Palliative Care in TB/HIV Co-infection

Students' manual

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
Харківський національний медичний університет

Palliative Care in TB/HIV Co-infection

Students' manual

Паліативна допомога при ко-інфекції туберкульоз/ВІЛ

Навчально-методичний посібник

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The manual contains up-to-date information about palliative care for patients with tuberculosis/HIV co-infection based on the syndromic principle. It presents the issues of the psychological support for patients and their relatives in the framework of palliative care. In addition, special attention is paid to the issues of patient care directly before death. This manual can be recommended for students, interns and doctors of various specialties.

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Посібник містить сучасні базові відомості щодо надання паліативної допомоги при ко-інфекції туберкульоз/ВІЛ, викладення яких побудовано за синдромальним принципом. Представлені питання психологічної підтримки хворих та їх близьких у рамках паліативної допомоги. Крім того, окрема увага приділена питанням догляду хворих безпосередньо перед смертю. Даний посібник може бути рекомендований для навчання студентів, інтернів та лікарів різних спеціальностей.

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CONTENTS

1. BASICS OF PALLIATIVE CARE FOR TB/HIV PATIENTS

1.1 Regulatory framework and objectives of palliative care

Palliative care is a type of medical care that aims to improve the quality of life of patients and their families who are faced with the problems of an incurable disease. While specific treatment is aimed at changing the course of the disease, palliative care should be focused on preventing and reducing the suffering that occurs during a progressive disease. Early detection, recognition of the problem, and effective treatment of pain or other physical, psychosocial, and spiritual problems are details for providing quality palliative care.

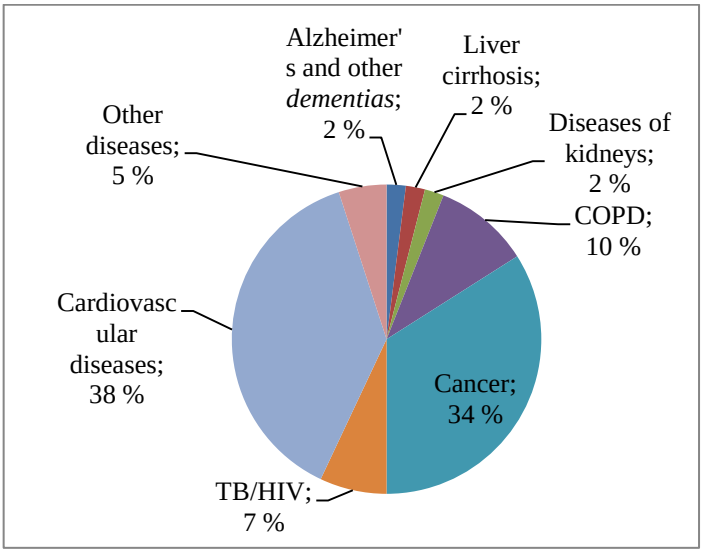
Hospice is a medical institution where patients in the terminal stage receive adequate care. The main purpose of staying in a hospice is to improve the last days of life, to alleviate suffering.

Patients who may receive help in hospices can be divided into three groups:

1. Patients with symptoms of unbearable pain that cannot be eliminated even with large doses of morphine at home; patients with severe side effects associated with taking opiates – nausea, vomiting, constipation; patients with severe dyspnea with pleurisy, ascites, bilateral pulmonary lesions.

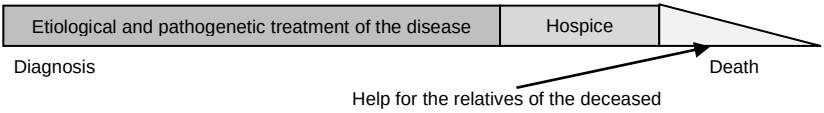
2. A group of patients hospitalized for social reasons. These are doomed patients with a verified diagnosis who cannot be at home for certain reasons: lonely, from dysfunctional families, from families with very low incomes, etc.

3. Patients hospitalized in the hospice in order to give relatives or people caring for them the opportunity to relax or undergo treatment (respite care). The term of hospitalization of such patients is usually specified in advance. No more than 5 % of beds

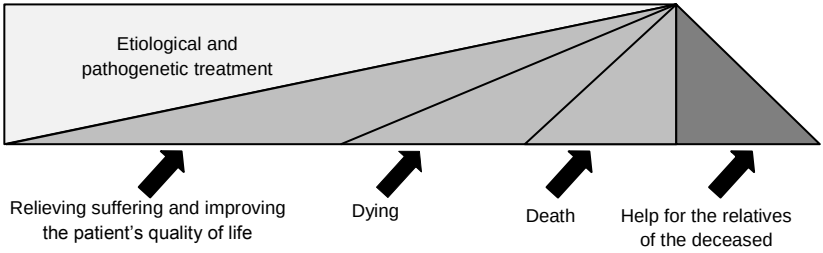


The need for palliative care among adults in the world

Hospice care is provided "at the end of life." End-of-life care in the broad sense implies assisting for 1 to 2 years, when the patient / his family members and the medical staff are aware that the disease will be fatal; in the narrow sense - providing comprehensive assistance to dying patients in the last few hours or days of life.



Traditional palliative care



Expanding palliative care tasks

In the modern palliative care scheme, it begins in the early stages of the disease. Palliative care and treatment of the disease complement each other.

It is also important to agree on assistance in advance – to plan medical care for the future. Patients with TB/HIV co-infection are more likely to have severe illness, physical weakness, loss of decision-making ability, and death. Early coordination of care helps patients envisage such events and prepare for them, and the doctor plays a crucial role in this. Such events are associated with heavy feelings and strong emotions, and when the situation is thought out in advance, it is easier to cope with it. Although early agreement on assistance involves the discussion of legal documents, it is important to remember that the main goal is communication between the doctor and the patient. The patient can make orders for case of a terminal condition and make decisions on treatment and refusal from resuscitation. It should be remembered that as the disease progresses, the patient can change his views.

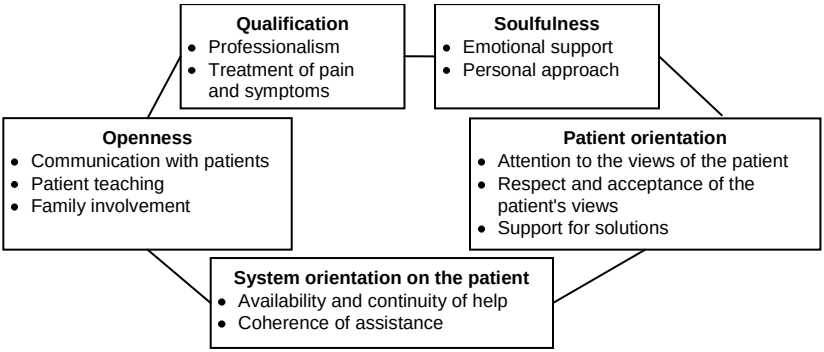
1.2. Palliative care team

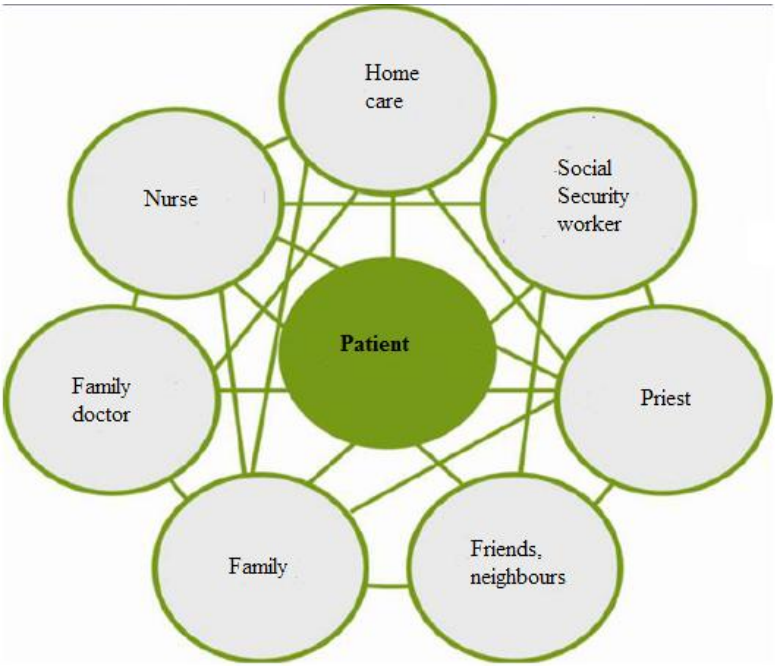
To provide palliative care, regardless of its form, a team is needed, which consists of various specialists, both medical and non-medical, on the principles of continuous interaction. The multidisciplinary team consists of:

- doctor-specialist
- nurse

- social worker
- psychotherapist
- priest
- narrow specialists (if necessary)
- volunteers

Qualities of a doctor, necessary for palliative care





Palliative care team

1.3. Indications for palliative care in patients with TB/HIV

Although tuberculosis (TB) is a curable disease, according to the World Health Organization (WHO), it is the main cause of death for HIV-infected persons. HIV infection increases the risk of active tuberculosis in persons infected with M. tuberculosis from 10 % throughout their lives (in healthy individuals) to 10 % per year. Aim of palliative care is to improve the quality of life of people with life-threatening diseases and their family members. HIV-infected people with TB, especially drug-resistant TB, are included into this category.

There are two important reasons to cancel anti-tuberculosis therapy and to transfer the patient to palliative treatment. The first one concerns the quality of life of the patient: all drugs that are used in anti-tuberculosis therapy have significant adverse reactions, and the continuation of ineffective therapy causes additional suffering. The second one concerns public health: the continuation of ineffective anti-tuberculosis chemotherapy is accompanied by the spread of drug resistance of the M. tuberculosis strain, which the patient excretes, with the formation of a super-resistant strain and its transfer to others.

Thus, the indications for palliative treatment are:

- Patients with multidrug resistant and extensively drug resistant TB who have:
  - have persistent bacterial excretion
  - have progressive TB process
  - not liable to choose a treatment regimen (total drug resistance)
  - not liable to choose perform surgery (or the patient's categorical refusal to perform surgery)
  - have severe adverse reactions to anti-TB drugs

Principles of palliative care:

- relief pain and suffering and improve patient's quality of life;
- provide psychological and spiritual assistance;
- help the patient live as active as possible;
- help the patient's family to cope with the disease and death of the patient;
- to provide the best combination of drug treatment and other measures, guided by clinical experience and the exchange of information between the patient, family members and health workers;
- appreciate life;
- perceive dying as a natural process
- do not try to delay or accelerate the onset of death.

Palliative care consists of such events:

- pain relief and reduce symptoms of the disease. Paracetamol or codeine with paracetamol relieves mild pain, reduces cough;
- treatment of respiratory failure: oxygen therapy;
- food: frequent, in small portions;

- symptomatic treatment of nausea;
- regular medical visits;
- continuation of pathogenetic drugs;
- hospitalization, care in hospice or at home with proper infection control. Hospice or hospital stay has advantages over home care due to more affordable medical care and better infection control;
- prevention of pressure sores, muscle contractures, sanitation and hygiene measures;
- infection control. Patients remain contagious throughout their lives. Infection control measures must be strictly followed.

Palliative treatment at home is possible under the following conditions:

- the patient has a separate room with a bed
- the presence of a person who will care for the patient
- awareness of the person who will care for the patient in matters of infection control
- screening for the presence of symptoms of tuberculosis in all persons who come in contact with the patient, who are caring for him

In addition, when providing palliative care at home, you must adhere to the following conditions:

- health care workers and other caregivers should wear respirators when they visit a bacillary patient
- it is necessary that the patient who receives palliative care has a separate room with a window
- frequent airing of rooms
- strict implementation of the current disinfection
- patient's education (hygiene of cough etc.)
- symptomatic treatment and holistic support
- patients should not visit public places, use public transport

Indications for hospitalization of patients undergoing palliative treatment:

- massive bacterial excretion in a patient with multidrug resistant or extensively drug resistant tuberculosis;
- pulmonary or heart failure of II–III degree;
- complications (pulmonary bleeding, spontaneous pneumothorax);
- intensive pain syndrome;
- severe amyloidosis;
- progression of comorbidities;
- deep trophic disorders (trophic ulcers, bedsores);
- severe motor impairment or other clinical conditions that lead to a sustained decrease or loss of physical and/or mental functions, due to which the patient needs constant medical care and nursing care.

Features of palliative care in HIV/TB patients:

- Tuberculosis, especially multidrug-resistant, is a very contagious disease that threatens the patient's surroundings – relatives, friends, and medical workers. In addition, it should be remembered that the symptoms of tuberculosis may increase slowly, so it is possible that by the time the patient turns for help, he will infect people from his close environment.
- People with immunodeficiency of any genesis should not be allowed to help the patient.
- Providing palliative care to the patient is possible only with strict adherence to infection control requirements (patients should be isolated in separate rooms with adequate ventilation, must wear surgical masks when leaving the ward/room, medical personnel caring for patients should wear respirators when going to patient, etc.)
- Patients with HIV/TB, as well as their family members, are socially stigmatized, which requires special attention when providing them with psychological assistance.
- TB patients often lead an asocial lifestyle

The Prague Charter (2013): Urging governments to relieve suffering and ensure the right to palliative care Background

Access to palliative care is a human right under the right to the highest attainable standard of physical and mental health. In certain cases where patients face severe pain, failure to provide palliative care can also constitute cruel, inhuman or degrading treatment. Palliative care can effectively relieve or even prevent this suffering and can be provided at comparably low cost.

Yet, the governments of many countries throughout the world have not taken steps to ensure patients can realize this right. In many countries palliative care is not available at all or access to it is very limited. This causes millions of severely ill or dying people to suffer from pain and other preventable or treatable symptoms. This is true not only for patients with cancer but also for those with advanced heart, lung or kidney diseases, and progressive neurological diseases or from treatment resistant infectious diseases such as HIV/AIDS or tuberculosis. Palliative care also offers improved quality of life even for people in late stage dementia.

The Petition

A right for palliative care

Access to palliative care is a legal obligation, as acknowledged by United Nations conventions, and has been advocated as a human right by international associations, based on the right to the highest attainable standard of physical and mental health. In cases where patients face severe pain, government failure to provide palliative care can also constitute cruel, inhuman or degrading treatment. Palliative care can

effectively relieve or even prevent this suffering and can be provided at comparably low cost.

Yet, the governments of many countries throughout the world have not taken adequate steps to ensure patients with incurable illnesses can realize the right to access palliative care.

Definition of Palliative Care

According to the definition of the World Health Organization (WHO), palliative care is an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.

Palliative care is interdisciplinary in its approach and encompasses the patient, the family and the community in its scope. In a sense, palliative care is to offer the most basic concept of care – that of providing for the individual needs of the patient wherever he or she is cared for, either at home or in the hospital.

Palliative care affirms life and regards dying as a normal process; it neither hastens nor postpones death. It sets out to preserve the best possible quality of life until death.

The European Association for Palliative Care, the International Association for Hospice and Palliative Care, the Worldwide Palliative Care Alliance, Human Rights Watch and the Union for International Cancer Control

Recognizing that:

• cardiovascular diseases and cancer account for the majority of deaths in developed countries and that most patients will suffer from pain, fatigue and depression, or other symptoms such as dyspnea in the course of the illness,

• palliative care has been proven to offer effective interventions for these patients as well as for other patients with end stage chronic obstructive pulmonary disease (COPD) or renal failure, neurological diseases such as multiple sclerosis or amyotrophic lateral sclerosis (ALS) and late stage dementia,

• palliative care offers a unique model for innovative health and social policies offering a focus on patients' preferences together with a holistic approach combining knowledge (e.g. on symptom relief), skills (e.g. on communication) and attitudes (e.g. to encounter each patient as an individual person with a rich history).

Acknowledging that

- *for developing countries HIV/AIDS continues to be a major cause of death, that patients who die of HIV/AIDS often face debilitating symptoms*

and that a considerable percentage of patients who receive treatment continue to experience pain, fatigue and other debilitating symptoms,

- *other infectious diseases such as malaria and tuberculosis may progress to incurable stages and that, in such cases, patients require palliative care,*
- *the implementation of palliative care services has been shown to make an impact in developing countries, alleviating suffering and improving quality of life in patients with HIV/AIDS or other diseases,*
- *many patients will require support with psychosocial or spiritual problems with the progression of their disease,*

Affirming that

- *palliative care can effectively relieve this suffering and can be provided at relative low cost,*
- *the benefits of palliative care are not restricted to end of life care, as an early integration of palliative care has been proven to improve quality of life and reduce the need for burdensome aggressive treatments,*

Concerned that

in spite of the proven effectiveness, access to palliative care is limited or non-existent in many countries, particularly in developing countries, leading to unnecessary suffering in millions of patients every year,

Call on governments to:

1. develop health policies that address the needs of patients with life-limiting or terminal illnesses

- *develop comprehensive health care policies that provide for integrated palliative care, along with other forms of health services,*
- *ensure that the laws include support to the relatives of patients during the time of care and after the time of death.*

2. ensure access to essential medicines, including controlled medications, to all who need them

- *identify and eliminate unduly restrictive barriers which impede access to controlled medications for legitimate medical use,*
- *ensure that they develop an appropriate system for estimating their need for such medications so as to ensure that availability is guaranteed without interruption,*
- *ensure that they establish safe and secure distribution and dispensation systems so that patients can access the opioid medications regardless of their prognosis, place of treatment or geographic location.*

3. ensure that healthcare workers receive adequate training on palliative care and pain management at undergraduate and subsequent levels.

- *adopt the necessary changes in the training curricula for healthcare providers (medical, nursing, pharmacy, psychology, etc) at undergraduate levels to ensure that all healthcare workers obtain*

basic knowledge about palliative care and are able to provide it to patients regardless of where in the healthcare system they work,

- *support the development and implementation of postgraduate and specialty palliative care programs so that patients with complex cases can receive appropriate care,*
- *ensure that adequate continuing education courses in palliative care are available to healthcare workers.*

4. ensure the integration palliative care into healthcare systems at all levels.

- *design and develop plans to create and implement palliative care units, groups and programs according to morbidity and mortality indicators, and population dispersion data.*

The signatories and the representatives of the regional and international organizations

Urge*:*

- *governments worldwide to ensure that patients and their families can realize the right to access palliative care by integrating such care into healthcare policies, as well as ensuring access to essential medicines, including opioid analgesics, is assured.*
- *major international organizations and forums such as the Council of Europe, the European Union, the World Health Organization, the World Health Assembly, the World Medical Association and the International Council of Nurses to promote the right to palliative care.*

Invite

- *regional and national palliative care associations to support a palliative care philosophy that includes not only the development of specialist services but is centered around a public health approach.*
- *academic institutions, teaching hospitals and universities in developing and developed countries to train and motivate healthcare professionals working in primary care to integrate palliative care in their services.*

Express the hope

- *that the general public recognizes the need for access to palliative care for all and supports the Prague Charter through participation of social and media activities and in signing the petition.*

Declaration on Palliative Care and MDR/XDR-TB

Geneva, Switzerland, 19 November 2010

As a group of experts in palliative care and MDR/XDR-TB, we declare:

1 That access to palliative care for individuals (adults and children) with MDR/XDR-TB is a human right and promotes dignity.

2 That palliative care is an essential component of the provision of care for individuals (adults and children) with MDR/XDR-TB, wherever in the world that they are receiving care.

3 That palliative care should be strengthened where being provided, and

integrated alongside the prevention and treatment of MDR/XDR-TB.

4 *That palliative care in the context of MDR/XDR-TB should be integrated into the management of MDR/XDR-TB from the time of diagnosis until the patient reaches cure or the end of life. The problems faced by MDR/XDR-TB patients and families span multiple physical, psychological, social and spiritual dimensions. We believe that the existing WHO definition of palliative care is highly appropriate for patients with drug-resistant TB.*

5 *That palliative care strengthens the Stop TB strategy.*

6 *That, as experts on MDR/XDR-TB and palliative care, we are keen to learn from each other.*

7 *That we are committed to developing the agenda on palliative care in MDR/XDR-TB, and improving access to care, medications, training and capacity building, and collaborating to improve the knowledge base through research*

This manual addresses the issues of palliative care for patients with co-infection tuberculosis/HIV, based on a syndrome analysis of the need for certain methods of palliative care.

Structure of palliative care:

- Analgesic therapy
- Correction of psycho-emotional disorders
- Correction of cachexia and metabolic disorders
- Correction of dyspeptic disorders
- Correction of hemorrhagic syndrome
- Correction of hematological disorders and immunocorrection
- Correction of infectious complications
- Correction of dysuria
- Adequate care

Wards of palliative care are organized as boxes or semi-boxes, equipped with an oxygen supply system, provide equipment for intensive care and therapy (functional beds, anti-bedsore mattresses). In addition to the attending physician, a psychotherapist, a rehabilitation physician, volunteers, including nurses, may be involved in rendering assistance to patients with HIV infection in palliative care wards.

2. SYNDROME-BASED APPROACH TO PALLIATIVE CARE

2.1. Assessment of symptoms

There is a general algorithm for assessing symptoms:

1. When did the symptom begin? What is its duration? How often does it occur?
2. What triggers a symptom? What improves it? What worsens it?
3. How is the symptom manifested / felt?
4. What is the localization of the symptom? Does it spread somewhere?
5. What is the intensity of a symptom on a scale from 1 to 5 (1 – not very pronounced, 5 – can't be worse)?
6. What is the dynamics of the symptom at the moment? Is it getting worse? Is it improving? How much does it grieve the patient? Is it accompanied by other symptoms?
7. What medications and care measures do you use? Are they effective? Are there any side effects? Were there any side effects in the past?
8. What do you think causes this symptom? How does it affect the patient and family?
9. What would the patient want about this symptom? How to bring it to a tolerable or comfortable level? Is there anything else associated with this symptom that is important for the patient / his family?

2.2. Pain

Many patients with advanced TB/HIV co-infection suffer from pain. Some types of pain are impermanent, for example, pain caused by opportunistic infections, but often the pain is long lasting and can increase with time.

It should be remembered that pain that persists over time can lead to irreversible changes in the nervous system and the development of chronic pain syndrome. Therefore, early treatment of pain is not only a matter of alleviating suffering (one of the most important tasks of palliative care), but it is also the prevention of further damage to the nervous system and chronic pain syndrome.

Assessment of pain

It is important to ask about the pain of each patient. A person suffering from pain for a long time may not have typical signs of pain (facial expressions, sweating, pallor, rapid heartbeat). The patient may just look depressed. Careful assessment of pain is important in identifying the causes of pain that can be treated, determining the type of pain and the type of help that can be given. The following questions should be asked:

- How many different types of pain does a patient have? Ask about each.
- Where does it hurt and how does it hurt?
- How long does the pain last?
- What weakens or intensifies the pain?

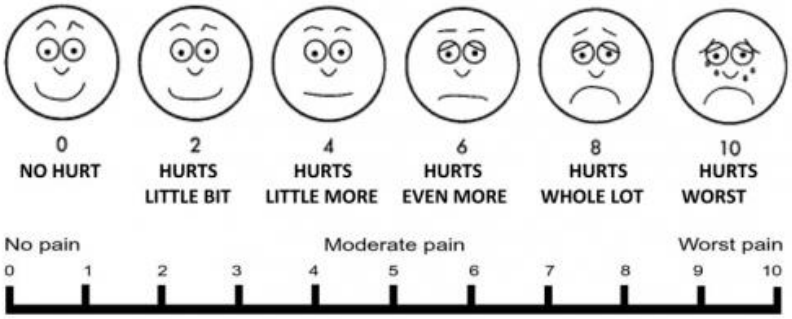
- Do medications help?
- Does pain increase with movement?
- Is there pain in bones or joints? (The answer may reveal tuberculosis of bone).
- Are there any violations of skin sensitivity at the site of pain? (The answer may reveal neuropathic pain)
- Is there a feeling of tension or muscle ache? (The answer may reveal pain which is a result of muscle spasm)

You can ask the patient to rate the pain in points to get an idea of the intensity of the pain. A daily assessment of pain points will show the dynamics of pain and the effectiveness of treatment. There are different ways to assess pain, corresponding to different patients.

Pain rating scale	
Maximum intensity of pain in the last 24 hours	1 2 3 4 5 6 7 8 9 10
Minimum intensity of pain in the last 24 hours	0 1 2 3 4 5 6 7 8 9 10
Average intensity of pain	0 1 2 3 4 5 6 7 8 9 10
Intensity of pain at the moment	0 1 2 3 4 5 6 7 8 9 10
Treatment of pain at the moment	
By what percentage drugs that were taken in the past 24 hours allowed to relieve pain?	0 10 20 30 40 50 60 70 80 90 100
How does pain affect quality of life in the last 24 hours? activity mood ability to walk sleep overall quality of life	 0 1 2 3 4 5 6 7 8 9 10 0 1 2 3 4 5 6 7 8 9 10 0 1 2 3 4 5 6 7 8 9 10 0 1 2 3 4 5 6 7 8 9 10 0 1 2 3 4 5 6 7 8 9 10
Is the pain localized in one or more places? Where is it more intensive?	
Are drugs effective? Which ones are effective?	
What symptoms accompany pain (weakness, numbness, etc.)?	

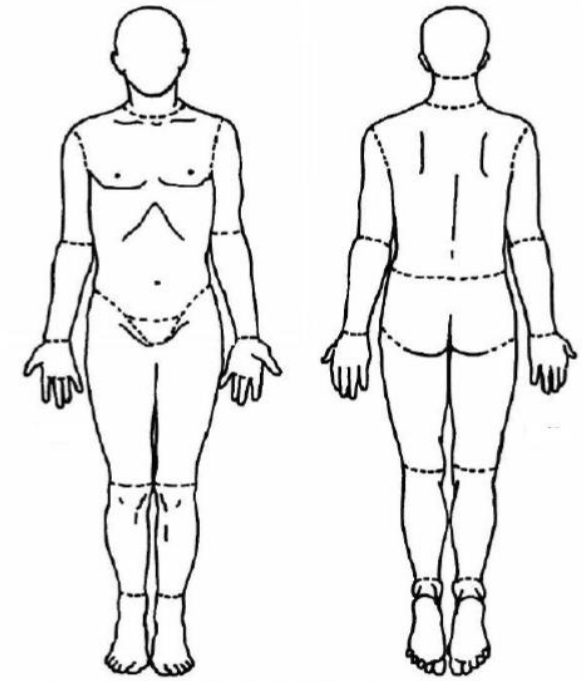
While pain assessment in patients with preserved cognitive function is relatively uncomplicated and based on patient's complaints, it can be difficult in patients with dementia. To assess pain in this category of patients, the following scale is proposed:

Pain rating scale				
Behavior	Points			Mark
	0	1	2	
Breathing	Normal	Sometimes difficulty breathing Short periods of hyperventilation	Noisy difficult breathing Long period of hyperventilation Cheyne-Stokes creathing	
Sounds of suffering	No	Sometimes groans or sighs Voice is weakened, speech is incomprehensible or poorly understood	Loud groans or sighs Cry	
Facial expression	Smile or face does not express emotions	Sad Frightened Gloomy	Grimaces	
Body	The patient is relaxed	Tense Gait of a suffering person Nervous, fussy movements	Motionless Clenched fists Knees bent	
Depression, irritability	Does not require consolation	There is a reaction to touch or encouraging words	It is impossible to console, divert attention or calm, cheer	
Mark: Total score is from 0 to 10. 1–3 – weak pain, 4–6 – moderate pain, 7–10 – intensive pain				



Analogue pain rating scale

In addition, patients can be offered a scheme of the human body and asked to paint areas that hurt, as well as reflect the intensity of pain with color.



Paint over parts of the body where you feel pain. Parts that hurt moderately, paint over yellow, those that hurt very much - red, those that hurt unbearably - black.

Care

- Find the most comfortable position for the patient
- Make sure the patient is taking painkillers regularly
- Listen to the patient and explain to him what is happening
- Try a light massage
- Try hot or cold compresses
- Try slow deep breathing
- Use distractions such as music or radio
- If appropriate, you can use religious or cultural practices (for example, prayer)

Treatment

All analgesics can be divided into 2 groups:

1. Non-narcotic analgesics. These include paracetamol (acetaminophen) and non-steroidal anti-inflammatory drugs (NSAIDs), for example: aspirin, ibuprofen and diclofenac. The main side effect of NSAIDs is irritation of the gastric mucosa, so they should be taken with food if possible. NSAIDs

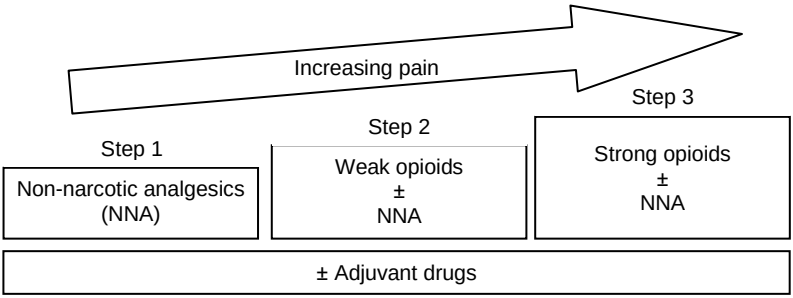
should not be given to dehydrated patients, as they can cause renal failure. In addition, NSAIDs reduce blood clotting. NSAIDs are effective in relieving pain in bones and joints.

2. Opioids. These include morphine-like drugs, including codeine, tramadol and morphine.

The side effects of opioids are described below.

Analgesics should be given:

- Per os. Oral administration of analgesic is the easiest and most reliable way for most patients. If the patient cannot take the pills, then the alternative routes of administration of the drugs are subcutaneous, rectal and buccal.
- By standard dosing times. Constant pain requires regular pain relief so that the pain does not return. Dealing with increasing pain is more difficult. Do not wait for the pain to return, but give analgesics regularly, at regular intervals, depending on the duration of their action (for example, codeine - 30 mg every 4 hours).
- "Stepwise" is a logical stepwise method of enhancing the anesthetic effect.



Explain the patient:

- The drug is designed to relieve pain. You need to take it regularly, and not wait for the pain to return, to take the next dose.
- The medication should be taken as long as there is a cause of pain:
  - If the cause of the pain was an infection that was cured, the dose may be reduced until the drug is withdrawn.
  - If the cause of the pain is insurmountable, the drug must be taken continuously for an indefinitely long time, otherwise the pain will return.

Administration of analgesics				
Non-narcotic analgesics	**Single dose, mg**	**Reception interval, hours**	**Maximum daily dose, mg**	**Half-life, hours**
Acetylsalicylic acid	500–1 000	4–6	3 000	0,25
Paracetamol	500–1 000	4–6	4 000	2–3
Ibuprofen	200–400	4–6	1 200	2–2,5
Ketoprofen	25–50	6–	3 00	1,5-2
Indomethacin	25–50	8–12	2 00*	4–9
Ketorolac ***	10–30	6–8	90**	5–6
Mefenamic acid	250-500	6–8	1 500	3
Diclofenac	50	8	150	2
Metamizole Sodium ***	500–1 000	8–12	3 000	–

* *– with long-term treatment – 75 mg*

* * *– in the elderly and those weighing less than 50 kg – not more than 60 mg*

*** *– not recommended for long-term treatment due to myelotoxicity*

Opioids	**Dose**	**Duration of action**
Codeine (Step 2)	30–60 mg 4 times per day	4-6 hours
Tramadol (Step 2)	50–100 mg 4 times per day	6 hours
Promedol (Step 3)	240 mg/day	
Buprenorphine (Step 3)	3.6 mg/day	6 hours
Omnopon	120 mg/day	
Morphine (Step 3)	No dose limit, increase dose gradually	4 hours
	Initial doses:	
Morphine for injection	5–10 mg	4 hours
Morphine oral normal release (NR)	2.5–5 mg	12 hours
Morphine oral modified release (MR)	10–20 mg 25 µg/hour	72 hours

Equivalent analgesic doses of opioids						
Drugs	**Release form**	**Dose* mg/day**				
Tramadol	tablets, ampoules, suppositories, drops	400				
Tramadol with a duration of action of 12 hours	tablets	400				
Omnopon	ampoules	60	60–100	100–160		
Buprenorphine	tablets	1.6	1.6–2.8	2.8–3.6		
Buprenorphine	ampoules	1.2	1.2–2.1	2.1–3.0	3.0–3.6	
Morphine hydrochloride	ampoules	40	40–70	70–100	100–120	

* *– the daily dose may be increased according to individual indications.*

▒ *– therapeutic possibilities of the drug are exhausted. It is advisable to apply analgesics with a more pronounced analgesic effect.*

Prescription of morphine

Morphine is a potent painkiller. When used properly, it is safe and effective. Abuse of morphine in the absence of pain can lead to addiction and respiratory depression. This does not occur if the drug is taken in the correct dosage to relieve pain.

Pharmacokinetics:

- Conjugated in the liver
- 90–95 % of the drug is excreted in the urine
- It is necessary to increase the interval between doses and reduce the dose during dehydration, renal failure, severe liver failure, delirium
- It is necessary to cancel regular intake of morphine, use morphine only for the relief of pain if oliguria and anuria occur.

Drug forms

Morphine comes in the following forms: for injection, oral administration of normal and modified release.

1. Morphine for injection – comes in the form of a 1 % solution of morphine hydrochloride. It is used for intramuscular and subcutaneous administration.

2. Morphine oral normal release (NR) – is used in the form of tablets or solution with a certain concentration (for example, 5 mg/5 ml or 10 mg/5 ml). Always specify the dosage in mg, not in ml, and make sure you know the concentration of the solution. The action of morphine NR begins after 20 minutes and lasts 4 hours.

3. Modified release morphine (MR) – morphine tablets – morphine sulfate 10 mg, 30 mg, 60 mg, 100 mg is designed for longer analgesia. The duration of the most well-known forms of morphine MR is 12 hours, and the drug should be taken twice a day with an interval of 12 hours, for example: at 6 am and at 6 pm or at 8 am and at 8 pm.

Another drug from the strong opioid group is fentanyl. It comes in the following modifications: 25 μg/hour, 50 μg/hour, 75 μg/hour, 100 μg/hour. Duration of action is 72 hours.

Doses

Morphine NR. Start with 2.5–5 mg every 4 hours. Prescribe minimum doses to elderly or very weak patients. If the patient has been taking codeine regularly, then you can start with 5–10 mg every 4 hours. Before going to bed the patient can take a double dose so that he does not need to take the drug in the middle of the night. He can also take an additional intermediate, early dose (the same amount of the drug) at any time, if the pain cannot be relieved by regular intake of the drug. Encourage the patient to take an intermediate dose as soon as he feels the pain in order to prevent it from increasing. If the patient is able to record how many intermediate doses he needs, it will be possible to understand whether the regular dose should be

increased. If the pain increases with movement, it is helpful to take an intermediate dose half an hour before the patient begins to move.

Morphine MR. If morphine NR is available, always start with an appointment every 4 hours. When you know the dose of morphine the patient needs, you can proceed to the administration of morphine MR every 12 hours. To calculate the dose of morphine MR, calculate the total amount of morphine NR in the last 24 hours (this will be the total daily dose of morphine) and divide it by two to get a dose of morphine MR for taking every 12 hours. If you only have morphine MR, start with 10 mg every 12 hours. In the presence of morphine NR (morphine solution), the patient can take it at any time as an additional intermediate dose. The intermediate dose should be one sixth of the total daily dose.

Example: transition from regular intake of morphine NR to regular intake of morphine MR: the patient takes 10 mg of morphine NR every 4 hours.
Total daily morphine dose: 60 mg
Equivalent morphine MR dose: 60 / 2 = 30 mg every 12 hours
Long-term dose: 60 / 6 = 10 mg of morphine NR if necessary

Dose increase

If after 24 hours the patient is still in pain and there is no sign of toxicity, increase the dose of morphine by 50 %. Continue to increase the dose by 30–50 % every few days until the desired effect is achieved or until signs of toxicity appear. Alternatively, you can increase the dose by adding intermediate doses.

Remember to check if the intermediate dose was effective. If the patient has taken several doses and the desired effect is not achieved, the pain should be re-evaluated, since the pain may be resistant to morphine.

Example: morphine NR only.
The patient takes 20 mg of morphine NR every 4 hours. In addition, he took three intermediate doses of 20 mg in the last 24 hours.
Total daily dose: 120 + 60 = 180 mg
Regular dose: 180 / 6 = 30 mg of morphine NR every 4 hours
Intermediate dose: 180 / 6 = 30 mg of morphine NR if necessary

Example: morphine NR and morphine MR
The patient takes 60 mg of morphine MR every 12 hours. In addition, he took three more intermediate doses of 20 mg of morphine NR in the last 24 hours.
Total daily dose: 120 + 60 = 180 mg
Regular dose: 180 / 2 = 90 mg of morphine MR every 12 hours
Intermediate dose: 180 / 6 = 30 mg of morphine NR if necessary

There is no maximum (marginal) dose of morphine. The dose of morphine that a patient can bear increases in proportion to the strength of

the pain. The correct dose for a particular patient is one that relieves pain and does not cause unacceptable side effects or toxicity.

Morphine cancellation

If a patient has been taking morphine for several weeks, it should not be abruptly discontinued, as this may cause withdrawal symptoms (pain, sweating, diarrhea and nausea). The dose should be reduced within a few days. Sometimes you need to stop the drug quickly if the patient develops morphine intoxication.

Side-effects of opioids

- Constipation. Morphine usually causes constipation, so it should be prescribed with laxatives, except the cases of diarrhea.
- Nausea. In some patients, morphine causes nausea, and in the first few days they need antiemetic drugs.
- Drowsiness. Usually, when the patient starts taking morphine or when you increase the dose, drowsiness occurs, which usually decreases after 3–4 days. If drowsiness does not decrease, then the dose of morphine can be very high.
- Sweating and itching. These are less frequent side effects that may be associated with morphine.

Toxicity and overdose

The following signs may indicate that the dose of morphine is too large or that morphine has a toxic effect:

- Persistent drowsiness.
- Confusion.
- Hallucinations.
- Myoclonus (sudden twitching of limbs).
- Dyspnea (bradypnea).

Intoxication can also develop with dehydration or renal failure that leads to morphine accumulation.

Treatment of intoxication

If you are concerned about the development of a toxic effect, reduce the dose of morphine by 50 %. In case of serious doubt, cancel the morphine. Haloperidol (1.5–5 mg at night) may help for hallucinations and confusion caused by morphine.

Opioids side effects treatment

Side effect	Recommendations
Constipation	• Increase the amount of fluids and fiber in the diet. • For the period of opioids' administration, prescribe a laxative that increases the volume of intestinal contents (for example, **lactulose**, 10 ml orally 3 times a day or **laminaria** orally 5–10 g – 1–2 teaspoons 1–3 times a day after meals), add a drug that stimulates intestinal peristalsis;

Side effect	Recommendations
	Bisacodil tablets orally 5–15 mg half an hour before meals or at bedtime, rectal – 1–2 suppositories 10–20 mg per day; **A + B sennosides** orally 10–30 mg after meals before bedtime
Nausea and vomiting	Prescribe an antiemetic. Nausea and vomiting usually stop within a day
Respiratory depression (develops rarely when taking morphine per os with a gradual increase in dose)	• Use breathing stimulation techniques. • If respiratory depression is pronounced, cancel the next dose, then reduce the dose by half. • If a patient has severe pain on the background of a terminal condition, some respiratory depression is acceptable
Confusion (if not due to other causes)	• Usually develops at the beginning of treatment or when the dose is increased and after a few days it is stopped. May also develop in the terminal stage of renal failure. • Reduce the dose by half or increase the interval between doses of
Itching, myoclonus (pronounced muscle twitching during the observation period)	• If the patient receives a large dose of the drug, try to reduce the dose or switch to an alternating regimen, or prescribe two narcotic analgesics. • Re-examine the patient: in some conditions, morphine is ineffective and other drugs are needed
Drowsiness	• A long sleep may indicate a depletion of the central nervous system and reflect the patient's need for rest.. • If this condition persists for more than 2 days, the dose should be halved

Some narcotic analgesics are not recommended for the treatment of chronic pain. These include pethidine. When ingested, this drug is very poorly absorbed, so it does not provide good pain relief. Another reason to refuse pethidine is a large number of renal metabolites, which accumulate and can cause severe seizures. For these reasons, pethidine is not recommended for long-term use. It is widely used in first aid, but it is definitely not suitable for permanent treatment of chronic pain. Talvin is combined antagonist-agonists of opiate receptors. They treat the effects of morphine partially and are not recommended.

Adjuvant drugs (co-analgesics)

These drugs have not been developed as analgesics themselves, but they can help with certain types of pain along with standard analgesics. Their use can be started at any stage of analgesia. Examples of the most commonly used adjuvant analgesics are listed below.

Adjuvant analgesics

Adjuvant analgesics	Types of pain, in which they help
Corticosteroids, such as dexamethasone, prednisolone (1 mg dexamethasone = 7 mg prednisolone)	Pain from severe swelling or inflammation
Tricyclic antidepressants, such as amitriptyline, imipramine	Pain with nerve damage (neuropathic pain)
Anticonvulsants, such as valproate, gabapentin, carbamazepine, phenytoin	Pain with nerve damage (neuropathic pain)

Adjuvant analgesics	Types of pain, in which they help
Benzodiazepines, such as diazepam, lorazepam, sibazon, relanium	Spasm of skeletal muscles
M-anticholinergics, for example: hyoscine butyl bromide	Spasm of smooth muscles, such as intestinal colic
Caffeine (65-200 mg/day)	Enhances the analgesic effect of NSAIDs
Antihistamines (dimedrol 10-20 mg every 4-6 hours)	In addition to the main effect, they have analgesic, antiemetic and moderate sedative effects
α_2-receptor agonists (clonidine, chloephin)	Used in the treatment of opioid-resistant neuropathic pain (0.075–0.01 mg 2–3 times a day)

Differential diagnosis of pain

	Characteristic	Sensomotor changes	Localization
Nociceptive	Aching, gnawing, throbbing	Normal skin sensitivity and motor function	Clearly localized
Visceral	Aching, sharp, penetrating	Normal skin sensitivity and motor function	The pain is localized in the places of projection of the affected organ.
Neuropathic	Sharp, gnawing, like "electric shock", stinging, tingling in limbs	Hyper-or hypoalgesia of the skin, possible reduction of motor function	In the place of the affected nerve or distal

Types of pain, in which the adjuvant drugs help

1. Pain caused by severe swelling or inflammation

Extrapulmonary tuberculosis causes local inflammation and edema. Severe pain can occur as a result of the spread of the process in those parts of the body where there is very little space for its development.

Usually this happens when the following organs are affected:

- Brain. Headache due to increased intracranial pressure.
- Spinal cord. Compression of the spinal cord.
- Liver. Pain due to stretching of the liver capsule.
- Neck, armpit or groin area. Pain due to pressure on the nerve.
- Brain meninges. Tuberculous meningitis

Opportunistic infections with HIV infection also cause severe inflammation and edema. Usual localizations:

- Mouth. Strongly pronounced mucositis.
- Esophagus. Severe candidiasis.
- Brain meninges. Cryptococcal meningitis.

Use of high doses of corticosteroids

High doses of corticosteroids have an anti-inflammatory effect, resulting in reduced swelling and, therefore, relieved pain. However, corticosteroids cause serious side effects, and should be canceled in the absence of a positive result. With HIV infection, corticosteroids should be

used with caution, as they suppress the immune system. Prescribe them only to patients with severe symptoms or to patients at a late stage of the disease. Prescribe short courses of therapy (from two to four weeks) with simultaneous antifungal treatment.

Side effects of corticosteroids

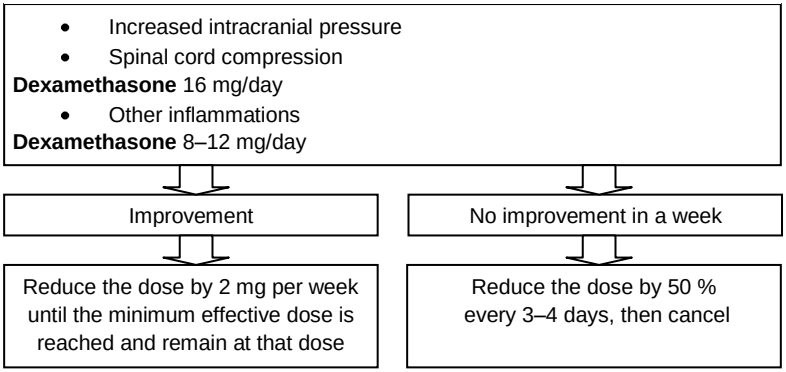
Most patients tolerate a short course of steroid therapy, although in some patients it can cause agitation, and then corticosteroids should be canceled and haloperidol or chlorpromazine should be prescribed. With long-term therapy, corticosteroids can cause serious side effects, thus minimum effective dose should always be prescribed.

Side effects include:

- Depression of immune system.
- Swelling of the face and ankles.
- Thinning of the skin and the appearance of hematomas.
- Muscle weakness in the upper parts of the limbs.
- Increased blood glucose levels (in patients with diabetes, glucose levels should be monitored, as increased therapy may be needed).

If the course of high doses of corticosteroids lasts more than a week, the drug cannot be abruptly canceled, as this may cause a decrease in blood pressure and changes in the chemical composition of the blood (adrenocortical insufficiency).

Algorithm for the appointment of corticosteroids



2. Neuropathic pain (pain with nerve damage)

Nerve damage can cause much more severe pain than would be expected based on the degree of damage. Neuropathic pain is poorly treatable with opioids alone and NSAIDs. We can talk about neuropathic pain in the following cases:

- Viral nerve damage: Herpes Zoster (shingles) or HIV.

- Drug nerve damage (some antiretroviral drugs (especially dioxynucleosides (didanosine, zalcitabine, stavudine) or anti-tuberculosis drugs).
- Severe diabetes, causing neuropathic pain in the hands and feet.

Neuropathic pain is not always easy to recognize, however, such signs may indicate a possible nerve damage:

- The patient describes the pain as something unusual, such as burning, shooting, "electric shock", or other strange sensations.
- The area of the skin next to the site of localization of the pain is either not sensitive or too sensitive so that even a light touch is painful.

If a nerve is damaged, the following adjuvant drugs may help:

Tricyclic antidepressants

Assigned in smaller doses than with depression. Warn patient that the drug can begin to act only after 3–4 days. Amitriptyline (12.5–25 mg at night (with tolerance, the dose can be increased to 50–75 mg)) is used most often.

Anticonvulsant drugs

These are medications that are commonly used for epilepsy. It is necessary to begin with low doses with their gradual increase, if necessary within a week until the pain is relieved. Example:

- Valproate 200 mg twice a day (if necessary, increase to 600 mg twice a day).
- Gabapentin 300 mg three times a day (if necessary, increase to 900 mg three times a day).
- Carbamazepine 100 mg twice a day (if necessary, increase to 400 mg twice a day).
- Phenytoin 100 mg twice a day (if necessary, increase to 200 mg twice a day).

Note: carbamazepine and phenytoin interact with some antiretroviral drugs.

High doses of corticosteroids

Can help with severe inflammation and swelling around the nerve.

Vitamin B6 (pyridoxine): 100 mg

3. Muscle spasm

Painful muscle spasm can occur in neurological diseases and in bedridden patients. Benzodiazepines can help, for example: diazepam 5–20 mg at night. If baclofen is available, it can help with severe spasm (5–20 mg three times a day).

4. Abdominal spasm and colic

M-anticholinergics may help, for example: hyoscine butyl bromide (Buscopan) 20 mg four times a day. Make sure that the patient does not have constipation, since hyoscine can increase constipation.

Drugs for treatment of neuropathic pain							
Drug	**Pharmacological group**	**Indications**	**Dose**	**Average effective and maximal doses**	**Drug interaction**	**Side effects**	**Comments**
5 % lidocaine for local use	Local anesthetic	All types of local anesthesia, postherpetic neuralgia	1–3 plasters up to 12 hours, then a break of 12 hours	3 plasters every 12 hours	The possibility of absorption into the blood of patients taking oral antiarrhythmic drugs class I	Skin redness, rash	Skin redness, rash
Amitriptyline	Tricyclic antidepressant	Chronic pain syndrome, atypical pain in the face, postherpetic neuralgia, diabetic and other peripheral neuropathies	A starting dose of 10 mg/day, at bedtime or in divided doses every 12 hours; weekly dose increase of 10–25 mg/day	Maximal daily dose is 75 mg/day	A starting dose of 10 mg/day, at bedtime or in divided doses every 12 hours; weekly dose increase of 10–25 mg / day	Heart block; orthostatic hypotension; confusion; urine retention; dry mouth; constipation; weight gain	The number of adverse events is greater with the use of amitriptyline and imipramine; contraindicated in patients with glaucoma and patients taking MAO inhibitors.
Pregabalin	Antiepileptic drug	Treatment of all types of neuropathic pain in adults	The initial dose of 150 mg/day in 2 divided doses. Up to the 3rd day, increasing the dose to effective – 300 or 600 mg/day	Maximal daily dose is 600 mg/day	Unknown	Drowsiness, dizziness, swelling, diplopia, weight gain, dry mouth	
Tramadol	Analgesic with a mixed mechanism of action	Pain syndrome (strong and medium intensity, including inflammatory, traumatic, vascular origin). Pain relief during painful diagnostic or therapeutic procedures.	50–100 mg / day, no more than every 4 hours.	Maximal daily dose is 400 mg/day	Metabolism of isoenzymes CYP450 2D4; risk of developing serotonin syndrome with simultaneous use of SSRIs	Respiratory depression, ataxia, sedation, constipation, seizures, nausea, orthostatic hypotension	Use with caution when treating patients with epilepsy
Note: CYP450 - cytochrome P450 enzyme, MAO - monoamine oxidase, SSRIs - selective serotonin reuptake inhibitor							

Dosing of painkillers for children

Age or weight	Paracetamol *(tab. 100 mg every 4–6 hours)*	Codeine *(tab. 30 mg every 4 hours)*	Morphine per os *(5 mg/ml)*
2–4 months (4–6 kg)	62.5 mg	¼	0.5 ml
4–12 months (6–10 kg)	125 mg	¼	2 ml
12–24 months (10–12 kg)	187.5 mg	½	3 ml
2–3 p. (12–14 kg)	187.5 mg	½	4 ml
3–5 p. (14–19 kg)	250 mg	¾	5 ml
6-8 p. (19–29 kg)	250 mg	1	6 ml
8–10 p. (29–35 kg)	500 mg	1	8 ml

2. 3. Fatigue

Causes:

- Lack of rest and hypodynamia
- Malnutrition
- Psychological stress, depression, anxiety
- Sleeping disorders
- Anemia
- Antiretroviral, anti-TB drugs
- Alcohol, drugs abuse
- Opportunistic infections
- Hepatitis
- fever
- Hormonal disorders
- Electrolyte disorders

To evaluate fatigue you should know:

- Patient load and rest mode
- Nutrition
- Symptoms of depression and anxiety
- Use of psychoactive substance
- The impact of weakness on daily activities
- Factors that increase the weakness
- Infections in the past or now
- Sleep pattern

Care

- Frequent rest, which ensures the preservation of a state of relaxation and consists of a good night's sleep and a few short daytime rests
- Support of routine activity with a gradual increase to maximum tolerability
- Drinking as much liquid as possible

- Food with complex of carbohydrates (colored rice, beans, grains, cereals, vegetables, first of all - tomatoes, red fruits)
- Massage
- Distracting techniques (rubbing of menthol cream, acupuncture, vibration, compression)
- Stress relief

The following questionnaire can be used to assess fatigue:

A. 1. How do you evaluate the symptoms, thoughts?
2. How much do you worry about the effects of activity (overwork, muscle cramps, etc.)?
3. Do you feel difficulty in concentrating?
4. Is it hard for you to find the right words?
5. Are there any memory problems?

B. 1. Is your daily activity hard?
2. When does fatigue begin to increase and how strongly is it expressed in various actions?
3. How long is it? What percentage of day time do you feel tired?
4. Does fatigue increase after communicating with others? Are you satisfied with them?

C, 1. What do you think causes fatigue?
2. Are there any problems with sleep?
3. Do you associate fatigue with depression? If so, how much is it expressed?
4. Do you feel the support of relatives and friends?
5. Whether you are concerned about the family business?

Treatment

- Antidepressants (combination of fatigue and depression)
- Iron-containing drugs and drugs that stimulate erythropoiesis with anemia
- Steroids
- Calcium channel blockers

2.4. Fever

Fever can be caused by both tuberculosis and other opportunistic infections associated with HIV.

Care

- Carefully inspect the skin - whether there are abscesses, areas of skin infections.
- Ask about:
  - confusion;
  - seizures;
  - vomiting.

- Check if the body is dehydrated.
- Plentiful drink (if possible, from six to eight glasses per day).
- Wipe the patient with a sponge dipped in warm water. Open the window to allow air circulation; if possible, use a fan or fan a patient with a newspaper or book.
- Convince the patient to wear only light clothing.

Treatment

Paracetamol 1000 mg four times a day

- Ibuprofen 200–400 mg three times a day or
- Aspirin 300–600 mg four times a day (avoid use of aspirin in children).

2.5. Rash and itching

Rash and other skin problems are common in HIV-infected patients and can cause pain, itching and general discomfort. Some problems are associated with opportunistic infections, others are a component of HIV infection itself (for example, dry skin and papular itchy rashes). Sometimes it is difficult to make a diagnosis, and then it may be necessary to try different methods of treatment until an effective method is found.

Itching can be a symptom in various conditions with or without a rash, for example: liver disease, renal failure. Itching can cause sleep disturbance.

Care

- For dry skin – moisturizers or vaseline.
- Avoid frequent washing of the skin with soap and water; instead use moisturizers, such as liquid creams, or add a teaspoon of oil to five liters of water to wash the skin.
- The use of sodium bicarbonate solution for washing the skin (1 tablespoon per basin of water) may be effective in case of generalized itching.
- Use warm, not cold water.
- Try to cool the affected part of skin with a fan.
- Calamine lotion may help with itching.
- If the patient has itching, make sure that his nails are cut short.
- Sunbathing can be beneficial for some skin lesions and harmful for others.

Treatment

Creams for topical use

- Menthol 1 % water dispersion cream can relieve itching.
- Steroid creams, for example, hydrocortisone 1 % for inflammatory areas.
- Gentian violet can be applied to blisters bursting with shingles or molluscum contagiosum to prevent infection.
- For multiple areas of skin infection, wipe the skin with a 0.5% chlorhexidine solution after washing.

Drugs

- Antihistamines – help with allergic rashes and rashes caused by inflammation. They also have a sedative effect and can improve sleep, for example:
  - Chlorpheniramine 4 mg 3 times a day.
  - Promethazine 10–25 mg at night.
  - Hydrosicin 25–50 mg at night.
- In case of severe allergic reactions, steroid preparations should be prescribed, for example, prednisone 30 mg once a day for five days (60 mg for especially severe reactions).

2.6. Wounds

Care

Patients who spend most of their time in bed have a high risk of developing pressure sores. In addition, wounds can be caused by the formation of ulcers in skin forms of AIDS-related diseases.

Skin manifestations of Kaposi's sarcoma

Herpes zoster

Tuberculosis of peripheral lymph nodes

Common HIV-associated skin lesions	
Pathology	**Treatment**
Bacterial infections	Antibiotic therapy, local antiseptics Abscesses should be drained, cleaned and bandaged before using antibiotics
Fungal diseases	Antifungal drugs: in non-severe cases - topically, in severe cases – internally
Virus skin infections	Early shingles can be treated with acyclovir 800 mg 5 times a day or topically with a solution of gentian-violet and, most importantly, the appointment of painkillers If warts or molluscum contagiosum cause discomfort, they can be treated locally with podophyllin.
Scabies	Topical treatment (lindane, benzyl benzoate or permethrin)
Bedsores	Warn their appearance by keeping the skin clean and dry; turn the patient every 2-4 hours. Treat with daily wiping of ulcers with saline, apply clean dressings.
Wounds and ulcers	Treat with saline, apply clean dressings. Secondarily infected wounds can be treated with antibiotics: the appearance of the infection can be prevented by applying metronidazole powder or gel
Drug-induced rashes	Treatment with antihistamines and 1% hydrocortisone cream

Bedsores can be prevented by following measures:

- If the patient can move or sit in bed, ask him to change the position of the body, as this is useful for the prevention of bedsores.
- Change the position of the patient's body every 2–4 hours.
- Use foam mattresses if possible.
- If the patient is lying on side, place a pillow between the legs.
- When lifting the patient to the head of the bed, do not pull him, as this may damage the skin.
- Keep the bed dry and clean; use soft materials whenever possible.
- Keep your skin in good condition in areas exposed to pressure (back, sacrum, buttocks, elbows, and heels). Lubricate these areas with vaseline or zinc ointment; massage them to improve blood circulation.
- If possible, offer a high protein diet.

When wounds appear

- Mark the size and position of the wounds on the body map. Observe their condition (it improves or worsens).
- Wash wounds daily with saline. In the presence of perineal wounds, saline baths can help.
- Apply only dry dressings, they can be made from scrap materials.
- Eliminate pain with ordinary analgesics.

Treatment

- For wounds with an unpleasant odor, you can crush metronidazole tablets into powder and sprinkle the wound daily under a dressing.

- Gentian violet can dry small wounds.
- Genital ulcers can be lubricated with gentian violet or with a special compound, which is prepared by mixing:
  - contents of one open acyclovir capsule (200 mg);
  - 5 ml suspension of nystatin (500 000 units);
  - metronidazole: two tablets of 200 mg in crushed form.
- Tranexamic acid (500 mg tablets) or sucralfate (1 g tablets) will help stop the bleeding from the wound. Tablets can be crushed into powder and poured directly onto the wound under a bandage.
- Bleeding of any localization can be stopped with tranexamic acid (500–1 000 mg) 3 times a day orally.

2.7. Seizures

Seizures can occur in different ways. Rhythmic twitching is most often observed, rigidity of the body, single twitching or episodes of unconsciousness are possible.

Care

- During attack:
  - Protect the patient's airway so that he can breathe (loosen clothing, lay on his side).
  - Ensure that the patient does not hurt himself with sharp objects or burns.
- After attack:
  - Give the patient a proper and comfortable position.
  - Stay with him until he comes to his senses.
  - Pay attention to the duration and frequency of attacks..
  - Explain the reasons of the attacks to the patient and the caregiver.

Treatment

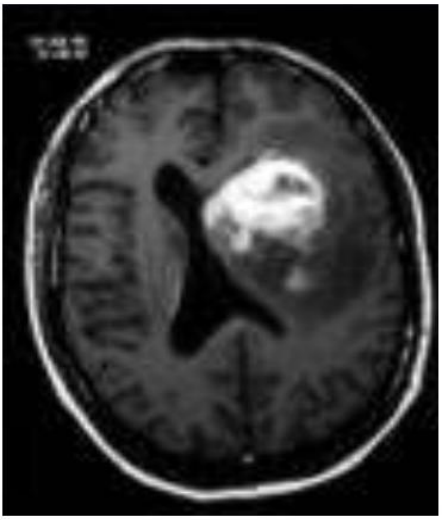
- To eliminate an attack if it lasts more than five minutes:
  - Diazepam 10 mg rectally or intramuscularly; repeat if necessary after 10 minutes.
  - Midazolam 5 mg subcutaneously, if available, or transbuccal (on the cheek).
  - Chloral hydrate (Paraldehyde) 5-10 ml, diluted in normal saline solution (rectal enema).
  - Phenobarbital 200 mg intramuscularly, if you cannot remove the attack by diazepam.
- To reduce the frequency of seizures:
  - Follow national guidelines for the treatment of epilepsy, and, if possible, prescribe anticonvulsant drugs.
  - Remember that anticonvulsants often interact with other medications.

- If a patient is receiving antiretroviral therapy, then valproate (valproic acid) is the anticonvulsant drug of choice.

2.8. Confusion

Confusion is a frequent condition for serious illnesses caused by many potential causes. Delirium is a confusion that lasts for a short period of time and is caused by a reversible cause, such as an infection or new drugs. This type of confusion may pass in a few days when the cause is eliminated. Dementia is a chronic confusion with a cause that is not easily reversible (for example, senile dementia or HIV infection that has hurt the brain, brain damage with opportunistic infections; the latter can be partially eliminated with the availability of antiretroviral therapy).

Cerebral toxoplasmosis



CNS lymphoma

With a sudden confusion, always think:

- Has the patient started taking new medicines? If yes, can this be the reason?
- Is there an infection that can be cured?

To assess the cognitive-behavioral status of the patient, an accelerated FAST scale is used (the severity of violations increases from the first to the last point):

1. No difficulty either subjectively or objectively.

2. Complains of forgetting location of objects. Subjective work difficulties.

3. Decreased job functioning evident to co-workers. Difficulty in traveling to new locations. Decreased organizational capacity.

4. Decreased ability to perform complex tasks, e.g., planning dinner for guests, handling personal finances (such as forgetting to pay bills), difficulty marketing, etc.

5. Requires assistance in choosing proper clothing to wear for the day, season, or occasion, e.g., patient may wear the same clothing repeatedly, unless supervised.

6. A. Improperly putting on clothes without assistance or prompting (e.g., may put street clothes on over night clothes, or put shoes on wrong feet, or have difficulty buttoning clothing) occasionally or more frequently over the past weeks.

B. Unable to bathe properly (e.g., difficulty adjusting bathwater temp.) occasionally or more frequently over the past weeks.

C. Inability to handle mechanics of toileting (e.g., forgets to flush the toilet, does not wipe properly or properly dispose of toilet tissue) occasionally or more frequently over the past weeks.

D. Urinary incontinence occasionally or more frequently over the past weeks.

E. Fecal incontinence occasionally or more frequently over the past weeks.

7. A. Ability to speak limited to approximately a half-dozen intelligible different words or fewer in the course of an average day or in the course of an intensive interview.

B. Speech ability is limited to the use of a single intelligible word in an average day or in the course of an intensive interview (the person may repeat the word over and over).

C. Ambulatory ability is lost (cannot walk without personal assistance).

D. Cannot sit up without assistance.

E. Loss of ability to smile.

F. Loss of ability to hold head up independently.

Care

- Try to stay with the patient as calmly and confidently as possible.
- It is important that a relative or close friend be with the patient.
- Minimize the number of people (especially strangers) communicating with the patient.
- Avoid measures to restrict the patient's freedom, unless this becomes a required condition for the patient's safety (restrictions usually cause increased agitation).
- If possible, keep the patient in a familiar environment.
- Remind the patient where he is, what day it is, what time it is and who is near him.
- Check if the body is dehydrated.
- If necessary, assign the rehydration solution orally or intravenously.
- Give antipyretics.

Treatment

In most cases with confusion it will be enough to take the measures listed above. If the patient is very agitated or aggressive, the following medications can help:

- Haloperidol 1.5–5 mg up to three times a day until the patient calms down.
- Chlorpromazine 25–50 mg up to three times a day until the patient calms down.
- If necessary, add diazepam 5–10 mg overnight, but do not give it without haloperidol or chlorpromazine, otherwise confusion will increase.
- In severe cases, when these drugs do not help, think about the appointment of phenobarbital.

2.9. Anxiety and insomnia

Severe symptoms associated with the illness and fear of the future often cause anxiety. Insomnia can be a result of physical problems, such as pain, or anxiety, depression.

Care

- Encourage patients to talk about their concerns.:
  - Do they have questions about the disease or fears that they would like to share?
  - Are there any difficulties in family relationships?
  - Are there any worries about food or financial issues?
  - Are there any concerns about religious or spiritual beliefs?
- It is likely that you will not be able to answer all the questions, but your active attention and support will help patients.

- Keep confidentiality regarding information entrusted to you by the patient and his family members.
- Pay attention to the patient's misunderstanding of some aspects of the disease.
- Teach patients to breathe slowly and control breathing.
- Is it appropriate to invite a clergyman?
- Would it be helpful if you or another team member visit the patient again?

Treatment

(Only if the anxiety cannot be removed by professional communication).

- Diazepam 2.5–10 mg at night - in some patients, it acts for 24 hours and may cause drowsiness during the day. (Try to prescribe a course of no more than a week, except when the patient is in the terminal stage).
- Syngopam (Temazepam) 10–20 mg at night – is effective for 8 hours and is useful for insomnia. (Try to prescribe a course of no more than a week, except when the patient is in the terminal stage).
- Trazodone 25–50 mg at night is a sedative and mild antidepressant that can help with anxiety and insomnia.

2.10. Depression

Patients with advanced incurable disease are almost always depressed. Antidepressants can help in case of depression. The incidence of depression among incurable patients, according to various studies, ranges from 9 to 17 %. Among patients with HIV/TB co-infection, it is higher - 17–35 %. The risk of suicide among this category of patients is 7–36 times higher than in the population. Depression is a mood disorder - the patient is depressed and / or it is not possible to turn the desires into normal acts of pleasure (angedony). Major depression is a condition in which one of these symptoms lasts at least 2 weeks. in combination with 4 or more of the following symptoms: feeling of excessive sadness and / or fear, inability to experience emotions; emptiness; loss of pleasure or interest in everything in daily activities; change in appetite with weight loss (not associated with the progression of the disease); sleep disorders (insomnia, loss of REM-sleep, or hypersomnia); psychomotor effects (agitation or lethargy during the day); fatigue, guilt, helplessness, worthlessness, isolation, loneliness, anxiety; difficulty concentrating, making decisions or generalized slowness; suicidal thoughts or attempts. Minor depression: it does not meet the criteria for major depression, but there are at least 2 of its symptoms within 2 weeks.

Making a diagnosis of depression can be difficult due to somatic illness, accompanied by autonomic disorders with similar symptoms, and

also due to the fact that a severe psychological condition is inherent in seriously ill patients. In addition, the patient may hide his symptoms due to prejudice of mental illness, and the doctor may avoid discussing difficult issues, fearing to disturb the patient's peace of mind.

In addition, you should not forget that patients with HIV/TB co-infection have additional risk factors for suicide:

- HIV/TB diagnosis
- Comorbidities
- Absence of treatment possibilities
- Pain
- Disability
- Social isolation
- Substance abuse

Untreated depression reduces the effectiveness of pain relief, increases other symptoms, and reduces the quality of life. Depression makes it difficult for the patient to communicate with his family, and he himself cannot get out of it. Watching how a person with depression suffers, his relatives suffer too. Finally, depression increases the risk of suicide.

Treatment of depression is beneficial for patients, and the benefits of a well-chosen therapy far outweigh any of the disadvantages associated with possible side effects.

Care

- Ask the patient the following questions:
  - How do you cope with your condition?
  - Did you lose heart after learning the diagnosis / during the course of treatment? What's up with the mood? Do you cope?
  - Are you crying? How often? Alone?
  - Are there any things that are pleasing to you or an interest in what was interesting before the illness is lost?
  - How do you imagine your future?
  - Can you influence the assistance provided to you or have you completely given everything under else's control?
  - Are you worried about becoming a burden for your family / friends during the treatment process?
  - Do you have uncontrollable pain?
  - How much time do you spend in bed? How long do you rest during the day?
  - Do you feel weak, tired? How do these feelings change in the course care?
  - What is up with sleep? Are there any difficulties with falling asleep? How early do you wake up?

- What's up with the appetite? Is the taste of food good? Do you lose/gain weight?
- Have you begun to think and move much less than usual?

- Make sure that the patient is comfortable and does not suffer from pain.
- Ask the patient about other physical symptoms that may disturb him.
- If anxiety and depression seize the patient:
  - Encourage him to record every small step on the road to coping with some of his problems, and plan some things that can please him.
  - It can be useful to set aside a certain time each day to discuss the patient's concerns so that he does not think about them around the clock.
- If the patient is religious, the visit of the priest can help.
- If the patient has thoughts about suicide:
  - Do not be afraid to ask about it - you won't do harm with your question. For example: "Have you ever felt so bad that you wanted to commit suicide?" Or "Have you ever thought that you no longer want to live?"
  - Patients feel more secure if someone is near them all the time.
  - It may be necessary to agree with the patient that someone else will be watching his medication.
  - Encourage those caring for the patient to seek immediate help if any cause for concern arises.

Treatment

(Only in depressive conditions in which psychological counseling does not help.).

- Serotonin antagonists: cytaprolam, paroxetine, sertraline 10–20 → → 30 mg
- Serotonin-noradrenaline recovery inhibitors: venflaxin 37.5–75 mg
- Atypical antidepressants: trazodone 25–50 mg
- Psychostimulants: methylphenidate, dextroamphetamine
- Tricyclic antidepressants: nortriptyline, amitriptyline, imipramine, doxepin

2.11. AIDS dementia syndrome

AIDS dementia syndrome is a diagnosis of exclusion. So, first of all, it is necessary to exclude all other causes of such symptoms: traumatic brain injury, encephalopathy, narcotic poisoning, depression. To distinguish AIDS dementia syndrome from delirium, narcotic poisoning or intoxication you should note gradual deterioration of cognitive functions over a period

of several weeks or months. In AIDS-dementia syndrome, impaired cognitive functions, primarily memory are combined with impaired motor functions, changes in mood and personality. In the cognitive sphere, slow thought processes and impaired delayed reproduction are typical. In the motor sphere, there is also a slowness, as well as weakness. In the most advanced cases, patients lose their ability to move, and epileptic seizures are also possible. As for changes in mood, you can observe depression and isolation. Personality changes include exacerbation of characteristic traits.

The prevalence of dementia among HIV-infected people reaches 15-20 %. With the discovery of antiretroviral therapy, it has decreased, but it remains high, and this is explained by the fact that today people can live for a long time with HIV infection. Signs of dementia are observed in many patients with a long history of HIV infection, even those who are receiving antiretroviral therapy.

Also, with AIDS-dementia syndrome, mental processes are distorted and the ability to maintain balance is impaired. Often there are personality changes - from closure to agitation. In the later stages, psychosis is possible.

Lumbar puncture, CT and MRI are used in the diagnosis of AIDS-dementia syndrome. These methods allow to exclude other causes of mental disorder.

AIDS-dementia syndrome should be differentiated from:

- AIDS-indicator diseases
  - Toxoplasmosis
  - CNS lymphoma
  - Progressive multifocal leukoencephalopathy
  - Cytomegalovirus encephalitis
  - Cryptococcal meningitis
- Other diseases
  - Viral and bacterial infections of the CNS
  - Neurosyphilis
  - Herpetic encephalitis

Treatment

There are few studies on this issue, therefore most of the recommendations are based on scattered data. One of the methods of treatment, the value of which is confirmed by research, is to reduce the viral load in the brain, that is, in the selection of an antiretroviral drug with a high ability to penetrate the blood-brain barrier.

Newer antipsychotics such as olanzapine and risperidone are used to improve cognitive function. They are also needed in the presence of hallucinations and delusions. For dementia combined with depression, use serotonin reuptake inhibitors. The simplest methods of influencing behavior are also useful – drawing up lists, keeping calendars, using compartments-divided containers for drugs, drawing up the daily routine. Sometimes it is

necessary to give patients clear tasks, sometimes they need to be protected from exciting situations. Patients with dementia should rest a lot, because with fatigue, their condition worsens.

It is important to speak with the patient simply and directly. It is equally important to teach his relatives and those who support him to properly communicate with the patient. Relatives (as well as medical workers) are often angry and upset about the patient's behavior - it seems to them that his slowness, forgetfulness, isolation are intentional. Since speech does not suffer from dementia, patient's friends, relatives and medical staff often do not notice other signs of mental disorder. To prevent this, educate the patient's friends and relatives, tell them what dementia is, what changes it makes, how to behave and communicate with the patient.

2.12. Delirium

Delirium occurs in 40–60 % of patients with HIV/TB co-infection, more often in dying patients. It is extremely difficult for patients and their relatives, so it is necessary to diagnose it as soon as possible and begin treatment. Very often delirium is mistaken for anxiety disorder, depression, dementia, psychosis. Disturbances of consciousness and attention, orientation, cognitive functions, perception, behavior, the "sleep-wake" cycle, the occurrence of hallucinations and agitation, and a wave-like pattern are typical for delirium. The main sign of delirium is an acute onset.

Causes of delirium:

- Medicines and their interaction
- Insufficient function of internal organs
- Infections, fever
- Metabolic disorders (in particular changes in the level of potassium and sodium)
- Alcohol abuse
- Traumatic brain injury

Treatment

First, and this is the main thing, it is necessary to try to eliminate the cause. In some cases, this means treatment of withdrawal syndrome or infection, in others - replacement or discontinuation of the drug.

In addition, you need to help the patient orientate in place, space and self. To do this, he should often be reminded of where he is, what date it is, what happened to him and why. The simplest methods help to restore orientation in time: it is enough to open the curtains by day, to set the clock and calendar by the bed of the patient.

When delirium, it is advisable to appoint narcoleptics. In this case, the drug of choice is haloperidol, since it can be administered intravenously and intramuscularly, and neither impairment of consciousness nor aggression of the patient prevent treatment.

Benzodiazepines should not be used for delirium: randomized clinical trials among hospitalized AIDS / TB patients have shown that drugs of this group can worsen the condition. The only indication for prescribing benzodiazepines for delirium is syndrome of withdrawal of alcohol or benzodiazepines.

2.13. Poor appetite and weight loss

Poor appetite (anorexia) is observed in most patients with advanced TB/HIV and can lead to cachexia.

Weight loss		
Pre-cachexia	**Cachexia**	**Irreversible cachexia**
Weight loss < 5 % Anorexia Metabolic disorders	Weight loss > 5 % or BMI < 20 and weight loss > 2 % Reduced food consumption and systemic inflammation	Prognosis< 3 months Pro-catabolic processes
Goal – preservation of muscle mass – nutrition, exercises, anti-inflammatory therapy	The goal is to reduce the loss of muscle mass	The goal is to mitigate the effects of deep cachexia

Care

- Feed the patient frequently, but in small portions.
- If a patient has an extremely advanced form of TB / HIV co-infection, his body is not able to benefit from food. In this case:
  - Explain to family members that loss of appetite is a natural element of the disease, and it is not necessary to force the patient to eat more: this will not prolong his days or improve his well-being.
  - The manifestation of anxiety due to the fact that the patient eats little, may cause him additional stress during eating. Simply offer the patient the amount of food and those dishes that he will enjoy.
- Give high-calorie, high-protein foods, for example, milk or yogurt.
- Encourage mobility and light exercises to maintain maximum muscle strength, but don't let the patient wear out.
- Carefully monitor the condition of the skin and areas where bedsores may appear. When losing weight, the skin is more prone to damage.

Treatment

- If the patient has a very fast feeling of fullness, try metoclopramide (10–20 mg up to three times a day, half an hour before meals). This may help to release the stomach more quickly. Cancel the drug if it does not give the desired effect.
- Steroids can improve appetite for several weeks. With long-term use, they cause unpleasant side effects, thus it is better to leave them for a period when the patient's life expectancy is several months or less.

- To improve the appetite:
  - Dexamethasone 2–4 mg in the morning.
  - Prednisolone 15–30 mg in the morning. If the effect is obtained in a week, proceed to the minimum effective dose. If no effect cancel drug.
- Progestogens: megestrol acetate 160–320 mg (maximum dose – 800 mg/day), medroxyprogesterone acetate 400 mg/day
- According to indications: transition to parenteral nutrition

2.14. Inflammation of the mucous membranes of the mouth, difficult swallowing

In the late stages of TB/HIV co-infection, infection and ulceration of the oral mucosa are frequent and very painful for patients. Candida stomatitis is not always manifested by the presence of white plaque in the oral cavity. Sometimes the only sign of candidiasis is pain in certain parts of the oral cavity or taste changes. If the patient complains of pain when swallowing, then he is likely to have candidiasis of the esophagus, even if there are no manifestations in the mouth. Many problems of the oral cavity can be prevented by good hygiene, moistening of the oral cavity and timely treatment of the infection.

Candida stomatitis

Care

- Regularly inspect the mouth, teeth, gums and palate to check for dryness, inflammation, candidiasis, ulcers
- Brush yr teeth with a toothpick or soft brush every time after meals and at night. Use toothpaste or mouthwash. With severe pain it is better not to use a toothbrush..

- After eating and overnight, rinse the mouth with a solution (for example, a pinch of salt or baking soda per cup of boiled and cooled water; a teaspoon of vinegar or lemon juice per liter of boiled and cooled water).
- With dry mouth:
  - Regularly moisten the mouth with small sips of cold water (if possible, suck ice).
  - Suck fruit pieces (pineapple, lemon, etc.).
  - Lubricate the lips with Vaseline.
- Some patients with a head or neck tumor can be fed liquid food through a nasogastric tube. The tube should be installed by a person who has the appropriate training. The tube should be flushed regularly with saline to prevent blockage.

Treatment

- Anesthesia in accordance with the WHO "analgesic steps".
- Soluble aspirin 500 mg four times a day for painful sensations in the mouth. Dissolve in water, rinse well mouth, throat.
- Gentian violet is useful in all types of inflammation, as it combines the action of an antibiotic, antiviral and antifungal agents. Apply three times a day.
- In halitosis caused by destruction of the oral tumor, mix the crushed metronidazole tablet or the contents of the injection ampoule with fruit juice and rinse the mouth with the resulting solution.
- Prednisolone – apply half of the pill to aphthae of oral cavity or crush the pill into powder and sprinkle the ulcer surface with this powder.
- For severe inflammations of the oral mucosa or the esophagus, which make it difficult to swallow, with the ineffectiveness of other drugs, you can prescribe high doses of corticosteroids: dexamethasone 8–12 mg orally, once a day. Always prescribe with antifungal agents, because steroids can increase fungal infection.
- For oral candidiasis, you can prescribe miconazole 1 tablet per day for 7 days or fluconazole 200 mg 1 time per day for 10–14 days
- When herpetic stomatitis - acyclovir 400 mg.

2.15. Nausea and vomiting

Nausea is a sensation of approaching vomiting or pressure in the stomach, and vomiting is the ejection of the contents of the stomach through the mouth.

Causes of nausea are:

- Medication (antiretroviral, antimycobacterial, antiparasitic, antifungal, etc.)
- Infections
- Diseases of gastrointestinal tract

- Diseases of CNS
- Adrenal insufficiency
- Anxiety
- Pain
- Metabolic disorders
- Vestibular disorders

You should reveal during examination:

- related symptoms
- factors that increase or decrease nausea
- laboratory values (albumin, total protein, electrolytes)
- nutrition disorders
- signs of dehydration

In a patient with vomiting or diarrhea, or a combination thereof, it is important to assess the degree of dehydration and adequately restore fluid loss.

Dehydration			
Clinical signs	**Mild**	**Moderate**	**Severe**
General state	Weakness	Weakness	Anxiety, irritability, cold skin, sweating, peripheral cyanosis
Pulse	Normal	Minor tachycardia	Frequent, weak
Breathing	Normal	Normal	Frequent and deep
Skin turgor	Normal	Slow unfolding of skin fold	Very slow unfolding of skin fold
Eyes	Normal	Fallen	Deeply fallen
Mucous membranes	Moderately dry	Dry	Very dry
Diuresis	Normal; dark urine	Decreased; very dry urine	Anuria; the bladder is empty

Care

- Discard a drug that could cause vomiting and prescribe another one.
- Convince the patient to drink more fluids. Liquid is absorbed better if the patient drinks it often in small sips.
- If the patient is dehydrated, if possible, rehydrate with saline solutions..
- Often the best remedy is cold drinks and cold dishes.
- Offer caregivers to cook small portions of tasty dishes and avoid fatty foods..
- Do not cook in the room where the patient is. It is useful to chew ginger or drink ginger decoction.

Treatment

Nausea and vomiting can be caused by various causes. The manifestation of symptoms depends on the cause, and various factors are influenced

by various specific drugs. If you do not have any drugs, use the available tools. If you cannot use the pills, use the injection of antiemetic to achieve the desired effect.

Treatment of nausea and vomiting		
Type of nausea and vomiting	**Causes**	**Treatment**
• **Violation of the evacuation of food from the stomach:** • Vomiting is the main symptom • Vomiting often decreases nausea • Gastroesophageal reflux is possible	• Opioids • Constipation • Condition of gastroint	• Metoclopramide 10–20 mg 3 times a day or • Domperidone 20–30 mg 2 times a day
• **Disorders of blood biochemistry/intoxication:** • Nausea is the main symptom • Vomiting often doesn't decrease nausea	• Medication • Renal insufficiency	• Haloperidol 1–5 mg at night or • Prochlorperazine 5–10 mg 3 times a day
• **Inflammation in head region:** • Can increase during movement • Vomiting often doesn't decrease nausea • Can be more severe in the morning	• Ear infection • Meningitis	• Cyclizin 25–50 mg 3 times a day or • Promethazine 25 mg 3 times a day
• **Vomiting with diarrhea:** • (differentiate with diarrhea on the background of over-filling the intestines)	• Infectious diarrhea	• Cyclizin 25–50 mg 3 times a day or • Promethazine 25 mg 3 times a day

2.16. Digestive disorders, gastroesophageal reflux

Often observed with ascites or disorders of the nervous system.

Care

- Feed the patient in a sitting position.
- Give drugs after food.
- Try to give milk.

Treatment

- Antacids, for example: a suspension of magnesium trisilicate 10 ml 3 times a day.
- With persistent symptoms, cimetidine 200 mg 2 times a day or ranitidine 300 mg 2 times a day or omeprazole 20–40 mg 1 time a day.

2.17. Hiccups

Frequent or prolonged hiccups can be a tormenting symptom. It is usually caused by stretching of the stomach, but may also be the result of renal failure.

Care

- To stop the hiccups, give the patient to eat crackers or pieces of ice or swallow two teaspoons of sugar QUICKLY.
- Try to give the patient a sitting position.

Treatment

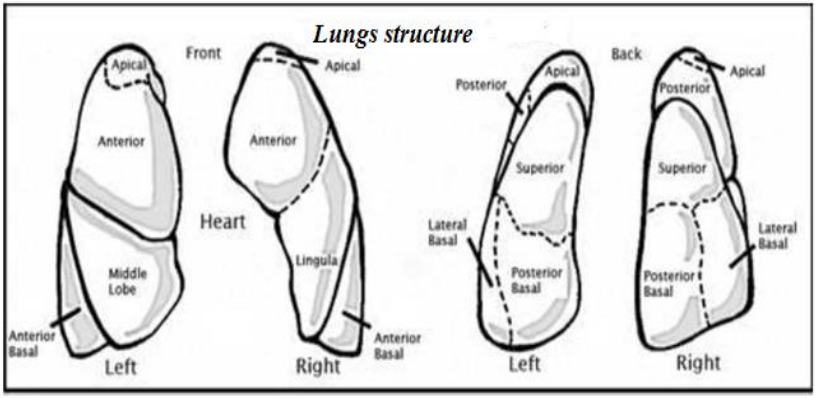
With stable hiccups, assign:

- Metoclopramide 10–20 mg 3 times a day or
- Haloperidol 3 mg at night or
- Chlorpromazine 25–50 mg at night.
- Baclofen 5–10 mg 3 times a day may help if the listed measures have been ineffective.

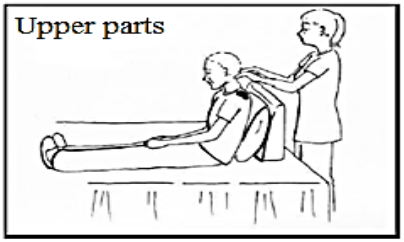
2.18. Cough

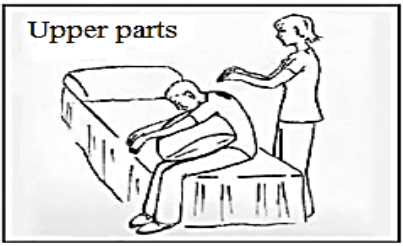
Care

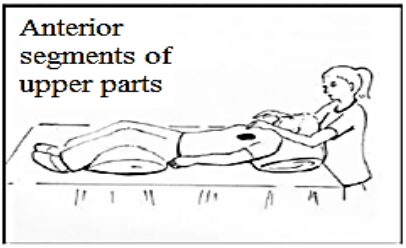
- Try to keep the smoke from cigarettes and from the kitchen where the food is prepared, do not reach the patient.
- Help the patient to cough up phlegm by giving him a sitting position.
- Explain to the patient that he must cough away from the caregiver - in a container that can be closed with a lid.
- If the sputum is thick and coughing up badly, try the following.:
    - Steam inhalation - the patient sits leaning over a pot of boiling water and takes deep breaths.
    - Clap the patient on the back in different directions with cupped palms.
    - Postural drainage: changing the patient's body position to allow sputum outflow from various parts of the lungs.
- For dry cough, warm drinks with honey, ginger and cinnamon are effective.

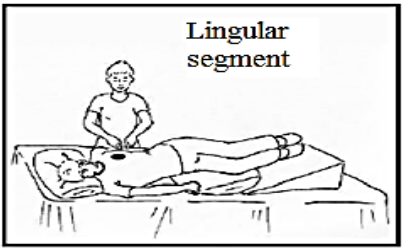


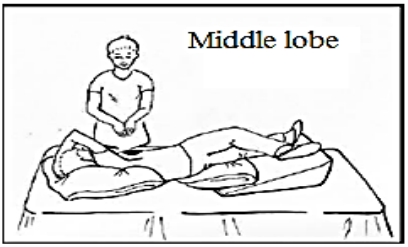
Postural drainage

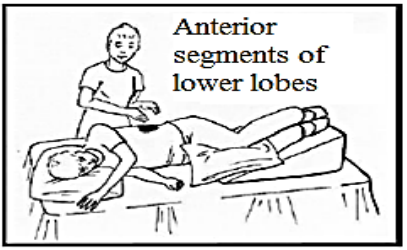


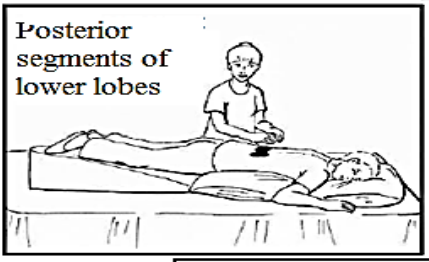


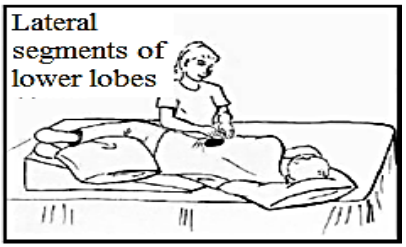


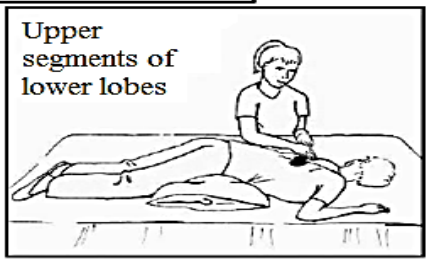












Treatment

- The following medications may help with persistent dry cough:
  - Codeine 30 mg 4 times a day.
  - Morphine 2.5–5 mg every 4 hours.
- With abundant liquid sputum, anticholinergics can help, for example:
  - Amitriptyline 10–50 mg at night.
  - Propanthelin 15 mg 3 times a day.
  - Hyoscine butyl bromide 20 mg 4 times a day.
  - Atropine 1 mg 3 times a day.

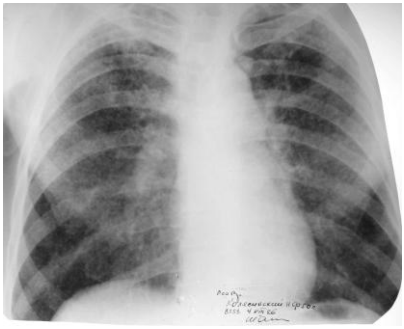
(Do not prescribe these drugs if sputum is thick, otherwise it will be difficult to cough up.).

2.19. Hemoptysis

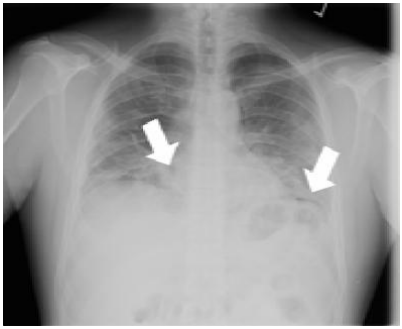
Obviously, the most common cause of hemoptysis in patients with HIV/TB is tuberculosis of the lungs, but hemoptysis can also be caused by bronchitis, pulmonary embolism, an opportunistic infection. In the case of palliative care, conventional methods of emergency care for hemoptysis (intubation, bronchoscopy with arterial embolization) are not recommended. Instead, the use of opioids in combination with midazolam or diazepam is preferred.

2.20. Dyspnea

Difficult breathing can be a terrible symptom at the final stage of the disease and almost always causes anxiety in both patients and their relatives. Dyspnea can be caused by pulmonary lesions in both tuberculosis and opportunistic infections.



X-ray. Miliary TB



X-ray. Pneumocystic pneumonia

It is necessary to cope with both shortness of breath and anxiety.

Care

- Ask the patient the following questions:
  - When did breathlessness begin? How long does it last? How often does it occur? At what time?

- What causes shortness of breath? What reduces or increases it? In which body position is it more pronounced?
- Is there a sense of compression of the throat/chest?
- What is the intensity of shortness of breath at the moment (from 1 to 5)? What is the maximum, minimum and average intensity of dyspnea? Is it related to other symptoms?
- What medications have previously been used to eliminate shortness of breath? Were they effective? Did they cause any side effects?

- Find a position that is comfortable for the patient (usually a sitting position).
- Open windows to allow air circulation, if possible, turn on the ventilator or fan the patient with a book or newspaper..
- Teach the patient to move slowly and gently to avoid shortness of breath increasing.
- If the patient is very worried or in panic:
  - Explain that shortness of breath will pass if the patient breathes slowly. Show how to slow down breathing, if the patient exhales to draw lips into a tube, as if he/she wanted to whistle.
  - Teach the patient diaphragmatic breathing: one hand should be placed on the chest and the other on the upper abdomen, so that it feels the movement of inhaled and exhaled air. With diaphragmatic breathing, the movement of the arm on the abdomen should be more noticeable than with chest breathing.
- Remove anxiety
- Prescribe physiotherapy
- Breathing exercises:
  - Normal breathing ("abdominal breathing"): the chest should be completely immobile, only the abdomen is inflated with a slight inhale through the nose and relaxed with the same exhale through the nose or mouth
  - Long deep breathing: inhale through the nose, filling/expanding the abdomen, and do not stop until the lungs fill and the chest expands. It must be performed within a few minutes daily and as often as possible.
  - The patient closes eyes and tries to breathe in as much air as possible, holding it for a few seconds. Exhales very, very slowly, feeling the relaxation of the whole muscles of the body. Start breathing normally (“abdominal breathing”), but continue to increase relaxation.

Treatment

Oxygen therapy – indications:

- $PaO_2 < 55$ mm Hg

- PaO_2 – 55–59 mm Hg +
  - p. pulmonale
  - clinical manifestations of right ventricular failure
  - hematocrit > 55 %
- SaO_2 < 8 9%

If the cause of dyspnea cannot be eliminated, the patient's condition can be alleviated by prescribing the following drugs:

- Morphine 2.5–5 mg every 4 hours.
- Diazepam 2.5-5 mg up to 3 times a day (especially if the patient is in anxiety or panic). With agonal dyspnea, higher doses may be needed.
- Neuroleptics (as an adjuvant drugs for chronic dyspnea): methotrimeprazin 5 mg every 8 hours (maximum dose – 25 mg every 4 hours)
- Dexamethasone 8–12 mg once a day
- If dyspnea occurs on the background of heart failure or edema, you should prescribe morphine 2.5 mg (or increase the dose by 25 %), furosemide 40 mg
- Oxygen therapy
- For agonal dyspnea: morphine 5 mg intravenously or subcutaneously every 5–10 minutes, doubling the dose, if the previous ones are ineffective, midazolam 5 mg subcutaneously or intravenously every 5–15 minutes, lorazepam 4 mg intravenously or subcutaneously, phenobarbital 90–120 mg, diazepam 5–10 mg intravenously

2.21. Diarrhea

Diarrhea occurs in 30–50 % of HIV-infected patients. In 75–80 % of cases, several types of pathogenic bacteria, viruses, parasites are found in the feces. About 25 % of cases are idiopathic HIV enteropathy. In addition, diarrhea is a side effect of most antiretroviral and anti-tuberculosis drugs. Acute episodes of diarrhea usually do not require special treatment, except the replenishment of the liquid. Diarrhea with blood or fever may require treatment with antibiotics such as ciprofloxacin or cotrimoxazole (follow local guidelines).

Main causes of diarrhea:

- Bacterial infections
  - Salmonella
  - Shigella
  - Campylobacter
  - Clostridium difficile (after long treatment with antibiotics)
- Protozoa
  - Cryptosporidium
  - Giardia

- Opportunistic infections
  - M. avium complex (CD4 + < 50 cells/μL; often disseminated infection)
- Cytomegalovirus (CD4 + < 50 cells/μL; diagnosed with colonoscopy and biopsy)
- Kaposi's sarcoma

Persistent diarrhea that lasts more than two weeks is very exhausting and should be kept under control whenever possible. Analysis of feces and bacteriological (cultural) studies can help in determining the cause.

When examining a patient with diarrhea, the following questions should be clarified:

- Stool frequency
- Stool volume
- Prescription of symptoms (< 14 days – acute diarrhea, > 14 days – chronic diarrhea)
- The dependence of diarrhea on the products that the patient takes
- The change in the severity of diarrhea depending on time
- Feeling of incomplete bowel emptying
- The form and consistency of stool
- The presence of tenesmus (recurrent spasms of the rectum without defecation, accompanied by a desire to empty the bowels but the inability to do so)
- Sexual history (anal sex may be the cause of infection)
- Taking drugs

The lesion of the small intestine is usually non-inflammatory, characterized by a significant amount of feces (> 2 L/day), loose stools, which lead to dehydration, malabsorption, cramping pain in the umbilical region, slight fever, nausea, vomiting. The lesion of the small intestine is more likely to be caused by cryptosporidium or Mycobacterium avium, as well as E. coli, Giardia and microsporidium.

The lesion of the colon is usually inflammatory, it is characterized by a small amount of stool, frequent urge, mucus, pus, blood in the feces. Proctitis is characterized by tenesmus, pain during defecation, pain in the lower abdomen. Colon lesions are usually caused by Clostridium difficile (against the background of long-term antibiotic treatment), as well as Shigella and E. Coli.

Signs of dehydration are easier to detect when examining the oral mucosa. Normally, the mucous membrane is moist and shiny. Dry mucous membrane and cracked lips indicate dehydration.

Skin turgor is evaluated by grabbing and sipping the skin fold on the forearm. If the skin is elastic and the fold unfolds quickly, there is no dehydration. If the fold unfolds slowly or persists, there is a pronounced dehydration or weight loss.

To detect orthostatic hypotension, blood pressure and pulse are measured in the supine position, and then immediately after rising. Signs of dehydration are considered a decrease in systolic blood pressure of more than 20 mm Hg and increased heart rate.

In the study of the abdomen, auscultation of the abdominal cavity is carried out in order to assess the nature of intestinal noise (normal, strengthened, reduced). After that, carry out a palpation of the abdomen to detect pain, lesions, hepato- or splenomegaly.

Laboratory studies are important for assessing dehydration and malabsorption, especially in patients with prolonged diarrhea. In case of impaired absorption, the serum level of albumin is reduced, and during dehydration, the levels of amino acids and potassium decrease.

The CD4 lymphocyte count helps to diagnose opportunistic infections: if it is less than 100 cells/μL, opportunistic infections can be the cause of diarrhea, if it is more than 200 cells/μL, opportunistic infections are unlikely and other causes of diarrhea should be sought.

The survey should start with simple methods, in particular with the analysis and cultural investigation feces. A fecal examination can detect bacterial, parasitic, and toxic causes of diarrhea. As already mentioned, Clostridium difficile often causes colitis in patients treated with antibiotics.

Care

- With frequent and abundant diarrhea, give the patient a lot of fluids and rehydration saline.
- Explain to the patient that it is better to drink very often and in small sips than to drink a lot of liquid at a time.
- Tell the patient that he can eat whenever he wants.
- Explain that it is better to eat often, but in small portions than a lot at a time.
- Rice, bread and potatoes are good for patients with diarrhea.
- Bananas and tomatoes are good for replenishing potassium.
- Yogurt is absorbed better than milk and cheese.
- Explain to the patient the benefits of careful hygiene (washing hands, changing contaminated laundry, using the toilet).
- To protect the skin around the anus, lubricate the skin with vaseline.

Treatment

- If diarrhea becomes chronic and the measures described above do not help, you can prescribe medications. They cannot be prescribed at high temperature or in the presence of blood in the feces (these are signs of an infection that must be treated with antibiotics). You can prescribe the following drugs:
  - Loperamide 2 mg 3 times a day and after each episode of diarrhea (up to 16 mg per day).
  - Codeine 10 mg 3 times a day or morphine 2.5–5 mg every 4 hours.

2.22. Constipation

If possible, examine the patient to understand the cause of the constipation. A rectal examination will show accumulation of hard stools that prevent bowel movement. If the intestine is free, then the reason should be sought above. In the final stage of the disease, patients have loose stools with a very small amount of feces due to the fact that they eat little. It does not require treatment.

Care

- Give the patient plenty of fluids.
- Explain the importance of fruits and vegetables in the diet.
- Give a tablespoon of vegetable oil before breakfast.
- If the stool is hard, lubricate the inside of the anus with vaseline or insert a glycerin suppository.
- Manual assistance may be required to evacuate feces; sometimes it has to be done regularly.
    - Explain to the patient what you are going to do; if possible, give the analgesic oral or diazepam 5–10 mg 30 minutes before the procedure.
    - Wear gloves and grease your thumb with vaseline.
    - Massage the inner surface of the anus to relax the sphincter, then gently insert your finger. If you feel muscles tighten, stop and give time to relax.
    - Remove fecal masses gradually, fragment by fragment.
    - Talk with patients during the procedure, ask them to take deep breaths – this will help them to relax. If the patient experiences too much discomfort, stop the procedure and continue it another day.

Treatment

- Bisacodil 5 mg at night, if necessary, increase to 15 mg.
- Sennosides A & B 1–2 tablets at night, if necessary, increase the dose.
- Glycerin or Bisacodil suppositorium.
- Osmotic laxatives (lactulose, magnesium sulfate (except for patients with kidney disease), polyethylene glycol)

2.23. Urinary incontinence

Care

- Urinal catheter for men.
- Urological pads for women and, diapers, if necessary.
- Change pads and bedding regularly to keep dry.
- Vaseline for skin protection.
- Explain to patients that they can drink – sometimes they stop drinking for fear of incontinence, but dehydration will only worsen the general condition.
- If possible, consider inserting a urinary catheter.

2.24. Urinary retention

Care

- Catheterization will help alleviate the condition. If the cause is removable, the problem may be resolved after the urine is discharged, and the catheter can be removed.
- Sometimes it is necessary to install a catheter for a long time. It can get clogged. To clean the catheter, the urinary bladder must be flushed with saline using a 50 ml syringe. Teach the patient to wash the bladder. Change the catheter at least every four weeks.

Treatment

- Anesthesia in accordance with the "analgesic steps" of WHO.
- Dexamethasone.
- Antispasmodics.

2.25. Urinary bladder spasm

Sudden unbearable pain in the bladder and urethra, occurs in patients as a result of the introduction of a catheter or infection.

Care

Give the patient a lot of liquid.

Treatment

- Holinoblockers, for example, amitriptyline 25–50 mg per night or hyoscine butyl bromide 10–20 mg 4 times a day or propantheline 15 mg 3 times a day.
- Phased pain relief.

2.26. Lipodystrophy

Treatment of lipodystrophy is a difficult task. It does not often bring satisfaction either to the doctor or to the patient. It remains unclear not only the treatment of lipodystrophy, but also the definition of this condition. There is still no consensus about combination of symptoms which should be defined as lipodystrophy. There are several reasons for this. First, this syndrome is known relatively recently. Basic research has yet to be carried out to study the nature of lipodystrophy and find quantitative criteria. Secondly, the described cases of lipodystrophy vary greatly. In some patients, there is excess fat deposition. In the same patients, there is lipoatrophy in some areas of the body and excessive deposition of fat in others. The severity of violations is also very different. Due to such inconstancy of manifestations of lipodystrophy, it is difficult to develop a single definition. In addition, controversy continues about the role of various drugs in the development of lipodystrophy.

Detection of symptoms of lipodystrophy:

- Patient’s complaints (visible violations of fat deposits, formation of fat tubercles, diarrhea, nausea, vomiting, bloating, weakness, muscle pain, shortness of breath)

- Physical examination
- Increasing the ratio of waist circumference to hip circumference (> 0.85 for women,> 0.95 for men)
- Measuring with ultrasound, CT, MRI
- Determination of the level of lactic acid (lactic acidosis – increased blood lactate level > 2 mmol/L), triglycerides, blood glucose
- Insulin resistance

Numerous publications have reported on the association of lipodystrophy with treatment with protease inhibitors. After lipodystrophy was described, protease inhibitors became the subject of the most careful study. Most studies have identified the association of protease inhibitors with fat accumulation, insulin resistance, hyperglycemia, and hyperlipidemia, but lipoatrophy has also been described.

Lipoatrophy (a decrease in the deposition of fat tissue on the extremities) and an increase in blood lipids occur most often after treatment with nucleoside analogues, such as zidovudine, stavudine, didanosine and lamivudine. Sometimes hyperlipidemia accompanies elevated lactic acid levels. These side effects of various drugs of this class are expressed in varying degrees. For example, according to numerous data, lipoatrophy often occurs in the treatment of stavudine.

Diet, exercises, testosterone replacement therapy, anabolic steroids, thiazolidinedione derivatives, metformin, somatotropin can be used to treat this syndrome.

2.27. Anemia

Anemia is a frequent hematological disorder in TB/HIV co-infection. Causes of anemia are:

- Disorders of erythropoiesis (is most common in TB/HIV co-infection; usually normochromic normocytic anemia with anisocytosis)
  - Decreasing transferrin iron saturation
  - Ferritin elevation
  - Reduced serum erythropoietin level
- Impaired absorption
  - Iron-deficiency anemia
  - B_{12}-deficiency anemia
  - Folic acid deficiency anemia
- Increased destruction of red blood cells
- Blood loss

Anemia is manifested by shortness of breath, weakness, loss of appetite, headache, neuropathy, redness and burning of the tongue, pallor of mucous membranes and skin, tachycardia, early systolic murmur, splenomegaly (with hemolytic anemia)

Drugs which can cause anemia:

- Antiretroviral
  - zidovudine (causes anemia most often)
  - ganciclovir
  - foscarnet
  - α-interferon
  - ribavirin
  - cidofovir
- Antifungal
  - amphotericin B
  - fluorocytosine
- Antimicrobial
  - trimethoprim/sulfamethoxazole
  - sulfonamides
  - dapson
- Antiparasitic
  - pyrimethamine
  - pentamidine

Iron-deficiency anemia

Occurs due to insufficient intake of iron from food, disorders of iron absorption, blood loss. Change in taste, glossitis, cheilitis, koilonychias (spoon-shaped nails) can appear. Laboratory tests reveal normochromic microcytic anemia and low iron level. Iron-containing drugs are used for the treatment – 50–100 mg 3 times a day, 2 hours before a meal or 1 hour after meal, with water or juice.

B_{12}-deficiency anemia

B_{12}-deficient anemia leads to disorders of DNA synthesis, especially in neurons. Cause of vitamin B_{12} deficiency is the lack of internal factor Castle in the stomach, inflammatory changes in the gastrointestinal tract and excessive proliferation of bacteria in the intestine (bacteria compete with the intestinal wall for the absorption of vitamin). Symptoms of anemia include mouth ulcers, bright red tongue, peripheral neuropathy. It should be noted that peripheral neuropathy is not always reversible and may persist after the elimination of vitamin deficiency. Laboratory research reveals macrocytic hyperchromic anemia, as well as low levels of vitamin B_{12}. The treatment is carried out with vitamin B_{12} for subcutaneous, intramuscular or intranasal administration. When ingested, vitamin B_{12} is poorly absorbed.

Folic acid deficiency anemia

Folic acid is essential for the synthesis of thymidine, nucleic acids and amino acids. Folic acid deficiency is caused by inadequate nutrition, high doses of alcohol, increased folic acid demand, for example, during pregnancy, disorders of intestinal absorption due to giardiasis, and folic acid

antagonists (phenytoin, sulfasalazine, and aminosalicylic acid) . Treatment: ingestion of folic acid, 1–2 mg per day.

Anemia due to blood loss

The cause of anemia in patients with TB/HIV co-infection can be blood loss, both acute and chronic. Chronic blood loss increases the number of complications. Since blood loss occurs slowly, patients have time to physiologically adapt to it. In this regard, anemia can remain asymptomatic for a long time and for the first time manifest itself in a severe stage. The most common cause of blood loss is gastrointestinal bleeding caused by infections, hemorrhoids, polyps, etc. Therefore, when figuring out the causes of anemia, these diseases should be excluded.

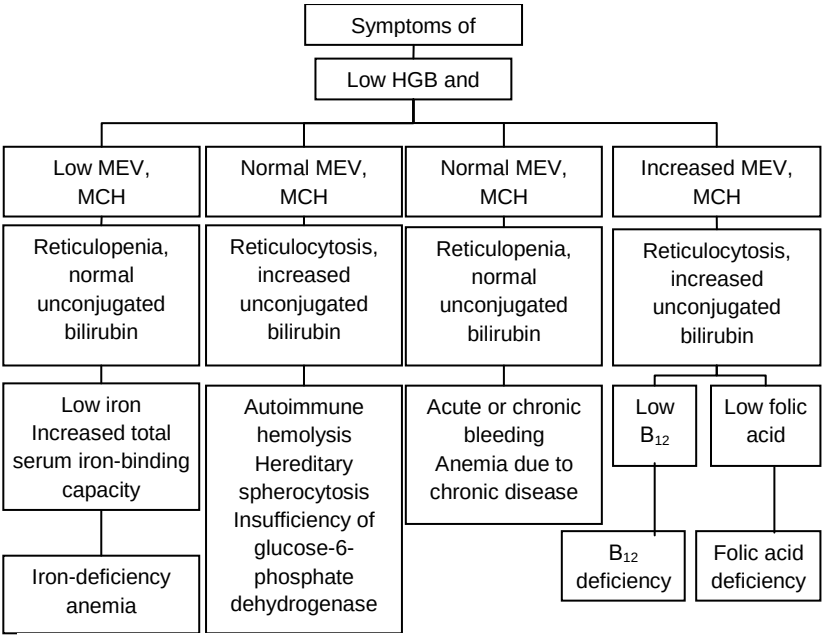
Anemia due to increased red blood cell destruction

These causes are rarely seen with TB/HIV co-infection, but they should be remembered. In patients with sickle cell anemia, it is important to avoid the administration of drugs that suppress blood formation to avoid severe anemia and pain crises. In case of HIV infection, glucose-6-phosphate dehydrogenase deficiency is important. This enzyme is required for aerobic glycolysis. In erythrocytes, glucose-6-phosphate dehydrogenase catalyzes the conversion of glucose to glutathione, which prevents the destruction of hemoglobin. Lack of glucose-6-phosphate dehydrogenase leads to deficiency of glutathione and, as a result, oxidative destruction of hemoglobin globin chains and damage to the erythrocyte membrane. As a result, hemolysis and anemia occur. Glucose-6-phosphate dehydrogenase deficiency is more common in African Americans, Asians and people from the Mediterranean. Lack of glucose-6-phosphate dehydrogenase is asymptomatic as long as the person does not take substances that provoke hemolysis, such as dapsone. There is no treatment for glucose-6-phosphate dehydrogenase deficiency, only hemolysis prevention. Therefore, before you assign dapsone, you should determine the activity of glucose-6-phosphate dehydrogenase.

Anemia due to erythropoiesis disorders

If the treatment of metabolic disorders and opportunistic infections could not overcome this type of anemia, then erythropoietin preparations are used to treat it. The initial dose of epoetin is 100–300 μg/kg subcutaneously three times a week. When the hematocrit reaches 36–40 %, the dose of epoetin is corrected to keep the hematocrit at this level. If the initial level of erythropoietin in serum is less than 500, you can expect a good response to epoetin. When the initial level of erythropoietin is more than 500, epoetin is often not effective.

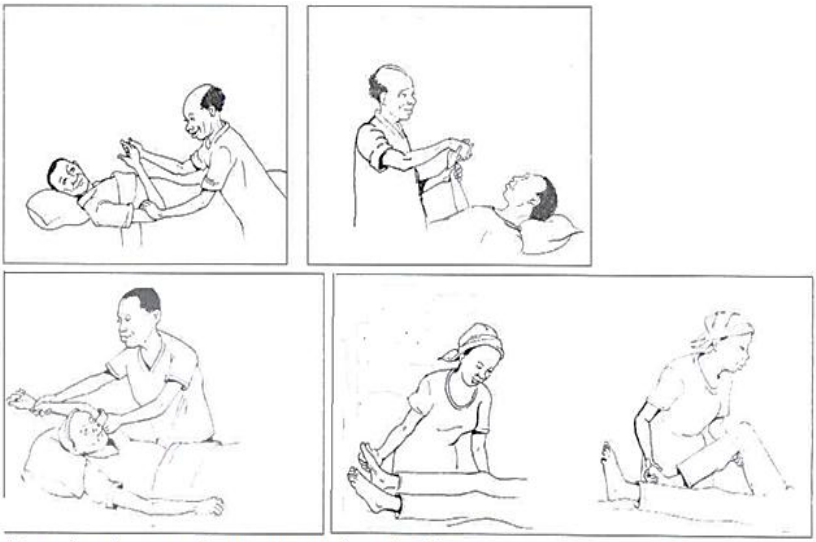
Diagnostic algorithm for anemia



MEV – mean erythrocyte volume
MCH - mean corpuscular hemoglobin

2.28. Muscle cramps and contracture

Clinical case	Care	Treatment
Contradictions and contractions	Do not restrict the patient's motor activity, encourage him to move If the patient cannot move, perform a simple exercise complex at least 2 times a day • To prevent the joint damage, hold the limb above and below the joint and support it when performing movements. • Bend, straighten and make other movements in the joints that can be performed without effort. Be careful and move slowly without causing pain. • Stretch the joints by applying a equal force and supporting them as described above. • Put the patient's hands behind his head and raise his legs by 90^0 - let the patient first raise his legs by himself as much as he can, and then help him • Regularly massage the patient.	Diazepam 5–10 mg 2–3 times per day Tetrazepam 50 mg per day, up to 200 mg per day
Muscular cramps		Baclofen – start with 5 mg 3 times per day, increase the dose every 3 days up to 25 mg 3 times per day



Exercises for muscle spasms and contractures

2.29. Movement problems

Care

- If the patient cannot move, he/she may develop pressure sores. Prevent their appearance with quality care for areas that are under pressure.
- Immobility of the limbs causes their rigidity, contractures occur:
  - Encourage patients to move as much as possible, help them change their position often.
  - If the patient is immobile, do "passive" exercises at least twice a day.
  - Maintain joint flexibility by gently bending and unbending wrists, elbows, shoulders, ankles, hips, and neck.
  - Protect the joints by supporting the limb above and below them while moving.
  - Massage the limbs, neck and back.

Treatment

- Pain relief can help maintain joint mobility.
- Adjuvant drugs for muscle spasm

3. DISCUSSIONS WITH PATIENTS AND THEIR RELATIVES BEFORE THE DEATH

Why is it important to discuss care before death?

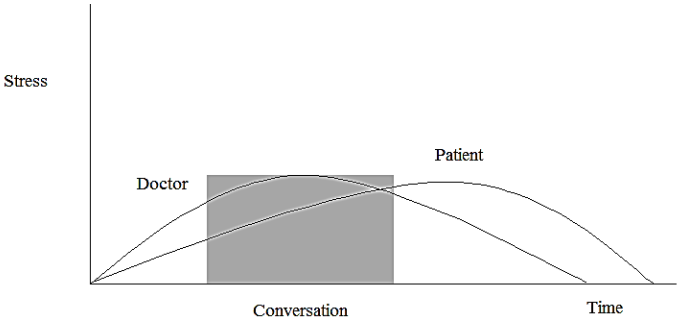
- We cannot predict the patient's wishes
- Orders for the case of loss of independence often do not help
- It is important for patients and their families
- It increases patients' satisfaction with help and improves their mental state.

Rules of communication with patients:

- Listen to the patient
- Speak to the patient honestly and directly
- Be sensitive, telling bad news
- Get ready to talk about death
- Feel when the patient is ready to talk about death.

Recommended protocol for telling bad news to patients:

1. Prepare data, place and conditions for conversation
   a. Find out all the necessary information regarding the diagnosis and the current state of the patient
   b. Find proper time
   c. Ensure privacy
   d. Invite the patient and those people whose presence is desirable for him on this visit
2. Clarify patient's awareness
3. Clarify patient's need for information
4. Tell the news
5. Respond to the patient's feelings
6. Agree on the next step.



Stress due to difficult conversation: doctor and patient

4. PROFESSIONAL BURNOUT

Professional burnout is a process in which the daily influence of stress factors associated with helping a seriously ill patient gradually leads to psychological and somatic problems for the person who helps the patient.

The intrapersonal problems faced by professionals working with HIV/TB patients are exacerbated by the following factors:

- Fears: fear of infection, transmission to family members, death
- Overly close distance with patients in combination with the rejection of their life choices
- The presence of ethical bias against socially unresponsive behaviors
- Dissatisfaction with the effectiveness of caregiver's own work

The professional burnout syndrome of medical workers develops approximately 4 years after the start of work in the department.

The first signs: a decrease in motivation for work, the time spent on work increases, the efficiency of work decreases, there are complaints and dissatisfaction about work.

When continuing work in the same mode, more severe manifestations of professional burnout occur (psychological, behavioral, somatic).

Psychological manifestations: anger, frustration, loss of self-esteem and self-confidence, reduced interest in work, a sense of inadequacy, hopelessness and guilt, fatigue, depression, the feeling that the task exceeds strength and capabilities, changes in mood, insolvency, increased anxiety, loss of faith.

Behavioral manifestations: emotional outbursts, avoiding communication with friends and acquaintances, reduced punctuality, neglect of duties, reduced self-criticism, it becomes difficult to focus on the tasks, crying appears, the use of psychoactive substances (alcohol, tranquilizers), problems in communicating with others, fear changes, problems in the family.

Somatic manifestations: back pain, decreased or increased appetite, problems with the gastrointestinal tract, exacerbation of chronic diseases, hypertension, fatigue, headache, sleep disturbances, muscle tension, loss of sexual desire.

Of particular importance is the attitude of the health worker to death. Doctors and nurses, faced with the death of patients, experience severe stress, which leads to burnout syndrome.

The individual factors leading to burnout syndrome are the personal qualities of the medical worker, his system of values, attitudes, beliefs, and defense mechanisms.

Emotional devastation of a caregiver makes him resistant to the feelings and needs of the patient.

Care is provided mechanically, duties are neglected. As a result, patients receive low-quality care, which is especially traumatic for serious illnesses requiring long-term treatment.

The effect of burnout syndrome on the health care system is manifested in the dismissal of experienced staff, increasing the frequency of hospitalization of patients for social reasons.

Burnout syndrome prevention strategies:

- Focus on the problem, not on the emotions: collect information and plan activities according to the information, not subjective ideas - this gives a sense of order and control. Take concrete action, ask for help from colleagues
- Change the model of care: be aware of your opportunities (what can I do and what cannot), set clear and realistic goals; rank your tasks in order of importance; follow your functional responsibilities, avoid responsibility for "everything"; distribute tasks to several consecutive steps; manage time, it is not unlimited
- Allow yourself to feel your desires and fulfill them (walking, meditation, sports, music, playing with children, reading, gardening, shopping, etc.)
- Take care of yourself. Taking care of others is easier. The most difficult thing is to take care of yourself. Life consists of simple joys. Create an opportunity for yourself to eat regularly and properly, to take breaks in work. Give yourself the opportunity to sleep for 8–9 hours
- Work in a multi-professional team, distribute responsibility
- Provide medical professionals with the opportunity to consult a psychologist, psychotherapist
- Provide regular trainings for prevention of professional burnout for medical staff (at twice a year)
- Hold regular seminars and training cycles
- Organize staff meetings outside the medical facility for collective recreation

Prevention of professional burnout syndrome is a multi-factorial problem. In its decision, much is determined by the state (wages and working conditions), but each person is also able to do his best to solve the problem. If you notice some warning signs in yourself, start yourself working on yourself - life requires effort.

5. CARE AT THE END OF LIFE

It will be much easier for family members who lose a loved one to cope with the problem if they know in advance what kind of medical, emotional and spiritual changes occur in the last months of life. Health workers can do a lot for family members and other caregivers if they tell them about these changes.

Symptoms that indicate that the patient is likely to die in the next 6 months:

- CD4+ < 25 cells/mm^3
- HIV RNA > 100000 copies/mL
- Plasma albumin < 25 g/L
- CNS lymphoma
- Multifocal leukoencephalopathy
- Cryptosporidiosis
- Disseminated MAC-infection
- Visceral Kaposi's sarcoma
- Severe AIDS dementia
- Toxoplasmosis
- Cardiomyopathy
- Chronic diarrhea
- Severe organ failure

Preparing to death

- Try to establish communication between family members and the patient. Such communication is useful for identifying fears experienced by both family members and the patient.
- Talk to the patient about the disease. It is important that he understand what is happening and know the forecast.
- Discuss issues that concern the patient, such as child custody, sources of support for the family, old squabbles, funeral expenses.
- Tell the patient that he is loved and will be remembered.
- Talk about death if the patient wants it. Perhaps the patient has experienced the death of someone who felt suffering before death, and is afraid to experience the same.
- Make sure the patient is helped to cope with feelings of guilt or regret.
- To meet the spiritual needs of the patient, contact his spiritual mentor or religious organizations of his choice (if he expresses such a desire).
- Be near, be involved.
- Visit the patient regularly, hold his hand, listen, speak.

Care

Provide comfort to the patient:

- wet lips, mouth, eyes;
- make sure that the laundry is always clean and dry;
- treat pain and fever (if necessary, give drugs by the hour);
- eliminate other symptoms, use symptomatic drugs;
- feed and water the patient little by little, as often as necessary;
- maintain physical contact.

Reaction to loss

After the patient's death, it is important to help his family to suffer the loss. The loss of a family member who has died of TB/HIV can be especially severe for several reasons:

- HIV-infected people die at a relatively young age, so for family this loss is even harder;
- relatives face not only the loss of a loved one, but also the near or distant prospect of financial and social problems;
- grief is more difficult to cope due to the "vicious" nature of the disease;
- it is possible that other family members have already died from TB/HIV, or family members are also infected and may die from TB/HIV

All of this requires professionals who provide TB/HIV care the participation and attention that families need to cope with their grief and the many sufferings associated with TB/HIV that often afflict families.

6. APPENDIX

Appendix 1

Major changes in the patient's state at the end of life and recommendations for family members and caregivers

Changes	Last months of life	Last weeks of life	Last days of life	Last 24–48 hours of life
Changes when death approaches				
Medical	• Weakness increases • Sleep is lengthened • Loss of appetite • Pain or other symptoms increase	• Prolonged stay in bed • Insomnia • Diminished interest in eating and drinking • Weakness increases • Walking becomes more difficult	• Incontinence of urine and feces • Insomnia at night, sleep during the day • Sweating • Confusion • Intellectual disability • Pallor • Respiratory disorders	• Drowsiness • Anxiety • Agitation • Gradual or sudden loss of consciousness • Increasing changes in skin color • Periodic creathing • Bubbling breathing • Groans • Delirium
Emotional	• The need for close communication, conversation, physical contact, expression of love increases • Social exclusion • Sorrow, tearfulness increase	• The desire to talk about funeral arrangements • Periods of expression of strong emotions • «Bargain» • Recalling the experience, discussion of past events • Family encouragement • Fear of falling asleep •	• Soothing • Increased sociability • Farewell words • Increased anxiety	• The patient may not respond or almost not respond • Confusion, delirium, inability to clearly express emotions
Spiritual	• Increased interest to spiritual aspects • Prayer • The desire to communicate with a spiritual, religious mentor • Appeal to faith •	• Recalling of deceased loved ones • Strengthening faith in God • Periods of isolation	• Clarification of thoughts and emotions • Appeasement and rethinking	• Awareness of other dimensions of life • Appeasement • Deep peaceful sleep
Recommendations for family members and caregivers				
All types of changes	• Let the patient choose the food he likes • Persuade to drink and eat, but do not force • Help to move • Help to create comfortable and safe atmosphere • Closely collaborate with a medical team to report new symptoms and an increase in symptoms that have already been manifested	• To support the patient's desire to have a rest when he needs it • Inform health professionals about the increased pain and other symptoms • Mark any changes in sleep, nutrition, etc. • Support the patient's desire to discuss issues related to passing away from life • Restrict attendance so that the patient can rest • Give the opportunity to talk about experience, remember	• Keep the bedding, clothes clean and dry • Often change the position of lying patients • Persuade to drink and eat, but do not force • Keep the eyes on of the level of consciousness; Before feeding, make sure that the patient can swallow • Maintain physical contact • Soak lips with ice bits or wet tampon • Continue to talk with the patient, turn on his favorite, soothing music	• If necessary, apply warm or cold compresses if the patient feels chills or fever • Talk to the patient even if he does not answer • Express emotions • Report health workers about breathing changes (family members should be aware that breathing disorders may occur before death) • Report health care workers about signs of suffering (grimace pain)

Changes	Last months of life	Last weeks of life	Last days of life	Last 24–48 hours of life
	• Give moral support, listen • Do not try to deny the disease, do not say that "everything will be good" • Allow the patient to cry and express emotions • Don't try to hide sadness • Pray with patient if it's possible • Help establish communication with a spiritual mentor	• Ensure physical contact • Talk about love, forgiveness • If the patient is afraid of darkness, leave the light in the room • Often say that close people will be next to him • Together, discuss spiritual issues	• Family members can alternately roam around the patient's bed • Pray with patient	• Give medicine as needed or as prescribed • Verbal and non-verbal support for the patient • Say goodbye and allow the patient to die • Assure the patient that he will be loved and remembered • Say about love and forgiveness

Appendix 2

Palliative functional scale

Mark	Ability to move	Patient's activity and severity of the disease	Self-care	Food intake per os	Level of consciousness	Median survival	Probability of death in the next 6 months
100	Full	Activity and work without limitations There are no signs of the disease	Full	Normal	Full		
90	Full	Activity and work without limitations There are some signs of the disease	Full	Normal	Full		
80	Full	Regular activity requires efforts There are some signs of the disease	Full	Normal or difficult	Full		
70	Decreased	Regular activity is impossible Moderate signs of the disease	Full	Normal or difficult	Full		
60	Decreased	Any activities and work at home are not possible	Periodic help is required	Normal or difficult	Full or stunning		
50	Preferably sitting / lying	Any activities and work at home are not possible Severe disease	Significant help is required	Normal or difficult	Full or stunning	18–55 days	81 %
40	Preferably lying	Any activities and work at home are not possible Severe disease	Help is needed for most of the day	Normal or difficult	Full, stunning or somnolence	7–37 days	89 %
30	Bedridden	Any activities and work at home are not possible Severe disease	Help is needed constantly	Difficult	Full, stunning or somnolence	7–37 days	89 %
20	Bedridden	Any activities and work at home are not possible Severe disease	Help is needed constantly	It is possible only with small sips	Full, stunning or somnolence	1–9 days	96 %
10	Bedridden	Any activities and work at home are not possible Severe disease	Help is needed constantly	Only care of the oral cavity	Somnolence or coma	1–9 days	96%
0	Death						

Appendix 3

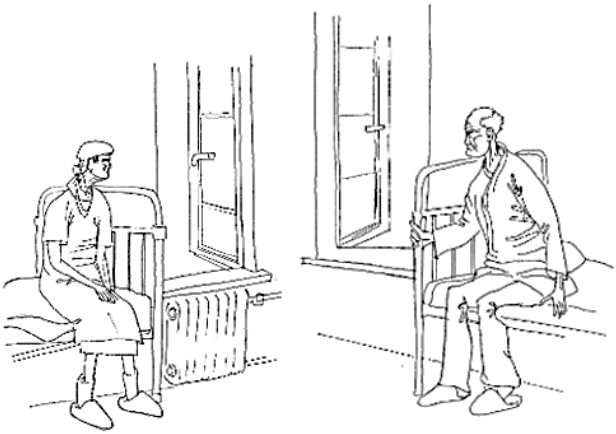
Karnofsky Performance Status Scale Definitions Rating (%) Criteria

Able to carry on normal activity and to work; no special care needed.	100 points	Normal no complaints; no evidence of disease.
	90 points	Able to carry on normal activity; minor signs or symptoms of disease
	80 points	Normal activity with effort; some signs or symptoms of disease
Unable to work; able to live at home and care for most personal needs; varying amount of assistance needed	70 points	Cares for self; unable to carry on normal activity or to do active work
	60 points	Requires occasional assistance, but is able to care for most of his personal needs
	50 points	Requires considerable assistance and frequent medical care
Unable to care for self; requires equivalent of institutional or hospital care; disease may be progressing rapidly	40 points	Disabled; requires special care and assistance
	30 points	Severely disabled; hospital admission is indicated although death not imminent
	20 points	Very sick; hospital admission necessary; active supportive treatment necessary
	10 points	Moribund; fatal processes progressing rapidly
	0 points	Death

ECOG-WHO Scale

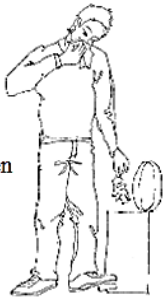
Points	ECOG Status
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all self-care but unable to carry out any work activities. Up and about more than 50% of waking hours
3	Capable of only limited self-care, confined to bed or chair more than 50% of waking hours
4	Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair
5	Death

Infection Control Checklist for Patients



Ventilate the room frequently

Cover your mouth when coughing / sneezing



Throw napkins directly into the container

Wash your hands after coughing / sneezing

Wear a mask when contacting other people

TASKS FOR SELF-CONTROL

1. A 32-year-old man with AIDS is given palliative care, one of the components of which is the social component. Which needs are provided by the social component of palliative care for people with HIV/AIDS?

A. Ensuring satisfactory living conditions, supporting social life and learning to solve social problems independently
B. Ensuring the possibility of religious rites
C. Achieving maximum pain relief
D. Family education in patient care
E. Implementation of sanitary and hygienic procedures in the proper amount

2. A 41-year-old woman with HIV infection receives antiretroviral and symptomatic therapy. Despite the treatment, the patient has a persistent pain syndrome. Which of the following can NOT be the cause of pain in a patient?

A. Heartache
B. Malignant neoplasms
C. Specific opportunistic infections
D. HIV itself
E. Drugs for HIV infection treatment

3. An HIV-infected patient was admitted to an HIV and AIDS treatment center to receive palliative care. Which of the following statements about palliative care is true?

A. Palliative care for HIV patients is provided based on the needs and consent of the patient
B. Palliative care for HIV-infected patients cannot be advisory
C. Medical services for palliative care for HIV-infected people are provided only during office hours
D. When providing palliative care, the patient's right to choose the methods of care is not taken into account, but only the subjective opinion of the doctor
E. *Palliative care for HIV-infected patients is provided strictly* in specialized institutions (hospices)

4. A 52-years-old HIV-infected patient, complains of cramping abdominal pain that occurs every time after a meal. Which symptomatic treatment should be prescribed to the patient?

A. No Spa 40 mg orally 4–6 times a day after meals
B. Dexamethasone 2–6 mg orally 2–6 times a day after meals
C. Paracetamol 200 mg orally 4–6 times a day before meals
D. Morphine 2 mg intramuscularly 5 times a day
E. Ketorol 1 000 mg orally every 2–3 hours

5. A 49-years-old HIV-infected patient complains of acute pain in the area of the trigeminal nerve, which is accompanied by twitching of the facial

muscles in the area of innervation of the nerve. The patient has an opportunistic herpetic infection. Which symptomatic treatment of pain should be chosen?

A. Gabapentin with a gradual increase in dose to 2 400 mg per day orally
B. Dimedrol 20 mg intramuscularly 5 times a day
C. Dexamethasone 2–6 mg orally 2–6 times a day
D. No Spa 80 mg orally once a day after meals
E. Paracetamol 1 000 mg per day orally, 30 minutes before meals

6. A 30-year-old woman with HIV infection receives palliative care. The patient has an oncological disease with metastases to the spine. In the complex treatment of chronic back pain, she has applied physical methods in this zone. Which method is contraindicated for the patient?

A. Manual therapy.
B. Cryotherapy.
C. Immobilization.
D. Orthopedic treatment.
E. Therapeutic physical exercises in bed.

7. A 57-years-old HIV-infected patient is in a hospice. He receives morphine as an anesthetic for a long time. A few days ago, a patient canceled morphine intake, motivating this with the fear of addiction. At this moment the patient complains of diarrhea without pathological impurities 5–7 times a day. The body temperature is 36.7 °C. Which pathogenetic treatment should be chosen?

A. Resume taking morphine in a dose of 2.5–5 mg orally every 6–8 hours, gradually reducing the dose according to the scheme
B. Transfer the patient to the surgical department for surgical treatment
C. Loperamide 4 mg orally after each defecation
D. Appoint only solutions for oral rehydration respectively to the loss of fluid
E. *Immediate* transfer of the patient to the intensive care unit

8. A woman has with a 12-year history of HIV infection has a malignant tumor of the stomach, weighing about 3 kg. Due to stretching of the stomach walls, the patient has continuous hiccups. Which treatment should be prescribed?

A. Simethicone 65–125 mg orally, up to 500 mg per day
B. Phenytoin 15–20 mg / kg of body weight
C. Bisacodil 5–15 mg at night
D. Acetylsalicylic acid 650 mg orally every 4 hours
E. Morphine 2 mg intramuscularly 5 times a day

9. A patient with HIV infection is treated in the neurological department of the hospice. A man complains of sleep disturbance. Pain syndrome, as the cause of insomnia, is excluded. Which treatment is it advisable to choose to restore sleep in the patient?

A. Bromisoval 600–900 mg orally half an hour before bedtime
B. Morphine 2 mg intramuscularly 5 times a day
C. Amitriptyline 25–50 mg 2 times per day, gradually increase to 300 mg per day
D. Haloperidol 5–10 mg intramuscularly
E. Gabapentin with a gradual increase in dose to 2 400 mg per day, orally

10. An HIV-infected patient complains of intense shortness of breath and cough with sputum. Despite treatment, cough progresses. The patient was admitted to the hospital. Which should be the first actions of the doctor?

A. Examine for pulmonary tuberculosis
B. Prescribe salbutamol, up to 200 mg per day
C. Transfer the patient to the surgical department to remove the tumor
D. Prescribe steam inhalation and warm drink
E. *Prescribe furosemide* intravenously 60 mg per day.

11. A 40-year-old patient is transferred to palliative treatment for a combination of HIV-infection of clinical stage IV and extensively-drug resistant tuberculosis after the failure of the second course of treatment. Who is included to the palliative care team?

A. All listed below
B. Doctors (TB specialist, infectious disease specialist)
C. Family doctor
D. Nurses
E. Social worker

12. A 42-year-old patient suffers from HIV infection (IV clinical stage) and disseminated pulmonary TB with resistance to all first-line drugs, kanamycin and levofloxacin. The second course of treatment ended in failure. The patient's condition is severe – cough, significant shortness of breath. In addition, the patient developed toxic drug hepatitis. Your next step is:

A. Transfer the patient to palliative treatment
B. Propose surgical treatment
C. Continue chemotherapy
D. Prescribe new chemotherapy course
E. Discharge the patient home without further recommendations

13. A 39-year-old patient is on palliative treatment after the failure of the second course of multidrug-resistant tuberculosis treatment. During the last chemotherapy, the patient developed neuropathic pain, which is not relieved by non-steroidal anti-inflammatory drugs. Your tactics:

A. Prescribe pregabalin and vitamin B6.
B. Increase the dose of NSAIDs.
C. Prescribe opioid analgesics.
D. Prescribe glucocorticoids.
E. Do not change analgesic therapy.

14. A 36-year-old patient is on palliative treatment with a diagnosis of HIV (stage IV)/extensively-drug resistant tuberculosis. Every evening the temperature increases to 38.5–39 °C. Which should be used to treat a fever?

A. All listed below.
B. Paracetamol or ibuprofen.
C. Excessive drinking.
D. Sponge bath dipped in warm water.
E. Nothing from listed above.

15. Assess the patient's state of consciousness according to the Glasgow scale, if he: opens his eyes only to the verbal stimulus, makes only

unintelligible sounds in response to a question, pulls a limb back as a motor reaction to a painful stimulus:

A. 9 points. B. 6 points. C. 12 points. D. 14 points. E. 15 points.

16. A patient who is on palliative care for TB/HIV suffers from severe diarrhea. Assess the degree of the patient's dehydration, if he has weakness, slight tachycardia, slow smoothing of the skin fold, sunken eyes, dry mucous membranes, decreased diuresis, very dark urine.

A. Moderate. B. Mild. C. Severe. D. No dehydration. E. –.

17. A patient with HIV/miliary TB who is undergoing palliative treatment has a exhausting dry cough. The doctor tried to prescribe mucolytics to the patient to increase sputum discharge, but this did not help. What should be prescribed to the patient?

A. Codeine. C. Althea extract. E. Nothing from listed above.
B. Lazolvan. D. Acetylcysteine.

18. A patient in the terminal stage of HIV/TB has hemoptysis. Which of the following should be done?

A. Prescribe opioids and diazepam.
B. Urgently endoscopically find the source of hemoptysis.
C. Surgical treatment.
D. Perform arterial embolization.
E. Nothing.

19. A patient who has been in the palliative treatment of HIV/TB for 4 months has sharp deterioration for the last 2 weeks. Now the patient is confused, he is delirious, he has shortness of breath. The doctor thinks that the patient has shortness of breath before death. Which should be prescribed in this case?

A. Morphine 5 mg intravenously or subcutaneously every 5–10 minutes
B. Urgent oxygen therapy
C. Dexamethasone
D. Furosemide
E. *Nothing from listed* above

20. A 43-year-old woman is on palliative treatment for end-stage of HIV/TB. The general patient's state indicates that the expectancy of her life is limited to days and weeks. Most of all, she is worried about moderate and sometimes severe shortness of breath. SaO_2 is 92 %. Which should be prescribed?

A. Low doses of morphine
B. Iron sulfate for the treatment of anemia
C. Dexamethasone
D. Furosemide
E. Midazolam

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