 weeks, the newborn should receive zidovudine for 4 weeks.

• Premature newborns are prescribed zidovudine in a dose of 1.5 mg/kg IV or 2.0 mg/kg orally.

1.2. Alternative mode (BN less than 10,000 copies/ml)

• From the 24th to the 26th week of pregnancy, 300 mg of zidovudine is prescribed 2 times a day until the onset of labor. It is recommended to monitor the hemoglobin level every 2-3 weeks.

• In case of anemia or intolerance to zidovudine, it can be replaced by tenofovir or abacavir.

• During labor, continue taking zidovudine 300 mg every 3 hours until delivery, give lamivudine 150 mg and nevirapine 200 mg once with the onset of labor.

• In the case of delivery by elective elective caesarean section (EPKR), zidovudine 300 mg orally or intravenously 2 mg/kg body weight in the first hour and 1 mg/kg body weight before crossing the umbilical cord are prescribed 4 hours before the operation.

• After delivery, continue zidovudine 300 mg and lamivudine 150 mg twice a day for 7 days.

• The newborn is prescribed zidovudine syrup 4 mg/kg + lamivudine syrup 2 mg/kg twice a day for 7 days, nevirapine 2 mg/kg once (no later than 48-72 hours after delivery).

• If the mother received ARV prophylaxis during pregnancy for less than 4 weeks, the newborn should receive zidovudine for 4 weeks.

• Premature newborns are prescribed zidovudine in a dose of 1.5 mg/kg IV or 2.0 mg/kg orally.

2. HIV-infected pregnant women who need HAART

2.1. Regardless of the term of pregnancy, with a CD4 count < 200 cells/µl, prescribe:

• regardless of the term of pregnancy, zidovudine 300 mg + lamivudine 150 mg + nevirapine 200 mg are prescribed twice a day until delivery (in the first 2 weeks, nevirapine is prescribed in a half dose).

• In case of anemia or intolerance to zidovudine, it can be replaced by tenofovir or abacavir.

• During childbirth and in the postpartum period, continue the above scheme.

• Monitor the level of hemoglobin and liver enzymes 2 weeks after prescribing the regimen, then every 4 weeks during treatment.

• A newborn is prescribed zidovudine syrup 4 mg/kg body weight twice a day for 7 days 8 hours after birth.

• If the mother received ARV prophylaxis during pregnancy for less than 4 weeks, the newborn should receive zidovudine for 4 weeks.

• Premature newborns are prescribed zidovudine at a dose of 1.5 mg/kg IV or 2.0 mg/kg orally

2.2. Regardless of the term of pregnancy, with a CD4 count of 200-350 cells/µL, prescribe:

• zidovudine 300 mg + lamivudine 150 mg + lopinavir/ritonavir 400/100 mg or saquinavir/ritonavir 800/100 mg twice daily until delivery. It is recommended to monitor the hemoglobin level every 2-3 weeks.

• In case of anemia or intolerance to zidovudine, it can be replaced by tenofovir or abacavir.

• During childbirth, the ART regimen indicated above is continued.

• After childbirth, the question of further treatment is decided by specialists of the AIDS center after conducting an additional examination. Until the examination, the woman continues to receive the prescribed regimen.

• A newborn is prescribed zidovudine syrup 4 mg/kg body weight twice a day for 7 days 8 hours after birth.

• If the mother received ARV prophylaxis during pregnancy for less than 4 weeks, the newborn should receive zidovudine for 4 weeks.

• Premature newborns are prescribed zidovudine in a dose of 1.5 mg/kg IV or 2.0 mg/kg orally.

3. HIV-infected pregnant women who started HAART before pregnancy.

• Continue the HAART regimen if it does not contain ifavirenz.

• If the scheme contains ifavirenz*, pregnancy period up to 8 weeks, replace ifavirenz with saquinavir 800 mg or nevirapine 200 mg.

• During and after delivery, the above regimen of therapy is continued.

• The newborn is given zidovudine syrup 4 mg/kg starting 8 hours after birth for 7 days.

• If the mother received ARV prophylaxis during pregnancy for less than 4 weeks, the newborn should receive zidovudine for 4 weeks.

• In case of premature birth, retrovir syrup is prescribed at 1.5 mg or 2 mg/kg body weight for 7 days.

* It is important to stop taking ifavirenz before conception. Taking ifavirenz can cause a neural tube defect in the fetus in the first trimester of pregnancy. The formation of the neural tube in the fetus ends by the sixth week of gestation, and changing the drug can lead to an increase in blood pressure. Therefore, if a woman receiving HAART first turns to a gynecological consultation after the eighth week of

pregnancy and decides to give birth to a child, it is possible to continue receiving ifavirenz.

4. HIV-infected pregnant women whose status was established during childbirth.

• With the onset of labor, zidovudine 300 mg every 3 hours + 3TS 150 mg is prescribed with the onset of labor and every 12 hours + nevirapine 200 mg once.

• Continue zidovudine 300 mg + 3TS 150 mg for 7 days after delivery.

• Further tactics of ART and management of women in whom HIV infection was detected during childbirth will depend on the number of CD4, viral load and the results of a clinical examination, which must be carried out after 12 hours. after birth, and if the mother did not receive ARV prophylaxis during childbirth, then as early as possible after birth.

• For premature newborns, the dose of zidovudine is 1.5 mg/kg IV or 2.0 mg/kg orally.

• If the mother did not receive nevirapine or less than two hours passed from the moment of taking nevirapine to the birth of the child, one dose of nevirapine should be given to the child immediately after birth and the second dose - at the age of 72 hours.

• If the mother received prophylaxis with zidovudine and lamivudine during delivery, the newborn should be given zidovudine and lamivudine between 8 and 12 hours after birth, and if the mother did not receive ARV prophylaxis during delivery, then as soon as possible after birth.

• The newborn is prescribed zidovudine syrup 4 mg/kg + 3TS 2 mg/kg for 4 weeks + nevirapine 2 mg/kg once in the first 48-72 hours of life. during the first week after childbirth.

Conducting childbirth

1. HIV-infected pregnant woman who received ART (prophylactic or HAART) during pregnancy

1.1. Viral load unknown or >1000 copies/ml in the third trimester of pregnancy

1) Elective planned caesarean section at 38 weeks of pregnancy before the onset of labor and the discharge of amniotic fluid.

2) Continue ART during delivery according to the clinical scenario.

3) Skin contact of the child with the mother or father is carried out.

4) ART is prescribed to the newborn in accordance with the clinical scenario.

5) Artificial feeding of a newborn.

1.2. Viral load < 1000 copies/ml in the third trimester

1) Childbirth through the natural birth canal according to the algorithm of safe conservative birth.

2) Continue ART during delivery according to the protocol.

3) Skin contact of the child with the mother or father is recommended.

4) ART is prescribed to the newborn in accordance with the protocol.

5) Artificial feeding of a newborn.

1.3. An HIV-infected woman who did not receive ART during pregnancy or whose HIV status was determined during childbirth:

1) Prescribe ART according to the protocol.

2) It is recommended to give birth through the natural birth canal according to the algorithm of safe conservative birth.

3) In the absence of active labor and the integrity of the amniotic membranes, it is possible to offer a caesarean section with a waterless interval of up to 4 hours.

4) ART is prescribed to the newborn in accordance with the protocol.

5) Artificial feeding of a newborn.

In the event that, after providing pre-test counseling for HIV, the woman refused the test in writing, it is necessary to ensure safe delivery, recommend artificial

feeding of the child until the result of the umbilical cord blood test is obtained, provide information on where to get tested for HIV and receive the necessary help.

1.4. Premature birth before 34 weeks of pregnancy

1) If the amniotic sac is intact and the cervix is open up to 4 cm, tocolytic therapy is recommended to prevent fetal respiratory distress (dexamethasone 24 mg according to the scheme).

2) In case of amniotic fluid spillage, waterless interval of up to 4 hours, pregnancy period of more than 28 weeks - cesarean section is recommended.

3) In the event of a long waterless interval (more than 4 hours), prescribe antibacterial therapy, prevention of RDS of the fetus, delivery through natural birth canals.

4) Continue or prescribe ART to a pregnant woman according to the clinical scenario.

5) Artificial feeding of a newborn.

6) Prescribe ART to the newborn according to the clinical scenario.

1.5. Premature birth at 34-37 weeks of pregnancy

1) childbirth is carried out according to the above algorithm, as for urgent childbirth.

In the presence of obstetric indications, delivery by caesarean section according to the protocol of the Ministry of Health of Ukraine is carried out regardless of viral load.

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Additional

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